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Managers' Dark Triad personality traits and earnings management practices in credit unions

Ana Cláudia Deconto
https://orcid.org/0000-0002-5283-0212

Cristian Baú Dal Magro
https://orcid.org/0000-0002-7609-5806

Alini da Silva
https://orcid.org/0000-0002-7043-5566

Sady Mazzioni
https://orcid.org/0000-0002-8976-6699

Abstract

Objective: This study aims to analyze the relationship between managers' Dark Triad personality traits and earnings management practices in credit unions.
Method: This descriptive and documentary study employs a survey and quantitative approach. It presents a theoretical discussion on the Dark Triad personality traits—Machiavellianism, narcissism, and psychopathy—and their influence on earnings management practices. The sample comprises 103 credit cooperative managers (restricted to one response per cooperative). Data were collected in two stages: (a) a questionnaire was administered to managers to capture their personality traits and propensity for earnings management, and (b) accounting information was gathered from entities' reports and financial statements covering the period from the first half of 2015 to the second half of 2021. Earnings management practices were assessed using specific accruals. Descriptive statistics, multiple linear regression, and logistic regression analyses were conducted using Stata.
Results and Contributions: The findings reveal that credit unions engage in earnings management practices and that managers with Dark Triad personality traits exhibit a higher propensity to manage earnings. This underscores the importance of considering personality traits when recruiting and selecting professionals for management positions, as these traits can influence attitudes and behaviors that may not align with organizational objectives. These insights are particularly relevant for members, credit cooperatives, regulatory bodies, analysts, auditors, statutory boards, and society at large, as they demonstrate the impact of individual personality traits on accounting decisions and organizational outcomes.
Keywords: Credit Cooperatives, Earnings Management, Personality Traits.

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1 Introduction

Cooperative societies operate within a socioeconomic model that promotes sustainable regional development. In 2020, these entities ranked first in loans granted to micro and small businesses, with assets exceeding R$310 billion, according to the Organization of Brazilian Cooperatives (OCB, 2020).

The strength of credit unions influences the distribution of earnings to members and facilitates access to credit for individuals underserved by the conventional banking model (OCB, 2020; Soares & Sobrinho, 2008), thereby fulfilling an important social role (Porto, Ribeiro, Anjos & Sampaio, 2020).

As credit unions expand, concerns emerge about signaling positive performance to members, as negative outcomes may cause insecurity among members and attract scrutiny from regulatory bodies, potentially indicating inefficient management (Bressan, Bressan & Silva, 2016).

In this context, managers may adopt earnings management strategies to adjust the level of provisions for doubtful debts, seeking private advantages that could result in losses and dissatisfaction among members (Macedo & Kelly, 2016). Numerous studies have explored earnings management in credit unions, with notable contributions from Brown and Davis (2009) and Hillier, Hodgson, Stevenson-Clarke, and Lhaopadchan (2008). In Brazil, Maia, Bressan, Lamounier, and Braga (2013) were among the first to address this topic, paving the way for subsequent studies, including Bressan, Bressan, and Silva Júnior (2015); Bressan, Santos, and Bressan (2015); Bressan et al. (2016); Bressan, Souza, and Bressan (2017); Dantas, Borges, and Fernandes (2018); Santos, Bressan, Braga, and Guerra (2018); Porto *et al.* (2020); and Santos and Santos (2020).

These studies emphasized that cooperatives aim for less variable results, underscoring the importance of analyzing the quality of the reported information. Indicators such as solidity, credibility, and efficiency provided by credit cooperatives serve to validate their performance and attest to the effectiveness of their managers (Bressan et al., 2016; Maia et al., 2013).

The pressure to present surpluses may lead cooperative managers to make opportunistic decisions aimed at demonstrating their management skills to members and maintaining the cooperative’s credibility (Santos & Santos, 2020). In this context, the propensity for earnings management emerges as a predisposition among managers to make decisions driven by opportunism.

Chowdhury, Mollah, and Al Farooque (2018) note that earnings management practices can be influenced by managers’ attitudinal factors. The discussion of Dark Triad personality traits—narcissism, Machiavellianism, and psychopathy—offers a social perspective within personality psychology. Originally proposed by Paulhus and Williams (2002) and later revisited by Jones and Paulhus (2014), it provides a valuable framework for analysis. The study instrument, a self-report questionnaire, captures the predisposition of these traits within a population, without the intention of establishing clinical diagnoses (D’Souza, Lima, Jones & Carré, 2019).

Managers’ Dark Triad personality traits significantly influence their judgment and decision-making (Ham, Lang, Seybert, & Wang, 2017). For instance, narcissists seek attention and are self-promoters; Machiavellians are highly manipulative; and individuals with psychopathic traits exhibit impulsiveness and a lack of empathy (Crysel, Crosier, & Webster, 2013; Góis, 2017).

Dark Triad traits have been associated with organizational decisions, profit maximization, and work behavior, highlighting the studies by Campbell, Hoffman, Campbell and Marchisio (2011), Chatterjee and Hambrick (2007), Capalbo, Frino, Lim, Mollica and Palumbo (2017), Carré, Jones and Mueller (2020), D’Souza *et al.* (2019), D’Souza (2016), D’Souza and Lima (2015), Góis (2017), Grover and Furnham (2021), Ham *et al.* (2017), Jones (2013), Murphy (2012), and Silva (2019).

Managers influenced by the personality traits of psychopathy, Machiavellianism, or narcissism, and driven to report strong performance to satisfy and attract new associates, may exhibit a greater propensity for engaging in earnings management practices (D'Souza & Lima, 2015; Góis, 2017). However, it is important to note that some studies have identified instances where individuals with dark personality traits make less aggressive decisions, ultimately benefiting their organizations (Spain et al., 2014; Papageorgiou, Wong & Clough, 2017; Templer, 2018; Hajhosseini, Fathi & Shafiei, 2019).

Building on the previous discussion, this study seeks to contribute to the ongoing and often contradictory discourse surrounding the influence of individuals' dark personality traits on decision-making, particularly in the context of credit unions. Accordingly, the following research problem is proposed: **What is the relationship between managers' Dark Triad personality traits and earnings management practices in credit unions?** The primary objective is to analyze the relationship between managers' Dark Triad personality traits and the earnings management practices observed in credit unions.

This study addresses a gap in the accounting field by analyzing credit unions and examining the propensity for earnings management in relation to Dark Triad personality traits. The analysis combines primary data, collected through a questionnaire on dark personality traits and earnings management propensity, with secondary data on earnings management practices derived from specific accruals. These accruals are considered an appropriate model for financial entities such as credit unions.

