



REVISTA AMBIENTE CONTÁBIL

Universidade Federal do Rio Grande do Norte

ISSN 2176-9036

Vol. 18, n. 1, Jan./Jun., 2026

Sítios: <https://periodicos.ufrn.br/index.php/ambiente>

<http://www.arena.org.br/revista/ojs-2.2.3-06/index.php/Ambiente>

Article received in: April, 03th, 2025. Reviewed by pairs in:

September, 16th, 2025. Reformulated in: October, 13th, 2025.

Evaluated by the system double blind review.

DOI: 10.21680/2176-9036.2026v18n1ID42520

Accounting conservatism and life cycle stages in brazilian credit unions

Conservadurismo contable y etapas del ciclo de vida en cooperativas de crédito brasileñas

Conservadorismo contábil e estágios do ciclo de vida em cooperativas de crédito brasileiras

Authors

Diego Rafael Stüpp

PhD student in the Graduate Program in Accounting (PPGC) at the Federal University of Santa Catarina (UFSC). Master's degree in Accounting from the Federal University of Santa Catarina (UFSC). Assistant Professor at the State University of Santa Catarina (UDESC). Address: Reitor João David Ferreira Lima University Campus, Trindade, Florianópolis - SC, Brazil. Postal Code: 88040-900. Identifiers (ID):

Redalyc: <https://www.redalyc.org/autor.oa?id=78058>

ORCID: <https://orcid.org/0000-0003-1641-3216>

Research Gate: <https://www.researchgate.net/profile/Diego-Stuepp-2>

Google Citations: <https://scholar.google.com.br/citations?user=9X5g-9wAAAAJ&hl=pt-BR>

Lattes: <http://lattes.cnpq.br/2120486579288617>

Email: diegostupp@gmail.com

Leonardo Flach

Postdoctorate in Accounting and Finance from the Massachusetts Institute of Technology (MIT/USA). Professor of undergraduate and graduate Accounting at the Federal University of Santa Catarina (UFSC). PhD in Business Administration (UFRGS). Address: Reitor João David Ferreira Lima University Campus, Trindade, Florianópolis - SC, Brazil. Postal Code: 88040-900. Identifiers (ID):

Web of Science: <https://www.webofscience.com/wos/author/record/910728>

Redalyc: <https://www.redalyc.org/autor.oa?id=5097>

ORCID: <https://orcid.org/0000-0002-4316-0704>

Research Gate: <https://www.researchgate.net/profile/Leonardo-Flach-3>

Academy: <https://ufsc.academia.edu/LeonardoFlachGoogle>

Citations: <https://scholar.google.com.br/citations?user=f50cJ1gAAAAJ&hl=pt-BR>

Lattes: <http://lattes.cnpq.br/8428386728078124>

Email: leonardo.flach@gmail.com

Arthur Frederico Lerner

PhD in Accounting from the Graduate Program in Accounting (PPGC) of the Federal University of Santa Catarina (UFSC), Brazil. Master's degree in Accounting from the Federal University of Rio Grande do Sul (UFRGS). Address: Reitor João David Ferreira Lima University Campus, Trindade, Florianópolis - SC, Brazil. Postal Code: 88040-900. Identifiers (ID):

Web of Science: <https://www.webofscience.com/wos/author/record/AAW-6460-2021>

ORCID: <https://orcid.org/0000-0002-7027-0562>

Research Gate: <https://www.researchgate.net/profile/Arthur-Frederico-Lerner>

Academy: <https://ufrgs.academia.edu/ArthurLerner>

Google Citations: <https://scholar.google.com.br/citations?user=QJyKPWMAAAAJ&hl=pt-BR>

Lattes: <http://lattes.cnpq.br/0511190729079027>

Email: arthurlerner_@hotmail.com

Isabel Martínez Conesa

Bachelor's degree in Business Sciences from the University of Murcia. PhD in Economics and Business Sciences from the University of Murcia. Full Professor at the University of Murcia. Address: C. Campus Universitario, s/n, Building 2, 30100 Murcia, Spain. Identifiers (ID):

Web of Science: <https://www.webofscience.com/wos/author/record/56132946>

ORCID: <https://orcid.org/0000-0003-3597-1862>

Research Gate: <https://www.researchgate.net/lab/Isabel-Martinez-Conesa-Lab>

Academy: <https://portalinvestigacion.um.es/investigadores/333335/detalle>

Citations: <https://scholar.google.es/citations?user=wuLYNkYAAAAAJ&hl=es>

Email: isabelm.martinez@um.es

(Article presented at the 14th UFSC Congress of Controllershship and Finance - June 26-28, 2024 - Florianópolis - SC)

Abstract

Purpose: This study analyzes how the different stages of the life cycle influence accounting conservatism in Brazilian credit unions, filling a research gap regarding the relationship between organizational maturity and financial reporting quality in non-profit entities.

Methodology: The research employed panel data regression modeling for a sample of 615 Brazilian credit unions from 2017 to 2023. The cooperatives were grouped into life cycle clusters based on the models of Vasylieva and Chmutova (2015) and Maia (2022). Accounting conservatism was measured using the models of Ball and Shivakumar (2005) and Beatty and Liao (2011).

Results: The panel model results demonstrate that life cycle stages have explanatory power over the accounting conservatism of Brazilian credit unions, confirming the proposed hypothesis.

Study Contributions: The research extends the application of life cycle theory to the credit union sector, demonstrating that accounting conservatism varies across stages. This provides novel evidence for the Brazilian context and emerging markets.

Keywords: Life cycle. Accounting conservatism. Credit unions.

Resumen

Objetivo: Analizar la relación entre las diferentes etapas del ciclo de vida y el conservadurismo contable en cooperativas de crédito brasileñas, cubriendo una brecha en la investigación sobre la influencia de la madurez organizacional en la calidad de la información contable en entidades sin fines de lucro.

Metodología: Como método de investigación, se aplicó la modelización de regresión con datos en panel a una muestra de 615 cooperativas de crédito brasileñas entre 2017 y 2023. Las cooperativas fueron agrupadas en clusters según su etapa de vida, conforme al modelo de Vasylieva y Chmutova (2015) y Maia (2022). El conservadurismo contable se midió a través de los modelos de Ball y Shivakumar (2005) y de Beatty y Liao (2011).

Resultados: Los resultados del modelo en panel demuestran que las fases del ciclo de vida tienen poder explicativo sobre el conservadurismo contable de las cooperativas de crédito brasileñas, confirmando la hipótesis planteada.

Contribuciones del Estudio: La investigación aporta al ampliar la aplicación de la teoría del ciclo de vida en el contexto de las cooperativas de crédito, demostrando que el conservadurismo contable está influenciado por la etapa de desarrollo de estas entidades. Este enfoque es innovador en Brasil y en mercados emergentes.

Palabras clave: Ciclo de vida. Conservadurismo contable. Cooperativas de crédito.

Resumo

Objetivo: Analisar a relação entre os diferentes estágios do ciclo de vida e o conservadorismo contábil em cooperativas de crédito brasileiras, preenchendo uma lacuna de pesquisa sobre a influência da maturidade organizacional na qualidade da informação contábil em entidades não lucrativas.

Metodologia: Como método de pesquisa, aplicou-se a modelagem de regressão com dados em painel, para uma amostra de 615 cooperativas de crédito brasileiras, entre 2017 e 2023. As cooperativas foram agrupadas em *clusters* do estágio de vida, conforme modelo de Vasylieva e Chmutova (2015) e Maia (2022). O conservadorismo contábil foi medido pelos modelos de Ball e Shivakumar (2005) e de Beatty e Liao (2011).

Resultados: Os resultados do modelo em painel demonstram que as fases do ciclo de vida têm poder explicativo sobre o conservadorismo contábil das cooperativas de crédito brasileiras, confirmando a hipótese levantada.