Given the significance of credit unions in the national landscape, their role in regional development, and the emphasis on reporting strong performance to members, identifying the presence of earnings management in credit unions and its relationship with managers' Dark Triad traits is crucial. This understanding provides insights into how personality traits and experiences influence managers' business decisions (Bouvatier, Lepetit and Strobel (2014); D'Souza & Lima, 2015; D'Souza *et al.*, 2019; Porto *et al.*, 2020).

Furthermore, accounting information can serve as the basis for calculating awards and bonuses tied to performance, making it susceptible to manipulation aimed at satisfying private interests and achieving personal or professional recognition (D'Souza *et al.*, 2019). In this context, personality emerges as a critical predictive factor that organizations often overlook. Dark Triad personality traits, in particular, may be associated with a predisposition toward unethical behavior (Carré *et al.*, 2020).

The results of this study revealed a general trend where credit union managers with Dark Triad personality traits were more likely to engage in earnings management practices. In their pursuit of satisfactory solutions to achieve business and personal goals, these managers often face the dilemma of using accounting information opportunistically, demonstrating a propensity for managing earnings.

This study offers information users a unique perspective on the individual characteristics of managers in credit unions and their potential motivations for engaging in earnings management practices—an aspect previously unexplored in the literature. Additionally, it underscores the importance of careful consideration when hiring professionals for management roles and highlights the necessity for credit unions to implement robust corporate governance mechanisms.

2 Theoretical discussion and hypothesis development

The manipulation of information and earnings management by managers significantly undermines the quality of accounting information, as it involves the discretionary use of accounting practices to alter results (Lee & Masulis, 2009).

Earnings management is not classified as fraud; however, entities that employ alternative representations of accounting events (management through accruals) or manipulate the timing of revenues and expenses (management through operational decisions) tend to exacerbate information asymmetry between insiders and outsiders. This practice often favors individual motivations and fails to reflect the true financial context of organizations (Noronha, Zeng, & Vinten, 2008).

Organizations can adopt various strategies to manage earnings, which can be analyzed from two perspectives. The first is accrual-based management, which involves altering accounting methods or estimates without violating accounting standards. The second is real activities management, which entails modifying management strategies to meet or exceed short-term goals. While the latter directly impacts cash flow, it may also lead to significant economic consequences in the long term (Gunny, 2010).

The methodological approach of analyzing specific accruals to detect earnings management is well established in the accounting literature (Martinez, 2001; Goulart, 2007; Dani, Filho, Santos, & Klann, 2017). Specific accruals are linked to unique characteristics and accounting standards relevant to particular industries, such as the financial sector (Martinez, 2013). This metric focuses on identifying and analyzing the behavior of specific accounting accounts or business segments, directing attention to accounts where managers are most likely to exercise discretion (Trapp, 2009).

McNichols and Wilson (1988) were among the first to discuss provisions for loan losses in banks, introducing the concept of specific accruals. Alali and Jaggi (2011) documented concerns raised by regulatory bodies regarding the use of provisions to manipulate earnings. Cheng (2012) further examined the practice of earnings management through specific accruals within the banking sector.

Banking institutions offer numerous research opportunities to isolate specific accruals from structuring transactions. Additionally, focusing on a single regulated sector enables more precise measurement of earnings management activities (Cheng, 2012). In Brazil, provisions for credit operations in financial institutions are governed by Resolution No. 2,682 of 1999 from the Central Bank of Brazil, which incorporates a degree of subjectivity in credit risk classification (Bischoff & Lustosa, 2014; Maia *et al.*, 2013).

In this context, Brown and Davis (2009) emphasize that credit unions are particularly susceptible to agency problems, where the distribution of surpluses and concealment of losses serve as incentives for managers to adopt opportunistic practices, including a propensity for earnings management.

These arguments underscore the importance of monitoring mechanisms in organizations, as the characteristics of executives can provide insight into organizational outcomes (Chatterjee & Hambrick, 2007) and earnings management practices. In this context, the Upper Echelon Theory, proposed by Hambrick and Mason (1984), highlights the influence of executives and managers on company performance. This theory posits that the characteristics of the upper echelon—individuals in senior positions within organizations—can shape organizational results, as executives act based on their interpretations, experiences, values, and personality traits (Hambrick, 2007).

In this context, the study of Dark Triad personality traits emerges as a framework for understanding and influencing individuals' attitudes and behaviors (D'Souza *et al.*, 2019; Smith, Wallace, & Jordan, 2016). First introduced by Paulhus and Williams (2002), the Dark Triad encompasses three interrelated personality traits: Machiavellianism, narcissism, and psychopathy. According to Crysel et al. (2013), individuals with high levels of these traits may exhibit features such as inflated self-importance (narcissism), manipulative tendencies to achieve their goals (Machiavellianism), or a lack of empathy (psychopathy).

Machiavellian individuals are manipulative and socially skilled, and may exhibit behaviors that appear to benefit those around them, but motivated by personal gains, they promote the use of deception, manipulation, and are domineering, distant, and practical (Smith *et al.*, 2016), in which such behaviors are potentially relevant to decisions about earnings management.

Grover and Furnham (2021) argue that Machiavellian individuals are long-term planners and strategists who take calculated risks when they stand to benefit. Additionally, those with high Machiavellian traits feel less guilt than others when providing inaccurate information to stakeholders (Murphy, 2012). D'Souza *et al.* (2019), D'Souza and Lima (2015), and Góis (2017) assert that managers with Machiavellian tendencies are inclined to make decisions that prioritize their own interests.

Narcissists are characterized as selfish, and those with pronounced traits are often described as impulsive, extroverted, arrogant, and prone to making riskier decisions in pursuit of rewards, attention, and grandiosity (Góis, 2017; Grover & Furnham, 2021; Jones, 2013; Paulhus & Jones, 2015). Narcissistic individuals crave applause and strive to maintain a public image that conveys grandeur (Capalbo *et al.*, 2017).

Narcissists are often characterized by egocentrism and a tendency to prioritize their own interests, even at the expense of others. They frequently believe that rules do not apply to them and are inclined to dominate decision-making processes, including those associated with earnings management practices (Ham *et al.*, 2017).

Johnson, Kuhn, Apostolou, and Hassell (2013) suggest that moderate levels of narcissism in leaders can benefit organizations by fostering creativity and exceptional performance. However, when excessive, these traits increase the risk of errors and fraud.

Narcissistic individuals often pursue leadership positions as a means to gain recognition and power (Góis, 2017). Chatterjee and Hambrick (2007) note that these individuals are drawn to innovation, present exhibitionist tendencies, and frequently engage in bold and attention-grabbing behavior. This includes making significant acquisitions, imposing strategies, or performing highly visible actions. Furthermore, highly narcissistic professionals tend to view themselves as more valuable than others.