Contribuições do Estudo: A pesquisa contribui ao ampliar a aplicação da teoria do ciclo de vida no contexto das cooperativas de crédito, demonstrando que o conservadorismo contábil é influenciado pelo estágio de desenvolvimento dessas entidades. Essa abordagem é inovadora no Brasil e em mercados emergentes.

Palavras-chave: Ciclo de vida. Conservadorismo contábil. Cooperativas de crédito.

1 Introduction

Credit unions play a significant role in the world of finance, attracting the attention of a significant and growing body of literature (Favalli et al., 2020; Maia et al., 2019; Unda et al., 2019). These cooperatives are formed by associations of individuals to provide financial services exclusively to their members. Members are both owners and users of the cooperative, participating in its management and enjoying its products and services (Central Bank of Brazil [BCB], 2024). Credit unions act as safe deposit institutions and important sources of credit for families and small and medium-sized businesses. Their predominantly non-profit nature and emphasis on maximizing benefits to members have been determining factors in their sustainability and popularity over time (McKillop et al., 2020).

Credit unions operate in a highly competitive and dynamic sector and must continually adapt to survive in a market that tends to concentrate. At the same time, they must deliver financial results that justify their social role. In this competitive environment, credit unions must operate efficiently, maximizing results, reducing costs, and exploiting economies of scale (Silva et al., 2017).

Even without explicit market pressure for profits, cooperative members expect positive results, preferably with the distribution of surpluses at the end of the year (Sallaberry et al., 2024). The requirement for periodic disclosure of financial results can lead cooperatives to manipulate these results, as high volatility in these results can be interpreted as an indication of financial instability (Maia et al., 2013).

In a strict regulatory environment, the quality of accounting information is crucial for the effective management of credit unions. To ensure transparency and reliability for members and managers, accurate and consistent accounting practices are essential. The literature suggests that managers can make accounting choices to achieve specific objectives, affecting the quality of accounting information (Dechow et al., 2010; Xu, 2007).

In addition to managers' discretion, the company's life cycle can also affect management, business strategy, the quality of financial statements, and, consequently, the assessment of their value (Habib & Hasan, 2019; Lima et al., 2015). Accounting conservatism also influences this process, as the different stages of the organizational life cycle imply specific financial characteristics, capable of impacting both the level of conservatism adopted and the relevance of accounting information (Park & Chen, 2006). Previous studies present different results regarding the influence of the company's life cycle on information quality and accounting conservatism (Can, 2020; Hansen et al., 2018; Krishnan et al., 2020).

In credit unions, the relationship between life cycle and accounting conservatism takes on particular relevance due to their unique ownership and governance structure (McKillop et al., 2020). Different stages of the life cycle can affect the need for and degree of conservatism adopted (Hansen et al., 2018). In the early stages, the need for capitalization may reduce conservatism to attract new members, whereas in more mature stages, conservative practices tend to reinforce financial stability. Without pressure from external shareholders, conservatism stems primarily from regulatory requirements and a commitment to member safety, making it relevant to examine it throughout the life cycle to assess the cooperative's sustainability.

Therefore, this study addresses the following research question: **How do different life cycle stages influence the accounting conservatism of credit unions?** The main objective of this study is to analyze accounting conservatism at different life cycle stages of credit unions.

Credit unions originated as initiatives aimed at strengthening the economic well-being of communities with limited access to financial services, emphasizing their role in providing

financial assistance to underserved regions (McKillop et al., 2020). Thus, these entities have played a crucial role in expanding access to credit in areas where traditional banking services are scarce, promoting financial inclusion and economic development (Kuznyetsova et al., 2022). Recognizing the importance of these entities, government officials, managers, and academics have shown great interest in evaluating their economic performance, primarily through accounting conservatism analysis.

The theoretical relevance of this study lies in expanding the understanding of the firm's life cycle theory as applied to credit unions. The theory suggests that companies go through distinct phases-introduction, growth, maturity, and decline-that influence their financial and operational strategies (Mueller, 1972). Specifically, accounting conservatism in credit unions can vary significantly depending on their life cycle stage. Furthermore, research on accounting conservatism in credit unions directly aligns with the scope of this journal, addressing areas such as the quality of accounting information in financial intermediaries, cooperative governance, and the impacts of regulation on accounting practices. By exploring how cooperatives adopt conservative accounting practices in response to regulatory requirements, the study contributes to the understanding of management strategies and financial control in the cooperative context.

From a practical perspective, understanding the relationship between life cycle stages and accounting conservatism is important for the financial and strategic management of credit unions. As the banking sector becomes more competitive and mergers and acquisitions become common growth strategies, credit unions lack evidence on how their life cycle stage affects their financial sustainability and ability to generate value for members. For example, Carvalho et al. (2015) highlighted the importance of mergers and acquisitions for credit unions to expand their operations, which can be influenced by life cycle stage.

2 Literature Review

2.1 Life cycle theory applied to credit unions

In Brazil, credit unions have experienced significant growth in recent years. This increase is driven, in part, by the growth of the national agricultural sector, tax incentives, and the provision of low-cost financial services. Faced with the need to expand their presence and scale in the financial market, these cooperatives tend to expand their operations (Carvalho et al., 2015).

Over the last five years, the National Cooperative Credit System has recorded an impressive 223% growth in assets, which contrasts with the 82% expansion observed in other segments of the National Financial System over the same period (Central Bank of Brazil [BCB], 2025). These figures, emphasized by the BCB, highlight the significant role played by credit unions in the Brazilian financial landscape.

According to Azevedo and Gartner (2020), credit unions contribute to intensifying competition in the credit market. The authors explain this effect by economies of scale, the absence of an obligation to maximize profits, tax benefits, and positive feedback between members and the institution, factors that can reduce the interest rates charged by these institutions.

Thus, maintaining adequate profitability is crucial to ensuring the sustainability of a healthy cooperative over time. Therefore, studying the life cycle stages of cooperatives is key to investigating their useful life through accounting proxies.

According to Samadiyan and Rezaei (2012), one of the most widely used models for analyzing a firm's value and market positioning is the life cycle model. Drake (2012) describes the objective of a firm's life cycle analysis as assessing how variations in incentives, constraints, and strategies throughout the life cycle relate to managerial decisions and firm performance.

Mueller (1972) proposes that a typical firm tends to exhibit a development pattern characterized initially by a slow growth phase upon market entry, followed by accelerated growth, and subsequently by a maturity stage that may result in stagnation or more moderate growth. These life cycle stages are interpreted as the interaction of variables that reflect both the economic context in which the firm operates and its organizational structure. In this model, the contextual dimensions are represented by the firm's age, size, and expansion rate, and are directly associated with the specific challenges faced at each stage of its development.

For the context of credit unions, Ferguson and McKillop (2000) propose an organizational life cycle methodology, dividing them into distinct growth phases. These phases include a nascent (formative) stage, a transition stage, and a maturity stage.

Cook's (1995) research introduced a pioneering model that describes the life cycle phases of agricultural cooperatives, arguing that the economic vitality of these organizations tends to fluctuate over time. This dynamic can be captured through key financial metrics such as return on equity and net profit margin.

Canassa et al. (2022) investigated the dynamics between membership growth and the likelihood of closure in Brazilian credit unions, drawing on life cycle theories developed by Cook (1995) and later refined by Cook and Burrell (2009). They focused on how membership growth influences the longevity of these institutions. The study stands out for moving away from the traditional focus on strictly financial indicators, focusing instead on the impact of membership size on cooperative survival.

This research used the life cycle proposition presented by Vasylieva and Chmutova (2015) and Maia (2022), which proposes a classification by clusters based on data disclosed by credit unions to the Central Bank of Brazil. The following aspects were considered in identifying the life cycle stage:

(i) Nascent (NC): at this stage, cooperatives are expected to have high growth rates in personnel expenses and low growth rates in revenue and participation in the National Cooperative Credit System (SNCC).