Non-pathological psychopathy is characterized by traits such as insensitivity, impulsiveness, recklessness, low empathy, and anxiety (Paulhus & Williams, 2002; Paulhus & Jones, 2015), along with reduced levels of kindness and responsibility (Moraga, 2015). These individuals are also identified as skilled manipulators (Pethman & Erlandsson, 1997). They possess a predisposition to unethical behavior and may be inclined to engage in earnings management (D'Souza & Lima, 2015; Smith & Lilienfeld, 2013).

In contrast, Harrison, Summers, and Mennecke (2016) argue that these professionals can benefit organizations due to their appetite for risk, determination, and willingness to engage in ventures with greater exposure to uncertainty. Moreover, they tend to excel in chaotic and high-stress environments.

In this context, psychopathy presents ambiguous implications for leadership. Traits such as charisma and dominance may predispose individuals to achieve adaptive outcomes, making those with psychopathic tendencies appear to be effective leaders. However, impulsivity and egocentrism are often associated with ineffective outcomes and unethical behavior (Smith & Lilienfeld, 2013).

Jones (2013) investigated the impact of Dark Triad traits on the financial environment. The findings highlighted selfishness, stemming from psychopathy and narcissism, as a key factor, characterized by a willingness to benefit oneself at the expense of others. Additionally, Machiavellians were identified as strategists and long-term planners, often willing to risk others' resources to achieve personal gains.

D'Souza (2016) analyzed the relationship between Dark Triad personality traits and earnings management aimed at maximizing personal and corporate gains, finding a positive association between the interaction of the three traits and the propensity to manipulate earnings opportunistically. Furthermore, D'Souza *et al.* (2019) observed that individuals with Machiavellian traits were more likely to engage in opportunistic behavior to achieve personal goals. Psychopathic traits showed a moderate positive association with managers' tendencies to maximize their gains through earnings management practices. No significant associations were found for narcissistic traits.

Carré et al. (2020) explored the relationship between narcissism, psychopathy, Machiavellianism, and traits such as callousness and manipulation. Their findings revealed that individuals with high levels of Machiavellianism perceived profit opportunities—whether legal or illegal—differently, influencing their strategic actions. This perception was also correlated with an increased likelihood of engaging in fraud.

While managers may make decisions driven by personal interests, there is recognition that individual performance is ultimately tied to the organization's performance and survival (Haga, Huhtamäki, & Sundvik, 2022). Furthermore, professionals who perceive themselves as having superior skills and judgment often overestimate their abilities, making them more likely to modify accounting events to present favorable results and produce optimistic forecasts (Li & Hung, 2013).

Naaman (2018) and Zainuldin and Lui (2020) observe that earnings management involves managers disclosing results that align with their private interests. Even though earnings management is not illegal but rather a relaxation of rules, its practice can escalate into fraud and unethical behavior (D'Souza & Jones, 2017).

Additionally, Cheng (2012) examined earnings management practices in financial institutions, emphasizing that these entities manipulate earnings through provisions for doubtful debts and securitization to prevent declines in earnings and/or meet analysts' forecasts.

Thus, building on the conceptual framework and prior studies discussed, the first research hypothesis is proposed:

H_1: Credit union managers exhibiting narcissistic, Machiavellian, or psychopathic personality traits influence earnings management practices through specific accruals in credit unions.

Managers are primarily responsible for monitoring market conditions and formulating strategies to achieve their organizations' objectives. In cooperatives, where management is concentrated among a small group of individuals, there may be a greater propensity to take actions aimed at maximizing profits (McKee, Kagan, & Ghosh, 2019).

Graham, Harvey, and Rajgopal (2005) observe that financial executives aim to meet short-term earnings benchmarks to establish market credibility, enhance their reputation, and foster expectations of long-term growth.

Noronha *et al.* (2008) identified four key incentives that drive managers to engage in earnings management: external contracts, performance-based compensation, regulatory requirements, and capital market motivations. However, managers may prioritize specific incentives based on their preferences, leading to opportunistic behavior where accounting information is deliberately altered to serve their personal interests.

Grover and Furnham (2021) explored the relationship between the Dark Triad and risk-taking propensity, finding correlations across all measures of the triad and risk-taking. Similarly, Spain, Harms, and Lebreton (2014) examined the dark side of personalities, highlighting their significance in shaping organizational outcomes. Furthermore, professionals who perceive themselves as having superior skills and judgment often overestimate their abilities, making them more likely to modify accounting events to present favorable results and produce optimistic forecasts (Li & Hung, 2013).

Thus, when presented with opportunity and motivation, managers are likely to engage in earnings management, leading to the formulation of the second research hypothesis:

H_2: Credit union managers exhibiting Machiavellian, narcissistic, or psychopathic personality traits are prone to engaging in earnings management practices in credit unions.

3 Methodological procedures

A descriptive study was conducted adopting a survey and documentary procedures, with a quantitative approach.

3.1 Study Sample

The study universe consisted of 817 individual credit unions in Brazil. Corporate email addresses were obtained from the database of cooperative financial institutions available on the Central Bank's website. In some cases, LinkedIn profiles or the cooperatives' websites were also utilized. The search focused on identifying the cooperative's name and the positions of individuals associated with the webpage.

The questionnaire was directed to presidents, directors, and managers who possess privileged information and have the authority and influence to manage results in cooperatives. Consequently, the sample included questionnaires voluntarily completed and returned by managers from various cooperatives. The non-probabilistic sample comprised 103 managers from distinct individual credit cooperatives, with responses restricted to one per cooperative.

3.2 Study Constructs and Instruments to Collect Data

Data were collected in two stages. The first stage involved administering a questionnaire organized into the following sections: i) study introduction and presentation; ii) characterization of the respondent and the cooperative; iii) a form with 27 questions to measure personality predisposition using the Short Dark Triad (SD3) rated on a 5-point Likert scale where items 1–9 measure Machiavellianism, 10–18 measure narcissism, and 19–27 measure psychopathy; iv) a form with 10 questions addressing the decision-making process related to earnings management; v) an informed consent form; and vi) acknowledgments. The instrument can be accessed via the following link: https://forms.gle/J34yLkre2jQeVo4k9.

Written authorization was obtained from scientist Daniel Nelson Jones to use the SD3. The translated questions from D'Souza (2016) were then utilized to assess the Dark Triad personality traits.

The score for personality traits was obtained by averaging each participant's responses to the SD3 trait, following the same technique used by Jones and Paulhus (2014), D'Souza (2016), and Silva (2019).

The variable propensity to manage earnings was based on D'Souza (2016), where the decision to manipulate earnings and Dark Triad personality traits were investigated. Therefore, a dummy variable of 1 was assigned for credit unions with a propensity to manage earnings (PM) and 0 otherwise. Hence, the answers were classified according to a) respondent's average score according to answers provided to the 10 statements (see Table 10); b) the median of the sample responses was calculated based on this average propensity; c) respondents whose scores for earnings management practices were above the sample median was assigned 1, and 0 otherwise.

Table 1 presents the questions that captured the managers' propensity for earnings management practices:

Table 1
Earnings Management Propensity Construct

Variable	Statements	Metric	Author
Earnings Management Propensity (PM)	In the month leading up to the closing of the results release, I try to: 1. Stay calm, knowing everything within reach was done to achieve the results. 2. Call the team to present the results achieved so far and ask for dedication and commitment in the remaining days. 3. Check whether adjustments to accounts receivable or the provision for doubtful accounts (increase or decrease in provision expense) are needed. 4. Check whether administrative, advertising, publicity and/or maintenance expenses can be adjusted. 5. Examine the possibility of postponing probable losses, indicated by the legal department in the positions of the legal proceedings, in order to be recorded in the next period. 6. Check whether financial charges can be recorded in the future period. 7. Examine the possibility of reversing amounts provisioned in credit operations to maximize results. 8. Check whether it is necessary to change the depreciation method of assets recorded in fixed assets. 9. Analyze the possibility of recognizing "prepaid expenses" as an expense for the period. 10. Analyze the possibility of adjusting accounting entries related to ongoing works/renovations (e.g., postponing or advancing the completion of the work).	5-point Likert Scale: (1) Never; (2) Rarely; (3) I rather not to answer; (4) Almost Always; (5) Always	Adapted from Baralexis (2004); Noronha *et al.* (2008); D'Souza (2016); Góis (2017); Lunardi, Haussmann and Klann (2020).

Source: developed by the authors (2022).

Secondary data were collected from the six-month reports provided in IF. Data and the analytical files of balance sheets and financial statements (Codes 4010 and 4016) were published on the Central Bank of Brazil website. According to Law No. 4,595 of December 31, 1964, financial institutions must close their accounts and determine their results in June and December of each year when the balance sheets are determined by the accounting rules established by the National Monetary Council.

Thus, the analysis period covered the first half of 2015 to the second half of 2021, as this was the latest information available in the study period. There were 994 observations totaling an unbalanced sample across the periods.

The questionnaire asked the respondents to provide the first eight digits of the cooperative's CNPJ number, which enabled the entities to be associated with their financial statements. Additionally, similar to Silva (2019), the executives' responses were multiplied by the number of years they remained in the same position within the respective cooperatives. Thus, secondary data were excluded from the years when the respondents did not hold a position at the credit union.

Secondary data revealed the practice of earnings management through specific accruals in credit unions. The procedures described by Santos and Santos (2020) were adopted to identify such practices, i.e., the values corresponding to earnings management were determined through the discretionary portion of expenses with PCLD. In which:

i) The value recorded under Provisions for Credit Operations (Cosif 1.6.9.00.00-8) was identified. It represents the amounts provisioned at different risk levels, reflecting the total accruals of cooperative i in period t ().

ii) Next, the PCLD portion was measured based on the weighting of the amount recorded in each risk level by the minimum percentage of provision regulated in Bacen Resolution No. 2,682, sensitizing the non-discretionary portion of the PCLD. The risk levels, accounting items, and respective percentages are highlighted in Table 2.

Table 2
Risk levels and minimum provision of PCLD

Risk Levels	Delay in days	% Minimum Regulatory Provision	Accounting Item (Cosif account)
AA	–	0,0%	3.1.1.00.00-3
A	–	0,5%	3.1.2.00.00-6
B	15 a 30	1,0%	3.1.3.00.00-9
C	31 a 60	3,0%	3.1.4.00.00-2
D	61 a 90	10,0%	3.1.5.00.00-5
E	91 a 120	30,0%	3.1.6.00.00-8
F	121 a 150	50,0%	3.1.7.00.00-1
G	151 a 180	70,0%	3.1.8.00.00-4
H	acima de 180	100,0%	3.1.9.00.00-7

Source: Resolution No. 2.682, from 1999; Santos and Santos (2020).

Once the non-discretionary portion is recognized, the difference between the two balances ($PCLD_{tit}$ *and* $PCLDnd_{it}$) is determined to identify the discretionary portion of PCLD, called $PCLD_{d}$, which may or may not correspond to the surplus, in recognition of losses according to criteria other than those provided for in the regulation, thus indicating that cooperative i in period t incurred in earnings management. This balance was identified using Equation 1.

$$PCLDd_{it} = PCLDt_{it} - PCLDnd_{it}$$

Where: $PCLDd_{it}$: discretionary portion of PCLD; $PCLDt_{it}$: amount provisioned for credit operations; $PCLDnd_{it}$: non-discretionary portion of PCLD.

Additionally, a series of control variables were analyzed at the cooperative and manager levels, as the entities' features and the managers' characteristics, such as gender, marital status, and personality, explain variations in earnings results (Shafer & Wang, 2011; Capalbo *et al.*, 2017; Hilary, Huang & Xu, 2017; Ham *et al.,* 2017; Silva, 2019). These variables are presented in Table 3.

Table 3
Control variables at the manager and cooperative levels

Variable	Data source	Metric	Database	Theoretical Foundation
		Control variables of cooperatives' characteristics		
Size (SIZE)		Log of Total Assets of Cooperative i in year t.		Brow and Davis (2009); Góis (2017); Kim; Liu and Rhee (2003); Lee and Masulis (2011).
Basel Index (BI)		Relationship between Reference Equity and Risk-Weighted Assets		Maia *et al.* (2013).
VOC		Variation in the volume of credit operations		Maia *et al.* (2013).
RNDoc		Profit before net provisions expenses, divided by total credit operations for this assessment, in period t-1;		Bressan *et al.* (2016); Maia *et al.* (2013).
Immobilization (IMMOB)	Secondary	Permanent/Equity	Central Bank of Brazil	Bressan, Braga, Bressan and Resende Filho (2011); Carvalho, Diaz, Bialoskorski Neto, and Kalatzis (2015).
Return on Equity (ROE)		Net Profit/Equity		Bittencourt, Bressan, Goulart, Bressan, Costa, and Lamounier (2017).
Return on Assets (ROA)		Net Income/Total Assets		Kim, Kim and Yi (2021)
Protection (PROT)		Provision for doubtful debts on credit transactions/Total classified portfolio		Bressan *et al.* (2011).
Auditing firms (AUDIT)		Dummy variable that assumes 1 when the cooperative is audited by the big four, and 0 otherwise.	Cooperatives' websites	Jin, Kanagaretnam and Liu (2018); Kanagaretnam, Krishnan and Lobo (2010).