(ii) Transition/Growing (TC): Cooperatives at this stage experience an increase in SNCC participation rates and revenue growth combined with a decrease in personnel costs due to process automation.

(iii) Mature (MD): is composed of cooperatives with stable variables, that is, they do not present significant variations in revenue growth rates, personnel expenses and participation in the SNCC, remaining at general median values.

(iv) Decline/Decision (DD): at this stage the rate of personnel expenditure is low, and the values of the revenue growth rate and participation in SNCC are average with a decreasing trend over the years.

2.2 Accounting conservatism in cooperative companies

Quality accounting information is information that demonstrates an entity's financial performance and is relevant for decision-making (Dechow et al., 2010). Within this definition, three key elements are identified. First, quality is linked to the importance of the decision made. Second, quality is also influenced by the disclosure of financial performance, considering that there are aspects that cannot be directly observed. Finally, quality is seen as an interaction

between the importance of financial performance after a decision and the accounting ability to capture that performance (Ferreira et al., 2021).

Accounting records the results of past decisions and acts as a compass to direct future strategies and ensure effective resource management. Although accounting information is regulated by regulatory bodies, the literature indicates that managers can make accounting choices to achieve specific objectives, thus affecting the quality of accounting information (Dechow et al., 2010; Xu, 2007).

There is no consensus on how to measure the quality of accounting information; the most commonly used measures include earnings persistence, earnings management, asymmetric loss recognition (conservatism), value relevance, transparency, and comparability (Lima et al., 2015; Martins & Barros, 2021). Dechow et al. (2010) state that there is no single measure of earnings quality that stands out as the most effective in all decision-making contexts.

Although credit unions have specific requirements, they are required to provide accounting information to the Central Bank of Brazil. This availability, albeit partial, allows us to analyze accounting conservatism as an indicator of the quality of information in these entities.

Accounting conservatism is a fundamental attribute of financial information that can significantly contribute to improving the quality of reported data, both for internal and external users. It tends to increase the reliability of reported figures, signaling less room for managerial opportunism and reducing information asymmetry (Dechow et al., 2010; Scott, 2015). Furthermore, regulatory policies, litigation, tax issues, and contractual relationships can influence financial results and the quality of reported information. In this context, conservatism acts as an early warning mechanism, helping to preserve reliable, high-quality, decision-useful information (Ball & Shivakumar, 2006; Scott, 2015; Watts, 2003).

The accounting conservatism convention states that, when faced with equally probable alternatives for valuing assets, one should choose the one that presents the lowest value for assets/revenue and the highest value for liabilities/expenses. This reflects asymmetric recognition, which favors the least favorable scenario, that is, it anticipates the recording of losses but not profits. This approach impacts the representation of economic reality and the measurement of the components of financial statements, tending to minimize assets and maximize liabilities (Arruda et al., 2015; Basu, 1997; Paulo et al., 2008).

Studies on accounting conservatism cover a wide range of topics, including cross-cultural analyses and the effects of the economic environment, as well as research focused on publicly and privately held companies, specific sectors, or broad samples. However, one field that remains largely unexplored, especially in Brazil, is credit unions (Ferreira et al., 2021).

Ferreira et al. (2021) surveyed publications on accounting information quality in cooperatives between 2010 and 2020 in the Spell, Google Scholar, and Web of Science databases. The sample consisted of only 17 articles. The results indicate that earnings management (12 papers) was the main metric for measuring information quality. Only four studies addressed income smoothing, and one addressed earnings persistence, which reinforces the relevance and originality of this research.

Beatty and Liao (2011) examine accounting conservatism in the context of the recognition of expected losses in banks and its relationship with the economic cycle. Díaz-Sánchez et al. (2023) show that earnings conservatism is positively associated with robust banking regulation and supervision and stronger market discipline.

Table 1 presents related previous studies, summarizing context, method, results and identified gap.

Table 1*Previous related studies*

Study	Context	Method	Results	Gap identified
Arruda et al. (2015)	Brazilian financial institutions	Analysis of conservatism using the Ball and Shivakumar (2005) model and persistence of accounting results using the Dechow and Schrand (2004) model	Accounting results do not show conservative behavior, in addition, the profits of privately held companies are more persistent than those of publicly held companies.	Does not distinguish credit unions from other financial institutions and does not address life cycle stages
Can (2020)	Companies listed on the Istanbul Stock Exchange	Analysis of the impact of life cycles on the quality of accounting information	Life cycle influences the quality of accounting information. Introduction and decline stages negatively affect the quality of accounting information.	Does not focus on credit unions
Castro et al. (2022)	Brazilian credit unions	Empirical analysis of accounting conservatism using the Ball and Shivakumar (2005) model	Evidence of conservatism in accounting practices	Not related to the life cycle
Diniz (2020)	Brazilian credit unions	Quality of accounting information, using conservatism as proxies (Ball & Shivakumar, 2005), profit persistence (Dechow & Schrand, 2004) and earnings management (Fuji, 2004; Goulart, 2007)	Conservatism present, but with variation according to size	Did not analyze life cycle
Hansen et al. (2018)	Companies in different life cycles	Analysis of the relationship between life cycle and conservatism (Basu, 1997; Givoly & Hayn, 2000)	Mature companies tend to be more conservative	Does not address credit unions
Lima et al. (2015)	Brazilian listed companies	Analysis of the quality of accounting information in the stages of the life cycle	Information quality varies according to the life cycle	Does not focus on credit unions
Paulo et al. (2008)	Brazilian publicly and privately held companies	Analysis of accounting conservatism using the Ball and Shivakumar (2005) model	Closed companies show less conservatism	Does not operate credit unions
Santos & Santos (2020)	Brazilian credit unions	Analysis of income smoothing and conservatism practices using the models of Eckel (1981) and Ball and Shivakumar (2005)	Greater level of conservatism on the part of non-smoothing credit unions	Does not investigate the influence of the life cycle

Source: *research data.*

Thus, variations in life cycle stages can affect the accounting conservatism of credit unions and, consequently, signal risks to their continued existence. Therefore, hypothesis H1 is established: life cycle stages influence the accounting conservatism of Brazilian credit unions.

3 Research Method

The choice of the cluster method arises from the need to capture dynamic heterogeneities among cooperatives, recognizing that the life cycle stage is not static and can vary over time depending on external and internal events.

3.1 Population and Sample

The study population consists of all individual credit unions with information available in the Central Bank of Brazil's IF.data database. The number of these institutions has declined over the years, primarily due to mergers, reflecting a movement toward concentration in the cooperative segment. Between 2020 and 2024, 100 individual cooperative mergers were recorded (Central Bank of Brazil [BCB], 2025). On the other hand, Table 2 shows a significant increase in the number of service points, which increased from 4,935 in 2017 to 9,048 in 2023. This process may be related to the pursuit of greater institutional size, cost reduction, and efficiency gains. The analysis period covers the fiscal years 2017 to 2023.

Table 2

Cooperative population by year

Year	Total number of cooperatives	Service stations
2023	767	9,048
2022	794	8,333
2021	817	7,252
2020	844	6,486
2019	871	6,051
2018	923	5,391
2017	966	4,935

Source: research data.

The sample definition involved the application of selection criteria. Initially, cooperatives that submitted financial statements for all years of the analyzed period were considered, totaling 799 units. Subsequently, 184 cooperatives were excluded if they presented missing or zero data, unfunded liabilities (negative equity), or lacked funding figures-in the latter case, generally corresponding to employee and civil servant mutual cooperatives. Thus, the final sample consisted of 615 credit unions, totaling 4,305 observations.

3.2 Variables and Theoretical Model

Studies on the life cycle of cooperatives present different theoretical approaches. This paper adopts the model proposed by Maia (2022), illustrated in Figure 1, which combines the stages defined by Ferguson and McKillop (2000)-Nascent, Transition, and Mature-with the Decline and Decision phases, as suggested by Cook (1995) and Cook and Burrell (2009).