Control variables of managers' characteristics				
Age group	Primary	Respondent's age characterized as follows: 1= 20 to 30 years; 2= 31 to 40 years; 3= 41 to 50 years; and 4 = 51 year-old or older.	Questionnaire and SD3.	D'Souza (2016); Grover and Furnham (2021); Ham *et al.* (2017).
Sex		Dummy variable where 1 corresponds to male and 0 to female.		D'Souza (2016); Grover and Furnham (2021).
Years in the position within the same cooperative		Number of years in the position within the same cooperative		Silva (2019).
Position		Respondent's position characterized as follow: 1= supervisor/coordinator; 2 = manager; 3 = director; 4 = vice president; and 5 = president.		Silva (2019).
Experience		Number of years working in cooperatives		D'Souza (2016); Grover and Furnham (2021).
Educational background		Respondent's education level: 1 is assigned for secondary education; 2 for higher education; and 3 for specialization		Grover and Furnham (2021).
Marital Status		Dummy variable for marital status, where 1 corresponds to married/stable union, and 0 otherwise		Ham *et al.* (2017); Silva (2019).

Source: developed by the authors (2022).

3.3 Data Analysis Procedures

Descriptive statistics, multiple linear regression, and logistic regression were performed using Stata® to answer the proposed problem. The variables were Winsorized so as not to bias the results due to the effect of outliers.

Multiple linear regressions were applied, testing the absence of serial autocorrelation of the residuals using the Durbin-Watson (DW) test and multicollinearity between the independent variables using the Variance Inflation Factor (VIF) test. Additionally, the Shapiro-Francia normality and Breusch-Pagan heteroscedasticity tests were performed. Equation 2 demonstrates the model.

$$EM_{it} = \alpha_0 + \beta_1 DARK_{it} + \theta_2 \Sigma VCCOOP_{it} + \theta_3 \Sigma VCGEST_{it} + \varepsilon_{it} \quad (2)$$

Where: EM_{it}: earnings management analyzed by specific accruals and propensity; $DARK_{it}$: variable representing the managers' Machiavellianism, narcissism, and psychopathy traits; $\Sigma VCGEST_{it}$: control variables of characteristics of cooperatives; ; control variables of the managers' characteristics; ε: Regression Error.

According to D'Souza, 2016, the model with the dependent variable EM (categorical variable) was operationalized by logistic regression. Logistic regression was also performed separately for each independent variable of DARK representing Machiavellianism, narcissism, and psychopathy. Six regressions were performed in total.

4 Analyses and interpretation of results

4.1 Descriptive Statistics of the Managers' Characterization Variables

Of the 103 managers from different credit unions who answered the questionnaire, 82% were male, and 18% were female. These results corroborate the study by Hryniewicz and Vianna (2018), in which the higher the position, the lower the female representation.

Regarding the respondents' marital status, 83% are married. Regarding age, 33% were between 31 and 40, 30% were between 41 and 50, and 34% were over 51. Regarding the respondents' positions within the cooperatives, 17% were managers, 55% were directors, 2% were vice presidents, and 21% were chairpersons in the cooperative's board of directors. Regarding educational level, 91% had a bachelor's degree, 1% had a specialization, and 8% had completed high school.

Additionally, the respondents had an average of 16 years of experience in credit unions and held their positions within the same cooperative for 7 years. The results show that credit union managers build their careers in cooperatives, which contrasts with the findings of D'Souza *et al.* (2019), who found younger profiles with less than 3 years of experience in a survey conducted with 263 management professionals.

The analysis of personality traits revealed that the respondents presented different levels of Machiavellianism, narcissism, and psychopathy, with mean scores ranging from 1 to 5—the closer one's score to 5, the higher one's predisposition to that personality trait. The minimum score for Machiavellianism (MACH) and psychopathy (PSYCHO) traits was 1.22, while 2.11 was found for narcissism (NARC). Narcissism also obtained the highest mean score (3.07), while the means for Machiavellianism (MACH) and psychopathy (PSYCHO) were 2.45 and 1.93, respectively.

Thus, the results indicate that most cooperative managers had a greater predisposition to narcissistic traits, followed by Machiavellianism and psychopathy. Buchholz, Lopatta, and Maas (2020) found that narcissistic behavior is associated with greater engagement in earnings management.

Furthermore, corroborating the previously described context, Chatterjee and Hambrick (2007) argue that narcissistic managers tend to make grand and bold strategic decisions that affect the organization's performance. They are recognized for their leadership skills, confidence, vision, and innovative thinking. On the other hand, they are impulsive, manipulative, and take risks in decision-making (Rosenthal & Pittinsky, 2006; D'Souza *et al.*, 2019).

An analysis of the distribution of the managers' responses about whether they agree with the opportunity to incur in earnings management showed that 48% had a predisposition to adopt this strategy, while 52% did not.

On average, credit union managers almost always examine the need to adjust accounts receivable or the provision for doubtful accounts, which increases or decreases provision expenses. They also verify whether administrative, advertising, publicity, and/or maintenance expenses can be adjusted. These indicators suggest that the managers of these cooperatives are prone to becoming involved in earnings management.

D'Souza (2016) contributes by documenting that managers are motivated to increase their personal satisfaction and meet expectations about performance.

4.2 Descriptive Statistics of Variables at the Cooperative Level

In addition to the previous characterization of cooperative managers, Table 4 presents a descriptive analysis of control variables at the cooperative level.

Table 4
Descriptive Statistics of the control variables at the cooperative level

Variables	Mean	Minimum	Maximum	Median	Standard Deviation
TAM	18,85584	12,93923	22,89823	19,0672	1,778217
IB	0,396875	0,1102	1,8167	0,22985	0,382155
IMOB	0,1038827	0,00	0,5226	0,086	0,086633
ROA	0,0152216	-0,0675396	0,1655603	0,0120297	0,0172797
ROE	0,0629837	-0,5386611	0,3003422	0,0612841	0,0561992
PROT	0,045328	0,005	0,1823975	0,0397017	0,0272394
VOC	0,1256725	-0,2902344	0,9274725	0,104355	0,1595957
RNDoc	0,0000228	-0,000202	0,000258	0,000023	0,0000378

Legend: 994 observations; TAM: Size; IB: Basen Index; IMOB: Immobilization; ROE: Return on Equity; ROA: Return on assets; PROT: Protection; VOC: Variation in the volume of credit operations; RNDoc: Non-discretionary result on credit operations divided by the volume of credit operations. .

Source: Study data (2022).

Table 4 shows that the size of the cooperatives (SIZE) measured by the natural logarithm of the total assets was 18.85584, on average. Regarding the Basel Index (BI), the cooperatives presented a mean index of 0.396875, above regulatory limits, showing their continuity in the financial system.

Regarding the degree of immobilization (IMMOB), some cooperatives do not present immobilization; others show high values, such as 0.5226; the degree of immobilization was 0.1038827, on average.

Regarding the Return on Assets (ROA) and Return on Equity (ROE) indicators, an average of 0.0152216 for ROA and 0.0629837 for ROE were found, showing that cooperatives obtain low returns from members' investments and those associated with their assets.

The protection indicator (PROT) obtained an average of 0.045328, and the maximum value was 0.1823975; the lower this indicator, the better a cooperative's situation, as its default rate will be lower. Regarding the variation in the volume of credit operations, the value of the cooperative's credit operations portfolio varied by 0.1256725, on average, in relation to the previous semester.

Regarding the variable "results before net provisions expenses (RNDoc)," the average RNDoc is similar to the findings of Dantas et al. (2018). However, it is worth noting that non-discretionary results on credit operations vary among cooperatives (Bressan *et al.*, 2016).

Regarding the audit companies hired by the cooperatives, the Big Four performed 25% of the audits, and other firms audited 75% between the first half of 2015 and the second half of 2021. It is worth noting that credit unions have a cooperative auditing entity, the *Confederação Nacional de Auditoria Cooperativa* (CNAC) [National Confederation of Cooperative Auditing], which provides this service to individual cooperatives.

4.3 Relationship between the Managers' Dark Triad traits and the adoption of Earnings Management Practices

The results obtained by the regressions, intended to verify the relationship between the managers' Dark Triad personality traits and earnings management by specific accruals, are presented below according to the number of years the manager remained in the same position during the first half of 2015 to the second half of 2021.

Table 5
Managers' Dark Triad and earnings management by specific accrualss

Variables	EM		
	Model 1	Model 2	Model 3
MACH	89417,51 (1,57)	–	–
NARC	–	154303,2* (1,79)	–
PSYCHO	–	–	191490** (2,14)
SIZE	492023,7*** (13,58)	482724,6*** (13,41)	491837,3*** (13,63)
IB	1084134*** (5,09)	1085165*** (5,10)	1128185*** (5,32)
IMMOB	227665,3 (0,46)	304223,5 (0,61)	313159,8 (0,63)
ROA	1,56e+07*** (3,16)	1,58e+07*** (3,19)	1,49e+07*** (3,00)
ROE	-2871349** (-2,19)	-2953386** (-2,26)	-2686885** (-2,05)
PROT	6344167*** (3,86)	6213029*** (3,77)	5874042*** (3,54)
AUDIT	199656,5** (2,29)	193183,8** (2,23)	172961,8** (2,01)
VOC	533206,7** (1,91)	563226,9** (2,01)	525910,4* (1,88)
RNDoc	-4,17e+09*** (-2,94)	-4,28e+09 *** (-3,01)	-4,41e+09*** (-3,09)
SEX	258533,5*** (2,38)	293129,8*** (2,75)	301595*** (2,83)
AGE RANGE	-247352,2*** (-4,55)	-235811,3*** (-4,36)	-243115,9*** (-4,49)
MARITALSTATUS	-474904,3*** (-4,63)	-467277,2*** (-4,56)	-454435*** (-4,44)
EDUCATIONAL BACKGROUND	-158921,2 (-1,13)	-108511,9 (-0,77)	-90606,07 (-0,64)
POSITION	-26038,12 (-0,64)	-31718,82 (-0,77)	-32561,14 (-0,79)
EXPERIENCE	5523,588 (1,01)	5298,949 (0,97)	4140,84 (0,75)
TENURE IN OFFICE	-3829,743 (-0,55)	-4573,387 (-0,65)	-3939,461 (-0,56)
Constant	-8520816*** (-10,32)	-8747848*** (-10,26)	-8805173*** (-10,39)

Variables	EM		
	Model 1	Model 2	Model 3
Year	Yes	Yes	Yes
Adjusted R^2	0,3953	0,3958	0,3966
F-value	20,99	21,03	21,10
VIF	1,16 a 5,74	1,15 a 5,72	1,16 a 5,70
DW	2,26	2,26	2,25
N	994	994	994

Legend: Levels of significance: * p<0.1, ** p<0.05, *** p<0.01. MACH: Machiavellianism; NARC: Narcissism; PSYCHO: Psychopathy; SIZE: Size; BI: Basel Index; VOC: Variation in volume of credit operations; RNDoc: Non-discretionary result on credit operations, divided by the volume of credit operations; IMMOB: Fixed assets; ROE: Return on equity; ROA: Return on assets; PROT: Protection; AUDIT: Audit firm. T-test value within parentheses. VIF: Variance Inflation Factor. DW: Durbin Watson. N: Number of observations.

Source: Study data (2022).

Table 5 shows the three models used to test hypothesis H_1, which presented an explanatory power of 39%. Positive and significant relationships were found between narcissism and earnings management by specific accruals (p<0.1) in Model 2 and between psychopathy and earnings management by specific accruals (p<0.05) in Model 3. Model 1, on the other hand, did not show significant relationships between Machiavellianism and earnings management by specific accruals.

The results of models 2 and 3 reveal that the personality traits of narcissism and psychopathy positively influence earnings management through specific accruals, impacting cooperative strategies. In this sense, Grover and Furnham (2021) found that narcissism and psychopathy positively predict decision-making focused on taking risks. This factor might trigger the practice of earnings management in the corporate environment.

Chatterjee and Hambrick (2007) found that narcissistic executives are motivated to make bold and highly visible decisions, often leading to extreme management actions. Ham *et al.* (2017) report that narcissistic directors are more likely to use provisions and earnings management to manipulate results. Another trait of this personality profile is the tendency to avoid recognizing losses in the current period, often concealing past mistakes. As a result, organizations may experience ineffective internal controls and an increased likelihood of inaccurate reporting.

Campbell *et al.* (2011) contribute by highlighting that narcissism significantly affects the decision-making process, with managers exhibiting this trait prioritizing their selfish needs. As a result, they are more likely to engage in earnings management practices.

Regarding psychopathy, the results corroborate Góis (2017), as they show that individuals with psychopathic traits tend to take unnecessary risks to obtain gains. However, they diverge from D'Souza *et al.* (2019), who indicated that managers with psychopathic traits showed a lower tendency to maximize gains by manipulating results.

Babiak, Neumann, and Hare (2010) found that some organizations see executives with psychopathic traits as having leadership potential. These individuals can manipulate decision-makers, which facilitates advancing their careers. In this context, D'Souza *et al.* (2019) show that, when holding high-level positions, individuals with high psychopathy levels look for loopholes in legislation, manipulate prices for personal gain without worrying about long-term implications, and may become involved with earnings management practices.