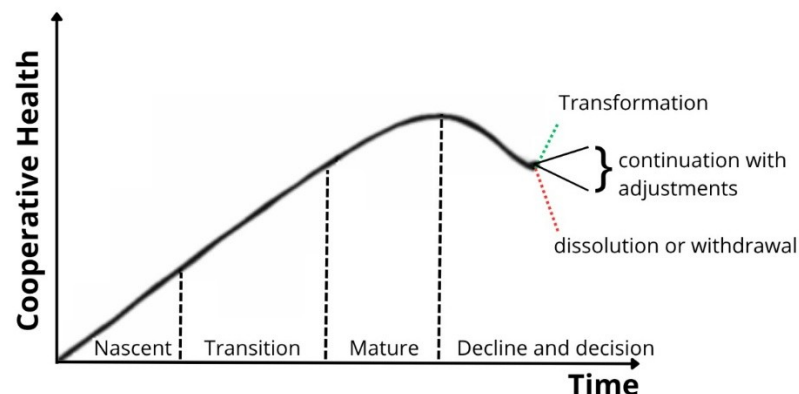


Figure 1 *Life cycle of credit unions, according to Maia (2022).*

Source: Maia (2022).

The cash flow model developed by Dickinson (2011) is not suitable for financial entities, as their operational activities involve financial and investment components (Kolodiziev et al., 2016; Maia, 2022). Although there is no consensus on the most appropriate indicators for identifying life cycle phases, the model by Vasylieva and Chmutova (2015) is consistent, considering that it was built and tested in Ukrainian financial institutions.

Life cycle stage was measured using cluster analysis, which groups elements with similar characteristics. The cluster was calculated annually, allowing each cooperative to be evaluated at different periods. Analyzing all cooperatives across all years in a single cluster would result in each entity being compared to itself (Maia, 2022). The variables used in the cluster analysis were based on studies on the life cycle of financial institutions, as described by Vasylieva and Chmutova (2015) and Maia (2022), as shown in Table 3.

The revenue growth rate reflects the change in revenue generated by activities and was calculated as the ratio of current year revenue to the previous year's revenue. This rate is expected to be low in the initial phases; to show a significant increase in the growth phase; and to show a negative trend in the decline phase.

Table 3

Variables and Stages of the Credit Union Life Cycle, According to Vasylieva and Chmutova (2015)

Internship	Revenue Growth Rate	Personnel Expense Growth Rate	Participation rate in the National Cooperative Credit System
1. Nascent	Low	High	Low
2. Growth	Increase	Decline	Increase
3. Mature	Stable	Stable	Stable
4. Decline/Decision	Decline	Low	Decline

Source: Maia (2022).

The growth rate of personnel expenses represents spending on salaries, benefits, and charges, and is calculated as the ratio of current year personnel expenses to those of the previous year. According to the literature, such expenses are expected to be higher in the initial phases and progressively decrease due to process automation and operational efficiency gains (Kolodiziev et al., 2016; Vasylieva & Chmutova, 2015).

Participation in the National Cooperative Credit System (SNCC) was used as an indicator of sector competitiveness. This rate was calculated by dividing each cooperative's

total assets by the sum of the assets of all Brazilian credit unions. The expected behavior of this indicator is similar to that of the revenue growth rate: it tends to increase during the growth phase, stabilize in maturity, and decrease during decline, due to the loss of competitiveness and market share (Kolodiziev et al., 2016; Maia, 2022).

To measure accounting conservatism, we adopted the profit model proposed by Ball and Shivakumar (2005), which is suitable for entities not listed on a stock exchange. The model equation is presented below:

$$\Delta SL_t = \beta_0 + \beta_1 D\Delta SL_{t-1} + \beta_2 \Delta SL_{t-1} + \beta_3 D\Delta SL_{t-1} \times \beta_2 \Delta SL_{t-1} + \varepsilon_t$$

Where: ΔSL_t is the change in net surplus in period t-1 for period t, weighted by total assets in year t; $D\Delta SL_{t-1}$ indicates the dummy variable if there was a negative variation in net surplus from year t-1 to year t, assuming a value of 1 if the variation was negative and 0 in other cases; is the variation in the cooperative's net surplus from year t-2 to year t-1, weighted by the total assets of year t-1; is the regression error. $\Delta SL_{t-1} \varepsilon_t$

The coefficient β_2 is expected to be zero ($\beta_2 = 0$), indicating that gains are recognized as positive and persistent components of the accounting result, not subject to reversal. If the coefficient is less than zero ($\beta_2 < 0$), it indicates timely recognition, in which gains are transitory in the current period and reversed in the future period. The sum of β_2 and β_3 , less than zero ($\beta_2 + \beta_3 < 0$), indicates the presence of accounting conservatism in the results. The coefficients β_0 and β_1 have no defined theoretical prediction (Ball & Shivakumar, 2005; Castro et al., 2022; Diniz, 2020; Paulo et al., 2008).

As a complementary measure of accounting conservatism, the metric proposed by Beatty and Liao (2011) was incorporated, calculated by the ratio of loan loss reserves to non-performing loans. Loan losses were measured based on the accounting balance of the "Provision for Credit Operations" account, while non-performing loans corresponded to those overdue for more than 90 days.

The adoption of two distinct metrics—one based on accruals (Ball & Shivakumar, 2005) and the other on credit risk (Beatty & Liao, 2011)—allows for a more comprehensive understanding of the specific characteristics of credit unions. Accrual-based conservatism reflects the asymmetry in the recognition of economic gains and losses, highlighting the degree of prudence in accounting measurement. The credit risk-based metric incorporates the prudential perspective inherent in the cooperative model, whose sustainability depends on financial soundness and efficient operational risk management. Combining these approaches provides a more robust assessment of accounting conservatism, encompassing both the informational and prudential dimensions of accounting in credit unions.

3.3 Data Analysis

Information regarding Assets, Liabilities and Income Statements was obtained from the Central Bank of Brazil website, by institution, with a base date of December 2017 to 2023. After downloading the spreadsheets, the data was compiled and organized in a Microsoft Excel spreadsheet.

Financial performance indicators were calculated in Microsoft Excel, while cluster analysis, discriminant analysis, descriptive statistics and linear regression of accounting conservatism were performed in RStudio software.

Outliers were identified and excluded according to the following procedure: first, the median, first quartile (Q1), and third quartile (Q3) were calculated. Then, the interquartile range

(L) was determined, obtained by the difference between Q3 and Q1. Observations with values greater than $Q3 + 3L$ or less than $Q1 - 3L$ were considered extreme (Fávero et al., 2009).

Multicollinearity was also detected among the variables, a situation in which two or more variables explain the same phenomenon. In cluster analysis, multicollinearity can assign disproportionate implicit weights, altering grouping patterns (Hair et al., 2010). For this diagnosis, a correlation analysis between the variables was performed, but no such problem was identified.

The identification of credit union life cycle stages was conducted through cluster analysis, which consists of a set of multivariate techniques aimed at aggregating objects based on their characteristics (Hair et al., 2010). This study used the K-means clustering algorithm, available in RStudio software. This method, applied to machine learning, allows data to be partitioned according to similarity, forming distinct clusters.

Cluster validation was performed using multiple discriminant analysis, which consists of the linear combination of two or more independent variables, in order to maximize discrimination between previously defined groups (Hair et al., 2010).

Regarding the accounting conservatism data, the normality assumption was not met. Therefore, the nonparametric Kruskal-Wallis test was applied to verify differences in medians between the groups (Fávero et al., 2009), followed by Dunn's test (1964) to identify which groups presented statistically significant differences.

4 Discussion of the results

4.1 Life Cycle

Four groups were established to define the clusters, and the analysis was conducted individually for each year. Table 4 presents the number of cooperatives distributed by life cycle stage and year. In 2018, there was a predominance of cooperatives in the maturity (42.28%) and decline (49.76%) stages, indicating a consolidated sector, but with a significant number of institutions facing significant challenges. Compared to the previous year, 2019 saw an increase in the proportion of cooperatives classified as in the growth stage (31.06%) and a decrease in those in decline (39.67%), suggesting signs of renewal and expansion in the segment.

Table 4

Number of cooperatives by life cycle stage and year

Year	Nascent	%	Growth	%	Maturity	%	Decline	%
2018	42	6.83%	7	1.14%	260	42.28%	306	49.76%
2019	29	4.72%	191	31.06%	151	24.55%	244	39.67%
2020	5	0.81%	79	12.85%	351	57.07%	180	29.27%
2021	20	3.25%	136	22.11%	311	50.57%	148	24.07%
2022	40	6.50%	270	43.90%	237	38.54%	68	11.06%
2023	7	1.14%	68	11.06%	367	59.67%	173	28.13%
Total	143	3.88%	751	20.35%	1677	45.45%	1119	30.33%

Source: research data.

In 2020, there was a strong presence of mature cooperatives (57.07%), while the number of emerging cooperatives fell to just five. In 2021, there was a significant increase in growing cooperatives (22.11%) and a reduction in declining cooperatives (24.07%), indicating signs of recovery and strengthening of the sector. In 2022, the large number of cooperatives in the growth (43.90%) and mature (38.54%) stages stood out, accompanied by a further reduction in

declining cooperatives (11.06%), suggesting a period of expansion and consolidation of the cooperative segment. In 2023, the highest percentage of mature cooperatives was recorded (59.67%), representing the highest point observed for any stage in the entire period analyzed.

The evolution observed from 2018 to 2023 suggests a sector undergoing transformation, with a sharp reduction in the number of cooperatives in decline and a consistent increase in those in the growth and maturity phases. These results may reflect a more favorable environment for the development and strengthening of cooperatives, possibly due to better management practices, institutional support policies, and more stable market conditions.

Santos's (2023) thesis addressed the concepts of income smoothing and organizational slack across the life cycle stages of Brazilian credit unions. The author used a cluster identification model based on PEARLS indicators. A comparison of the period between his thesis and this study (2018 to 2020) reveals convergence in the results, with a predominance of cooperatives in the maturity stage, followed by the decline and growth stages, and a small percentage of nascent cooperatives.

In turn, Maia's (2022) study, which analyzed the efficiency and life cycle of credit unions using a similar cluster classification methodology from 2016 to 2020, presented different results. In this case, the highest concentration of cooperatives occurred in the growth stage, followed by the maturity stage, which highlights the influence of the temporal context.

Multiple discriminant analysis was performed to validate the clusters obtained. The results showed classification accuracy between 89% and 96% across all years analyzed, confirming the consistency and robustness of the clusters formed.

For cooperatives classified as being in the nascent stage, the age variable can act as an auxiliary validation criterion (Park & Chen, 2006), although it is not necessarily the most appropriate indicator for financial institutions (Vasylieva & Chmutova, 2015). The average age showed a progressive evolution across the stages, ranging from 20.5 years for nascent cooperatives to 27.8 years for those in decline.

As a complementary step, a sampling of cooperatives classified as being in the Nascent stage was carried out. Among the youngest, Sicoob Sul Maranhense (CNPJ 26.526.166/0001-30, established on November 11, 2016) stands out, having been classified as nascent for two years and as growing for the other two. Similarly, Sicoob Norte MT (CNPJ 23.623.636/0001-95, established on October 26, 2015) was classified as nascent in 2018 and 2019, moving to the growth stage in the following years.

Next, we sought to identify cooperatives that had undergone incorporation processes to assess the consistency of their classification within the clusters. This verification was performed by consulting the opening date and registration status of each entity, obtained via the ReceitaWS API using RStudio software. Unicred Costa do Sol RJ (CNPJ 39.231.527/0001-62, incorporated on September 2, 2024) was classified in the maturity stage for three years and in the decline stage for another three. Uniprime Ouro (CNPJ 07.853.842/0001-35, incorporated on December 21, 2024) was classified in two periods of maturity and in four of decline. Sicredi Credigrande (CNPJ 25.626.490/0001-67, incorporated on 11/13/2023) was classified as declining one year and mature the other years. The analysis of the incorporated cooperatives suggests that most were in maturity or decline, compatible with incorporation decisions aimed at reducing costs and maximizing results, in line with previous research (Carvalho et al., 2015; Silva et al., 2017).

The cluster classification ranges from 2018 to 2023 showed relative stability, with a predominance of mature and declining cooperatives, especially in the initial years. Although life cycle theory predicts a natural transition from early phases (Nascent, Growth) to more mature or declining phases over time (Cook, 1995; Cook & Burress, 2009; Ferguson & McKillop, 2000; Mueller, 1972), the results do not indicate a linear or progressive transition

over the period studied. This finding may be related to the structural stability of the Brazilian cooperative sector, regulatory policies that encourage longevity, or the fact that the analysis period is not sufficient to observe significant stage changes in organizations that tend to evolve gradually. To deepen the discussion, we recommend analyzing the individual trajectories of cooperatives, identifying possible stage transitions over time, which can provide a more dynamic understanding of the life cycle in the sector.

4.2 Descriptive Statistics

Table 5 presents descriptive statistics for the financial and operational variables of credit unions, grouped according to the different stages of the organizational life cycle: Nascent, Growth, Maturity, and Decline. The variables analyzed include revenue growth rate, personnel expense growth rate, and participation rate in the National Cooperative Credit System (SNCC). For each stage of the life cycle, averages, standard deviations, minimum and maximum values, and medians were calculated to understand the financial and operational behavior characteristic of each phase. This analysis allows us to identify patterns of performance and economic structure that distinguish cooperatives according to their position in the evolutionary cycle.

Revenue growth rates vary significantly across life cycle stages. Cooperatives classified in the Nascent and Growth stages exhibit, on average, higher revenue growth rates than those in the Maturity and Decline stages, which is consistent with the theoretical assumptions of Vasylyeva and Chmutova (2015). The high standard deviation observed in the Nascent stage (0.48691) highlights heterogeneity in the performance of these cooperatives, suggesting significant differences in revenue-generating capacity among younger entities.

Table 5
Descriptive Statistics

Variable	Statistic	Nascent	Growth	Maturity	Decline
Revenue Growth Rate	<i>Average</i>	1,18914	0.58430	0.30520	0.00370
	<i>Median</i>	1,25862	0.75029	0.28857	0.03467
	<i>Minimum</i>	0.21460	-0.27138	-0.20188	-0.63503
	<i>Maximum</i>	2.08727	1.23302	0.86318	0.47826
	<i>Standard Deviation</i>	0.48691	0.38510	0.25385	0.19414
Personnel Expense Growth Rate	<i>Average</i>	0.59669	0.30058	0.16539	0.03424
	<i>Median</i>	0.51346	0.27374	0.15728	0.04420
	<i>Minimum</i>	-0.14031	-0.07256	-0.35662	-0.79439
	<i>Maximum</i>	1.78040	1.01098	1,15789	0.43969
	<i>Standard Deviation</i>	0.42200	0.15003	0.12096	0.12935
Participation rate in the National Credit System	<i>Average</i>	0.00219	0.00178	0.00171	0.00127
	<i>Median</i>	0.00064	0.00082	0.00074	0.00031
	<i>Minimum</i>	0.00000	0.00000	0.00000	0.00000
	<i>Maximum</i>	0.02304	0.01811	0.02472	0.02622
	<i>Standard Deviation</i>	0.00436	0.00252	0.00278	0.00313

Source: Own elaboration.