Regarding the control variables, this study suggests that the size of credit unions (SIZE) positively influences earnings management. This result corroborates the research by Alali and Jaggi (2011), which points out that the size of the financial institution plays an important role in managerial motivation for earnings management.

The BI variable was significant and positive, showing that compliance with minimum capital requirements influences earnings management practices. Hillier *et al.* (2008) found that credit unions employed accounting strategies to reduce the risk of being under regulatory supervision for not meeting minimum capital requirements over 12 months. On the other hand, Maia *et al.* (2013) found no significant evidence that credit unions were adopting earnings management practices to improve capital requirements.

Return on assets (ROA) presented a positive coefficient. It was significant in all models, indicating that more profitable credit unions are more likely to practice earnings management, consistent with Cheng (2012) and Jin *et al.* (2018). Regarding return on equity (ROE), it negatively influenced earnings management, corroborating the findings by Bittencourt *et al.* (2017).

The protection indicator (PROT) is related to the cooperatives' default. Similar to the results presented by Bressan *et al.* (2011), it had a positive and significant effect, suggesting that the higher the default level, the greater the probability of earnings management, which could lead to a credit cooperative's insolvency.

The audit firm (AUDIT) variable presented a positive and significant coefficient. This finding differs from that of Jin et al. (2018), in which entities audited by one of the Big Four manage their results to a lesser extent, increasing the quality of disclosed information.

Regarding the variable "Variation in the Volume of Credit Operations (VOC)," a positive and significant association was found with earnings management by accruals. This finding contrasts with that of Bressan *et al.* (2016), though it is consistent with the results of Maia et al. (2013) and Dantas *et al.* (2018).

Regarding the variable "non-discretionary result on credit operations (RNDoc)," the results were significant with a negative coefficient, contradicting the positive coefficient reported by Maia *et al.* (2013), Bressan *et al.* (2016), Bressan *et al.* (2017).

In turn, Goulart (2007) reveals that when profit in credit operations increases (excluding the effect of PCLD expenses); PCLD is directed to reduce it. There is a tendency to postpone provision records when profits decrease.

Regarding the characteristics of credit union managers, gender was significant and positive in the three models, indicating that men holding management positions increase earnings management, which is aligned with the findings by Cumming, Leung, and Rui (2015).

Age and marital status were significant, but there was a negative coefficient in all three models, showing that older or married managers are less likely to adopt earnings management practices. Hilary *et al.* (2017) reported that married individuals have more significant economic and social commitments and are less willing to take actions that could negatively affect their families. Finally, the control variables involving immobilization (IMMOB), education, position, experience, and time in the position were not significant in any of the models.

Table 6 presents the results of the logistic regression that was performed due to the dichotomous nature of the dependent variable (propensity for earnings management) compared to the independent variable (Dark Triad personality traits) and the control variables, which were included because they are considered potential influencers in decision-making (D'Souza, 2016).

Table 6
Managers' Dark Triad earnings management propensity

Variables	PM		
	Model 1	Model 2	Model 3
MACH	2,259045***	-	-
NARC	-	0,4458165***	-
PSYCHO	-	-	1,343776***
SEX	0,0328373	0,2986973*	0,3436608*
AGE RANGE	-0,501685***	-0,0652398	-0,1046862
MARITAL STATUS	1,350928***	0,8149845***	1,012838***
POSITION	-0,4617665***	-0,3965364***	-0,4152213***
EDUCATIONAL BACKGROUND	-1,41654***	-0,459627*	-0,2389813
EXPERIENCE	0,0323071***	-0,0033052	-0,0083848
TENURE IN OFFICE	-0,0325572**	0,0125576	0,0072083
Constant	-1,358811	-0,0821513	-1,616465
Correctly classified	75,45%	55,73%	62,98%
Pseudo R2	0,2592	0,0411	0,08
LR chi2	356,36	56,52	109,97
Log likelihood	-509,11557	-659,03446	-632,31022

Legend: Significant levels: * p<0.1, ** p<0.05, *** p<0.01. MACH: Machiavellianism; NARC: Narcissism; PSYCHO: Psychopathy; Number of observations.

Source: Study data (2022).

Overall, the models predict that the coefficients are significant in explaining the decision to manage earnings, revealing a propensity for adopting such a practice.

Thus, hypothesis H_2 was confirmed. It predicts that credit union managers with Machiavellian, narcissistic, or psychopathic personality traits are more likely to adopt earnings management practices in credit unions. It is important to note that decision-making results from judgments influenced by opinions and preferences (D'Souza & Lima, 2015), and managers with Machiavellian, narcissistic, or psychopathic traits tend to engage in earnings management more frequently.

The Dark Triad has been associated with the practice of illicit financial acts, with narcissism being perceived as a risk factor for fraud among auditors. Machiavellianism is associated with the reporting of inaccurate reports, while psychopathy is associated with financial infractions. Furthermore, individuals with a high level of narcissistic traits are impulsive and do not act strategically. Those with high psychopathy levels are reckless and antisocial. In turn, Machiavellianism is opportunistic and strategic, leading to actions based on possible financial gains (Carré *et al.*, 2020).

Regarding Machiavellianism, Murphy (2012) identified that people with a higher degree of Machiavellianism are more susceptible to reporting inaccurate information. Moreover, they show no guilt in the face of unethical behavior, and thus, they might engage in earnings management practices. Shafer and Wang (2011) found that individuals with high Machiavellian traits did not consider earnings management through accounting choices to be a problematic matter, though operational management was considered more severe.

Also, Machiavellians might selfishly use their power and influence to promote their interests. They are emotionally balanced in situations of customer resistance, efficient in an initial contact and cold calling, and manipulative (Bagozzi, Verbeke, Dietvorst, Belschak, Van Den Berg & Rietdijk, 2013). Such behaviors are potentially relevant to earnings management decisions.

Regarding narcissism, Capalbo *et al*. (2017) found a positive relationship between CEO narcissism and earnings management. Ham *et al.* (2017) found that CFO narcissism traits are associated with earnings management, lower timely loss recognition, vulnerable internal control, and republication of information.

Chatterjee and Hambrick (2007) argue that this trait in executives is positively related to the strategic dynamism of grandiosity, generating remarkable and fluctuating organizational performance. D'Souza and Lima (2015) indicated that when highly narcissistic executives occupy powerful positions and lack control, they might act unethically and harm the organization. Additionally, D'Souza *et al.* (2019) point out that such individuals can boost their performance reporting when there are positive implications of social status associated with earnings management.