Similarly, the growth rate of personnel expenses also shows wide variation across lifecycle stages. New cooperatives experience, on average, higher growth rates in these expenses, which may indicate greater initial investments in human capital, necessary for the operational and administrative structuring of the entity. In the Growth and Maturity phases, less

variation is observed, possibly reflecting greater stability in the personnel cost structure, resulting from more consolidated and automated processes.

The participation rate in the National Cooperative Credit System (SNCC) represents the degree of integration of credit unions into the national system. The relatively low variation in this rate suggests that the level of cooperative participation in the SNCC is not strongly influenced by the organizational life cycle stage. The results diverge from those of Espich (2025), who identified systematic variations in cooperative participation in the national system across life cycle stages.

The Kruskal-Wallis test revealed statistically significant differences in medians between the four stages-Early Childhood, Growth, Maturity, and Decline-for all variables analyzed (Recreation, Growth, and Decrease) ($p < 0.05$). This result confirms that the groups present distinct distributions regarding growth and participation measures, justifying comparative analyses between the stages.

The results of Dunn's post-hoc test indicated that, for revenue and personnel expense growth rates, all comparisons between stages showed significant median differences. This evidence suggests consistent variation in growth measures throughout the cooperatives' life cycle. In the case of the SNCC Participation Rate, although several comparisons revealed significant differences, some combinations-such as Maturity versus Nascent-showed no statistical differences, indicating that this rate tends to stabilize at certain periods of the organizational life cycle.

In general, cooperatives in the early stages (Nascent and Growth) exhibit higher growth rates, both in terms of revenue and personnel expenses, reflecting the focus on expansion and economies of scale characteristic of these phases. In contrast, cooperatives in the Maturity and Decline stages exhibit more modest growth rates, which may indicate stabilization or operational retraction (Espich, 2025; Kolodiziev et al., 2016; Maia, 2022; Vasylieva & Chmutova, 2015). Another point is the large intra-group variation (standard deviations), suggesting a diversity of performance and behavior that is not captured solely by average values.

4.3 Accounting Conservatism

In this step, credit unions were segmented into different life cycle phases. The profit model for assessing accounting conservatism proposed by Ball and Shivakumar (2005) considers the entities' net surpluses in periods $t-1$ (previous year) and $t-2$ (two previous years). Since the sample covers the period between 2017 and 2023, there was no data from two previous years for 2018; therefore, this year was excluded from the linear regression calculation.

A total of 3,075 observations were considered, of which 101 were part of the Nascent cluster, 744 in Growth, 1,417 in Maturity and 813 in Decline. Table 6 presents the regression analysis for the complete sample and by stage, in relation to accounting conservatism.

To validate the statistical assumptions of the regression models, tests for heteroscedasticity, multicollinearity, normality, and autocorrelation of the residuals were applied. The Breusch-Pagan test indicated the presence of heteroscedasticity in all models ($p < 0.05$), demonstrating non-constant variance in the residuals. To address this limitation and ensure the robustness of the inferences, the coefficients were re-estimated with White-robust standard errors, which adjust for statistical significance even in the presence of heteroscedasticity.

The VIF (Variance Inflation Factor) values were less than 2, indicating the absence of significant multicollinearity among the independent variables. The Shapiro-Wilk test applied

to the residuals indicated a violation of normality ($p < 0.05$) in all models, without compromising the validity of the coefficients due to the use of robust errors. Finally, the Durbin-Watson test revealed independence of the residuals (values close to 2 and $p > 0.05$), indicating no significant autocorrelation. Therefore, the estimated models meet the necessary assumptions for reliable interpretation of the coefficients, considering the corrections applied and the statistical robustness of the tests performed.

The regression results of the Ball and Shivakumar (2005) model indicate an explanatory power (R^2) of 37.51% for the full sample. When analyzing the life cycle phases separately, a reduction to 27.39% is observed in cooperatives in the growth stage, while the highest explanatory power was found in the same stage, reaching 48.29%. These results are consistent with previous studies, such as Castro et al. (2022), who identified an explanatory power of 50.2%, Arruda et al. (2015), with 30.6%, and Diniz (2020), with 29.6%.

Table 6

Accounting Conservatism – Model Ball and Shivakumar (2005)

	Complete		Nascent		Growth		Maturity		Decline	
	coeff.	P-value	coeff.	p-value	coeff.	p-value	coeff.	P-value	coeff.	P-value
Constant	0.0070	0.000	0.0070	0.000	0.0067	0.000	0.0071	0.000	0.0083	0.000
DASLt-1	-0.0133	0.000	-0.0115	0.0039	-0.0112	0.000	-0.0123	0.000	-0.0183	0.000
Δ SLt-1	-0.2813	0.000	0.1034	0.5572	-0.4284	0.000	-0.5296	0.000	-0.2114	0.000
DASL* Δ SLt-1	0.2168	0.000	-1.6018	0.0347	0.2316	0.0011	0.3960	0.000	-0.3470	0.000
Adjusted R ²	0.3751	-	0.2739	-	0.4829	-	0.4386	-	0.3750	-
F-Test	615.9	0.000	13.58	0.000	232.3	0.000	369.7	0.000	163.4	0.000
N	3075	-	101	-	744	-	1417	-	813	-

Caption: DASLt-1 indicates the dummy variable if there was a negative variation in net surplus from year t-1 to year t, assuming a value of 1 if the variation was negative and 0 in other cases; Δ SLt-1 is the variation in the cooperative's net surplus from year t-2 to year t-1, weighted by the total assets of year t-1.

Source: research data.

Regarding the result of the β_2 coefficient (SLt-1), it is negative and significant (p -value < 0.05) in most stages (except for the Nascent phase, in which β_2 is not significant), which suggests a tendency to recognize losses more quickly than gains, an indication of conservative behavior in credit unions. These results are related to the studies by Arruda et al. (2015), Castro et al. (2022), Diniz (2020), Santos and Santos (2020).

When analyzing the sum of the coefficients β_2 (Δ SLt-1) and β_3 (DASL x Δ SLt-1), the results were less consistent regarding the level of statistical significance at different stages of the life cycle. The sum of the coefficients in all data sets showed a negative result, which reinforces the evidence of conservative behavior. These results corroborate the studies by Castro et al. (2022), Diniz (2020), Santos and Santos (2020) and diverge from the results of Lima et al. (2015) and Paulo et al. (2008).

In Beatty and Liao's (2011) accounting conservatism model, it is obtained by dividing provisions on credit operations by non-performing loans, in this case considering those overdue for more than 90 days. The sample did not meet the normality of residuals, and for this reason, we chose to use the nonparametric Kruskal-Wallis and Dunn tests to verify the differences between the groups.

Table 7*Accounting Conservatism – Model Beatty and Liao (2011)*

	Complete	Nascent	Growth	Maturity	Decline
Average	0.90934	0.73842	0.95863	0.92769	0.85351
Median	0.91075	0.87092	0.94555	0.91135	0.87221
1st quartile	0.80702	0.54268	0.84467	0.81684	0.76451
3rd quartile	1.03300	1.02051	1.08665	1.02123	1.00320
Standard deviation	0.31640	0.46440	0.30229	0.26259	0.37282
Kruskal-Wallis test	Chi-squared = 67.751, df = 3, p-value = 0.0000				
Dunn's test (comparison between groups)					
	Growth		Decline		Maturity
Decline	7.880379 (p = 0.0000)		-		-
Maturity	4.225083 (p = 0.0000)		-4.739559 (p = 0.0000)		-
Nascent	4.112225 (p = 0.0000)		0.343650 (p = 0.3656)		2.376784 (p = 0.0087)

Source: research data.

Based on means and medians, cooperatives in Growth and Maturity showed greater conservatism, while Nascent ones exhibited lower rates. Hansen et al. (2018) suggest that firms in the initial stages of development are more impacted than those in mature or declining states; however, their results refer to companies listed in the United States, with characteristics distinct from credit unions.

The results of this study corroborate the literature by showing that cooperatives in more advanced stages of their life cycle adopt more prudent practices, influenced both by the Central Bank's regulatory requirements and the need for financial stability. In this context, regulation is a determining factor in accounting choices, acting as a disciplinary mechanism. Thus, this study contributes to the debate by demonstrating how the regulatory environment shapes accounting conservatism in the Brazilian cooperative sector.

The standard deviations indicate greater dispersion of conservatism in the Nascent stage, suggesting different accounting strategies among companies in this group. The Kruskal-Wallis test results show a p-value less than 0.05, thus rejecting the null hypothesis, indicating that at least one group presents different results.

Dunn's test shows that when the p-value is less than 0.05, the null hypothesis is rejected and states that there are significant differences between the groups. The only exception was the comparison between the Decline and Rise groups (p-value = 0.3656), indicating that the medians are not significantly different between these groups. In the other group comparisons, all p-values are less than 0.05, proving the existence of significant differences between the groups. The results corroborate previous studies regarding the influence of the life cycle on the quality of accounting information (Can, 2020; Krishnan et al., 2020).

In summary, it is possible to verify that the phases of the life cycle have explanatory power over the accounting conservatism of Brazilian credit unions, confirming the hypothesis raised (H1).

5 Final Considerations

The study achieved its objective by demonstrating that accounting conservatism in Brazilian credit unions is sensitive to life cycle stage. This finding extends life cycle theory to the context of financial cooperatives, indicating that organizational maturity affects the quality of accounting information. Furthermore, the results have relevant practical implications for regulators and managers, who can adjust monitoring and governance practices according to the entity's development stage.

This study analyzed accounting conservatism throughout the life cycle stages of 615 Brazilian individual credit unions, between 2019 and 2023. The unions were grouped into clusters, according to the model by Vasylieva and Chmutova (2015) and Maia (2022). Conservatism was measured using the models of Ball and Shivakumar (2005) and Beatty and Liao (2011).

Between 2018 and 2023, the cooperative sector underwent a significant transformation. In 2018, Maturity and Decline predominated, indicating an established but challenging sector. In the following years, there was an increase in cooperatives classified as Growing and a decrease in cooperatives classified as Declining. The trend of recovery and strengthening of the sector continued until 2023, with a significant increase in cooperatives classified as Maturity and a decrease in cooperatives classified as Declining. This pattern indicates changes in the business environment, which may favor the development of cooperatives, possibly due to better management practices, more effective support policies, or more favorable market conditions.

Regarding descriptive statistics, the growth rate varied considerably: Nascent and Growth exhibited higher averages than Maturity and Decline, in line with theory. The growth in personnel expenses also varied, with Nascent showing higher averages, possibly due to the initial investment in personnel. SNCC participation rates showed little variation, suggesting that integration into the system may not be profoundly affected by the cooperative's stage of life.

In Ball and Shivakumar's (2005) conservatism models, the results proved relevant and applicable, indicating consistent practice across all life cycles. While the results of Beatty and Liao's (2011) model indicated greater conservatism in cooperatives in Growth and Maturity stages, cooperatives in the Nascent stage had the lowest levels. Furthermore, the Kruskal-Wallis and Dunn tests confirmed the significant differences between the groups.

This study uniquely addressed a little-researched context-accounting conservatism in the life cycle stages of Brazilian credit unions. As these entities gain economic significance, insights into these relationships and their performance become valuable. The evidence obtained can inform regulations and practices for the cooperative sector in Brazil and similar emerging markets.

For future research, in addition to life cycle stages, it is recommended to explore accounting conservatism throughout the different phases of the economic cycle in credit unions. As highlighted by Sallaberry *et al.* (2024), the inclusion of macroeconomic control variables can influence the results in the context of Brazilian cooperatives. It is also suggested that the study period be extended to monitor the evolution of cooperatives over time and better understand changes in their strategies and financial performance.

References

- Arruda, M. P., Vieira, C. A., Paulo, E., & Lucena, W. G. (2015). Análise do conservadorismo e persistência dos resultados contábeis das instituições financeiras brasileiras. *Sociedade, Contabilidade e Gestão*, 10(2), 23-25. https://doi.org/10.21446/scg_ufrj.v10i2.13348
- Azevedo, M. de A., & Gartner, I. R. (2020). Concentração e Competição no Mercado de Crédito Doméstico. *Revista de Administração Contemporânea*, 24(5), 380-399. <https://doi.org/10.1590/1982-7849rac2020190347>

Ball, R., & Shivakumar, L. (2005). Earnings Quality in UK Private Firms: Comparative Loss Recognition Timeliness, *Journal of Accounting and Economics*, 39 (1): 83-128.

<https://doi.org/10.1016/j.jacceco.2004.04.001>

Banco Central do Brasil [BCB] (2025). *Panorama do Sistema Nacional de Crédito Cooperativo*. Data-base: dezembro/2024. Disponível em:

https://www.bcb.gov.br/content/estabilidadefinanceira/coopcredpanorama/Panorama_Cooperativas_SNCC_FINAL_dez2024.pdf

Banco Central do Brasil [BCB] (2024). *O que são cooperativas de crédito?* Disponível em:

<https://www.bcb.gov.br/pre/composicao/coopcred.asp?frame=1>

Basu, S. (1997). The Conservatism Principle and the Asymmetric Timeliness of Earnings, *Journal of Accounting and Economics*, 24 (1): 3-37. [https://doi.org/10.1016/S0165-4101\(97\)00014-1](https://doi.org/10.1016/S0165-4101(97)00014-1)

Beatty, A., & Liao, S. (2011). Do delays in expected loss recognition affect banks' willingness to lend? *Journal of accounting and economics*, 52(1), 1-20.

<https://doi.org/10.1016/j.jacceco.2011.02.002>

Can, G. (2020). Do life-cycles affect financial reporting quality? Evidence from emerging market. *Cogent Business & Management*, 7(1), 1854147.

<https://doi.org/10.1080/23311975.2020.1854147>

Canassa, B. J., Zancan, F., & de Moura Costa, D. R. (2022). Credit Union Life Cycle and Membership: Evidence from Brazilian Credit Unions. *Revista Contabilidade, Gestão e Governança*, 25(1). http://dx.doi.org/10.51341/1984-3925_2022v25n1a3

Carvalho, F. L. D., Diaz, M. D. M., Bialoskorski Neto, S., & Kalatzis, A. E. G. (2015). Saída e insucesso das cooperativas de crédito no Brasil: uma análise do risco. *Revista Contabilidade & Finanças*, 26, 70-84. <https://doi.org/10.1590/1808-057x201411390>

Castro, E. L., Rover, S., & Lerner, A. F. (2022). Conservadorismo contábil nas cooperativas de crédito do Brasil. In *Anais do 12º Congresso UFSC de Controladoria e Finanças*. Florianópolis, SC.

Cook, M. L. (1995). The Future of U.S. Agricultural Cooperatives: A Neo-Institutional Approach. *American Journal of Agricultural Economics*, 77(5), 1153-1159.
<https://doi.org/10.2307/1243338>

Cook, M., & Burrell, M. J. (2009). A Cooperative Life Cycle Framework. 21st Century: *Lessons from the Past*.

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>

Dechow, P. M., & Schrand, C. M. (2004). *Earnings quality*. Charlottesville: CFA Institute.

Díaz-Sánchez, I., Martínez-Conesa, I., & Illueca-Muñoz, M. (2023). Regulation, Supervision and Accounting Conservatism: The Interaction of the Three Pillars of Basel II on the Quality of Reported Earnings in Worldwide Banks. *Revista de Contabilidad-Spanish Accounting Review*, 26(2), 330-342. <https://www.doi.org/10.6018/rcsar.438811>

Diniz, M. M. (2020). Qualidade da informação contábil: um estudo das cooperativas de crédito brasileiras. (Dissertação de mestrado), Universidade Federal da Paraíba, Programa de Pós-Graduação em Contabilidade, Paraíba, Brasil.