The results regarding psychopathy are supported by Góis (2017), who identified that such a trait significantly influences the management of results through provisions and actual operational activities, reflecting insensitive behavior, erratic lifestyle, and short-term manipulations.

When analyzing managers' decisions from the perspective of psychopathy, these individuals are capable of lying, persuading, and manipulating to obtain power, wealth, and status. They are responsible for part of the negative behavior in the corporate environment, such as inventory manipulation and involvement in fraud, for instance (Boddy, 2011; D'Souza & Lima, 2015).

Babiak *et al.* (2010) examined psychopathy and its correlates. They indicated that this trait is positively associated with strategic thinking and communication skills but negatively associated with responsibility and performance ratings and may be involved in earnings management practices.

Sex was positively and significantly associated with narcissism and psychopathy in models 2 and 3. Therefore, male managers with narcissistic or psychopathic traits are more likely to make decisions focused on earnings management. These results are consistent with those Peni and Vähämaa (2010) reported.

Arun, Almahrog, and Ali Aribi (2015) argue that female executives are more risk-averse and display ethical behavior; hence, they are less frequently associated with earnings management than their male counterparts.

Age appears significant only in Model 1 (Machiavellianism) and showed a negative coefficient. Roussanov and Savor (2014) note that older CEOs may be more conservative in business, and their results indicate that age is negatively associated with entrepreneurial risk-taking.

Marital status was positive and significant in the three models, a finding that diverge from the results by Hilary *et al.* (2017), who found that single CEOs are more likely to manage results.

The "position" variable was also significant in the three models, though it had a negative coefficient; hence, it was not a predictive factor for earnings management.

The participants' educational level was significant, with a negative sign in models 1 and 2 (Machiavellianism and narcissism). Regarding this aspect, Hirschi and Spurk (2021) analyzed ambition and the search for recognition and achievement in the organizational environment and found that the professionals' educational level exerted a strong and positive influence.

The participants' experience showed a significant and positive influence only in Model 1 (Machiavellianism); though it is worth noting that managers' choices are influenced by their experiences throughout their careers, which can affect corporate results (Bamber, Jiang & Wang, 2010).

Similarly, the variable "tenure in office" was significant only in Model 1 (Machiavellianism) but presented a negative coefficient. This finding is consistent with that described by Driesch, Costa, Flatten, and Brettel (2015), in which CEOs with more tenure in office consider decision-making focused on changes less radically and less frequently, not using their entities' resource base nor engaging in earnings management, despite knowing the specificities of their organizations.

Overall, the results show that managers motivated to report good performance and satisfy and attract new associates to achieve personal and business goals face the dilemma of using accounting information opportunistically for decision-making. Moreover, dark personality traits encourage such practices intended to benefit managers to the detriment of the business (D'Souza & Lima, 2015; Naaman, 2018).

Notably, many narcissistic qualities, such as self-confidence and empowerment, are positive in disputes over leadership decisions. Individuals with high levels of psychopathic traits are associated with the use of tactics and influence, and Machiavellians are considered charming and deceitful (O'Boyle, Forsyth, Banks & Story, 2013).

For example, narcissists in the business world are recognized for being visionary and charismatic, seeking leadership positions, and influencing people (D'Souza & Lima, 2015). Machiavellians can identify risk factors in opportunities and behaviors before fraud occurs (Carré et al., 2020). Those with psychopathy traits crave excitement and demonstrate order, effort, and self-discipline (D'Souza *et al.*, 2019).

5 Conclusions

This study analyzed the relationship between managers' Dark Triad personality traits and earnings management among credit unions. Data were collected in two stages, using primary and secondary sources. The final sample comprised the managers of 103 credit unions.

The results show that the presence of narcissism and psychopathy traits among managers increases earnings management through specific accruals. Machiavellianism, in turn, did not exert a significant influence. However, when analyzing the final decision to verify the opportunistic attitude of managers towards such practice, the three traits showed that credit union managers are prone to earnings management.

Thus, managers might be encouraged to improve their reputation and image by seeking immediate benefits for all stakeholders if credit union members and supervisory bodies demand satisfactory results (Maia et al., 2013; Santos & Santos, 2020).

Hence, we reinforce the importance of analyzing personality traits in the credit union environment, considering that these traits lead managers to adopt attitudes and behaviors not aligned with the organizations' interests. As suggested by the Upper Echelon Theory, an individual's decisions and interpretations are influenced by their experiences, values, and personality, and managers with personality traits are prone to earnings management.

In this context, earnings management is considered a strategy to report positive results, which can potentially result in private advantages to managers and losses for cooperatives in the long term, such as the arbitration of the constitution of provisions for credit operations, fines, and, in more extreme cases, the determination of the manager's ineligibility (Bressan *et al.*, 2016).

This study's contributions include filling a gap in Brazilian studies, as previous studies seldom adopt behavioral variables to analyze earnings management and decision-making (D'Souza *et al.*, 2019; Silva, 2019). Additionally, no studies were found on personality traits in the context of credit unions. Another contribution concerns the adoption of the Upper Echelon Theory, which indicates that a manager's characteristics interfere with decision-making in the accounting sphere in a corporate environment with a cooperative bias.

This study's findings are relevant to members, credit unions, regulatory entities, analysts, auditors, statutory bodies, and society in general, as they show that an individual's personality influences accounting choices and decision-making. The results may also help highlight the need to pay attention when hiring professionals with these traits to hold management positions (D'Souza, 2016), considering their implications in the corporate environment.

Finally, a vulnerable control environment might encourage individuals with Dark Triad traits to get involved in situations that are at odds with their organization's strategies. Hence, internal control mechanisms, good corporate governance practices, and compensation of control levels are necessary to minimize consequences in the presence of individuals with these traits (D'Souza & Lima, 2015; Góis, 2017).

Regarding this study's limitations, the first concerns the application of the personality and decision-making questionnaire. It was self-administered and does not constitute a clinical diagnosis. Furthermore, given the subject's sensitivity, the results cannot be generalized. The questions aimed to capture the participants' characteristics, but their responses may not accurately represent their real behavior (D'Souza, 2016). Even though the analysis of the managers' personality traits was assumed to be constant over the period, one cannot state that these remained unchanged during the analysis.

Furthermore, other professionals in the credit union environment responsible for decision-making may influence earnings management but did not participate in the study. Future studies are suggested to discuss behavioral accounting, qualitatively exploring the managers' environment, investigate the pressure they suffer to present a good performance to the members and society, and include variables such as corporate governance, organizational culture, profit sharing programs, regulatory changes with an impact on accounting recognition; classify personality traits according to high and low levels; address larger samples; and investigate other fields, such as education and administration. Investigating the positive effects of these traits in the corporate environment is also recommended, as well as including other personality traits and methodological choices.

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