Drake, K. D. (2012). *Does firm life cycle explain the relation between book-tax differences and earnings persistence?* Arizona State University.

Dunn, O. J. (1964). Multiple comparisons using rank sums. *Technometrics*, 6(3), 241-252.

Espich, D. (2025). A relação entre o desempenho social e econômico-financeiro nos diferentes estágios do ciclo de vida das cooperativas de crédito brasileiras. [Tese de doutorado, Universidade Federal de Santa Maria]. Repositório Digital Manancial, UFSM.

Favalli, R. T., Gori Maia, A., & da Silveira, J. M. F. J. (2020). Governance and financial efficiency of Brazilian credit unions. *RAUSP Management Journal*, 55, 355-373.
<https://doi.org/10.1108/RAUSP-02-2019-0018>

Fávero, L. P. L., Belfiore, P. P., Silva, F. L. da, & Chan, B. L. (2009). *Análise de Dados: Modelagem Multivariada para Tomada de Decisões*. Campus.

Ferguson, C., & McKillop, D. G. (2000). Classifying Credit Union Development in Terms of Mature, Transition and Nascent Industry Types. *The Service Industries Journal*, 20(4).

Ferreira, G. D., do Carmo, C. H. S., Zanolla, E. R. C. I. L. I. O., de Moura, P. J. P., & Nascimento, D. F. (2021). Qualidade da Informação Contábil: Análise Bibliométrica das Pesquisas em Cooperativas. *Revista Mineira de Contabilidade*, 22(3), 49-59.

<https://doi.org/10.51320/rmc.v22i3.1234>

Habib, A., & Hasan, M. M. (2019). Corporate life cycle research in accounting, finance and corporate governance: A survey, and directions for future research. *International Review of Financial Analysis*, 61, 188-201. <https://doi.org/10.1016/j.irfa.2018.12.004>

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R., & Tatham, R. L. (2010). *Análise multivariada de dados* (6a. Ed). Artmed Editora.

Hansen, J. C., Hong, K. P., & Park, S. H. (2018). Accounting conservatism: A life cycle perspective. *Advances in Accounting*, 40, 76-88. <https://doi.org/10.1016/j.adiac.2017.10.001>

Kolodiziev, O., Chmutova, I., & Biliaieva, V. (2016). Selecting a kind of financial innovation according to the level of a bank's financial soundness and its life cycle stage. *Banks and Bank Systems*, 11(4), 40-49. [http://dx.doi.org/10.21511/bbs.11\(4\).2016.04](http://dx.doi.org/10.21511/bbs.11(4).2016.04)

Krishnan, G. V., Myllymäki, E. R., & Nagar, N. (2021). Does financial reporting quality vary across firm life cycle? *Journal of Business Finance & Accounting*, 48(5-6), 954-987. <https://doi.org/10.1111/jbfa.12508>

Kuznyetsova, A., Boiarko, I., Khutorna, M., & Zhezherun, Y. (2022). Development of financial inclusion from the standpoint of ensuring financial stability. *Public and Municipal Finance*, 11(1), 20-36. [http://dx.doi.org/10.21511/pmf.11\(1\).2022.03](http://dx.doi.org/10.21511/pmf.11(1).2022.03)

Lima, A. S. D., Carvalho, E. V. A. D., Paulo, E., & Girão, L. F. D. A. P. (2015). Estágios do ciclo de vida e qualidade das informações contábeis no Brasil. *Revista de Administração Contemporânea*, 19, 398-418. <http://dx.doi.org/10.1590/1982-7849rac20151711>

Maia, L. L. (2022). *Eficiência e ciclo de vida das cooperativas de crédito: uma abordagem econômica e social*. (Tese de Doutorado), Universidade Federal de Minas Gerais, Programa de Pós-Graduação em Contabilidade, Minas Gerais, Brasil.

Maia, S. C., de Benedicto, G. C., do Prado, J. W., Robb, D. A., de Almeida Bispo, O. N., & de Brito, M. J. (2019). Mapping the literature on credit unions: a bibliometric investigation grounded in Scopus and Web of Science. *Scientometrics*, 120, 929-960. <https://doi.org/10.1007/s11192-019-03165-1>

Maia, S. A., Bressan, V. G. F., Lamounier, W. M., & Braga, M. J. (2013). Gerenciamento de resultados em cooperativas de crédito no Brasil. *Brazilian Business Review*, 10(4), 96-116. <https://doi.org/10.15728/bbr.2013.10.4.4>

Martins, O. S., & de Barros, L. A. B. C. (2021). Firm informativeness, information environment, and accounting quality in emerging countries. *The International Journal of Accounting*, 56(01), 2150004. <https://doi.org/10.1142/S1094406021500049>

McKillop, D., French, D., Quinn, B., Sobiech, A. L., & Wilson, J. O. (2020). Cooperative financial institutions: A review of the literature. *International Review of Financial Analysis*, 71, 101520. <https://doi.org/10.1016/j.irfa.2020.101520>

Mueller, D. C. (1972). A life cycle theory of the firm. *The Journal of Industrial Economics*, 20 (3), 199-219.

Park, Y., & Chen, K. H. (2006). The effect of accounting conservatism and life-cycle stages on firm valuation. *Journal of Applied Business Research*, 22(3), 75-92.

Paulo, E., Antunes, M. T. P., & Formigoni, H. (2008). Conservadorismo contábil nas companhias abertas e fechadas brasileiras. *Revista de Administração de Empresas*, 48, 46-60. <https://doi.org/10.1590/S0034-75902008000300005>

Samadiyan, B., & Rezaei, F. (2012). Investigating the relationship between stock prices and earnings quality using Leuz Parton-Simko and Penman models in firm's life cycle stages. *Journal of Basic and Applied Scientific Research*, 2(3), 2312-2324.

Sallaberry, J. D., Venturini, L. D. B., Lerner, A. F., & Flach, L. (2024). Income smoothing in Brazilian credit unions: the effects of default. *Revista Ambiente Contábil*, Universidade Federal do Rio Grande do Norte, 16(1), 1-22. <https://doi.org/10.21680/2176-9036.2024v16n1ID34807>

Santos, R. R. D. (2023). *Income Smoothing e folga organizacional: estudo das relações nos estágios de vida das cooperativas de crédito brasileira*. (Tese de Doutorado), Universidade Federal de Pernambuco, Pernambuco, Brasil.

Santos, R. R., & Santos, J. F. (2020). Income smoothing practices and conservatism in Brazilian credit unions. *Revista Pensamento Contemporâneo em Administração*, 14(1), 76-88. <https://doi.org/10.12712/rpca.v14i1.38886>

Scott, William R. (2015). *Financial accounting theory*. Seventh edition. Pearson.

- Silva, T. P. D., Leite, M., Guse, J. C., & Gollo, V. (2017). Financial and economic performance of major Brazilian credit cooperatives. *Contaduría y administración*, 62(5), 1442-1459. <https://doi.org/10.1016/j.cya.2017.05.006>
- Unda, L. A., Ahmed, K., & Mather, P. R. (2019). Board characteristics and credit-union performance. *Accounting & Finance*, 59(4), 2735-2764. <https://doi.org/10.1111/acfi.12308>
- Vasylieva, T. A., & Chmutova, I. M. (2015). Empirical Model of a Bank Life Cycle. *Actual Problems of Economics*, 10 (172), 352-361.
- Xu, B. (2007). Life cycle effect on the value relevance of common risk factors. *Review of Accounting and Finance*, 6(2), 162-175. <https://doi.org/10.1108/14757700710750838>
- Watts, R.L. (2003). Conservatism in Accounting Part I: Explanations and Implications. *Accounting Horizons*, 17 (3): 207-21.