


ASSESSING INTERNAL CONTROL EFFECTIVENESS IN CREDIT UNIONS: A COSO-BASED STUDY

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 31 July 2023</p> <p>Accepted 30 October 2023</p>	<p>Purpose: The purpose of this study was to evaluate the internal control process in organizations, specifically focusing on savings and credit unions in the Tambo canton. The aim was to assess the fulfillment of actions, activities, plans, policies, standards, records, procedures, and methods within these organizations. The study sought to provide insights into the reliability of internal controls and their impact on the achievement of objectives in public, private, and mixed companies.</p>
<p>Keywords:</p> <p>Risk; COSO; Trust; Credit Unions.</p>	<p>Theoretical framework: The study is grounded in the COSO (Committee of Sponsoring Organizations of the Treadway Commission) model, which provides a comprehensive framework for internal control systems. The research draws upon concepts and principles from this model to assess the reliability of internal control components within savings and credit unions in the Tambo canton.</p>
	<p>Design/Methodology/Approach: This investigation employed two main approaches: quantitative and bibliographic. The quantitative approach involved using an internal control questionnaire specifically designed for savings and credit unions in the Tambo canton. The bibliographic approach involved an extensive review of existing literature and relevant sources to establish a theoretical foundation for the study. These methods were used to assess the reliability of internal controls in the organizations under investigation.</p>
	<p>Findings: The study found that the savings and credit unions in the Tambo canton demonstrated high levels of reliability in the components of the COSO I methodology. The internal control processes within these organizations were effective, indicating commitment, responsibility, integrity, common objectives, communication, and evaluation among the workers. The findings suggest that the internal control systems in place contribute significantly to the organizations' overall reliability and low levels of risk.</p>
	<p>Research, Practical & Social implications: From a research perspective, this study contributes valuable insights into the effectiveness of internal control processes within savings and credit unions, particularly when assessed through the lens of the COSO model. Practically, the findings have implications for organizations seeking to enhance their internal control systems, emphasizing the importance of commitment, communication, and evaluation in ensuring reliability. Socially, the study underscores the significance of trustworthy and reliable internal control mechanisms, which can foster integrity and responsibility within organizations and, by extension, contribute to the community's overall trust in these institutions.</p>

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Originality/Value: The originality of this study lies in its specific focus on savings and credit unions in the Tambo canton, providing a detailed evaluation of their internal control processes using the COSO model. The research adds value by offering practical insights for organizations aiming to improve their internal control systems, making it a valuable resource for practitioners and policymakers. Additionally, the study contributes to the broader academic discourse on internal control processes, reaffirming the importance of commitment and communication within organizations for achieving reliability and low risk levels.

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AVALIANDO A EFICÁCIA DO CONTROLE INTERNO NAS UNIÕES DE CRÉDITO: UM ESTUDO BASEADO NO COSO

RESUMO

Objetivo: O objetivo deste estudo foi avaliar o processo de controle interno nas organizações, com foco específico nas cooperativas de poupança e crédito no cantão de Tambo. O objetivo era avaliar o cumprimento de ações, atividades, planos, políticas, padrões, registros, procedimentos e métodos dentro dessas organizações. O estudo procurou fornecer insights sobre a confiabilidade dos controles internos e seu impacto no alcance dos objetivos em empresas públicas, privadas e mistas.

Referencial teórico: O estudo baseia-se no modelo COSO (Committee of Sponsoring Organizations of the Treadway Commission), que fornece um enquadramento abrangente para sistemas de controle interno. A pesquisa baseia-se em conceitos e princípios deste modelo para avaliar a confiabilidade dos componentes de controle interno nas cooperativas de poupança e crédito no cantão de Tambo.

Desenho/Metodologia/Abordagem: Esta investigação utilizou duas abordagens principais: quantitativa e bibliográfica. A abordagem quantitativa envolveu a utilização de um questionário de controle interno elaborado especificamente para cooperativas de poupança e crédito no cantão de Tambo. O questionário foi estruturado com base nos componentes do modelo COSO. A abordagem bibliográfica envolveu uma extensa revisão da literatura existente e de fontes relevantes para estabelecer uma fundamentação teórica para o estudo. Esses métodos foram utilizados para avaliar a confiabilidade dos controles internos nas organizações investigadas.

Constatações: O estudo constatou que as cooperativas de poupança e crédito no cantão de Tambo demonstraram altos níveis de confiabilidade nos componentes da metodologia COSO I. Os processos de controle interno dentro dessas organizações foram eficazes, indicando comprometimento, responsabilidade, integridade, objetivos comuns, comunicação e avaliação entre os trabalhadores. As conclusões sugerem que os sistemas de controle interno implementados contribuem significativamente para a fiabilidade global e os baixos níveis de risco das organizações.

Implicações de pesquisa, Práticas e Sociais: Do ponto de vista da pesquisa, este estudo contribui com insights valiosos sobre a eficácia dos processos de controle interno nas cooperativas de poupança e crédito, especialmente quando avaliados através das lentes do modelo COSO. Na prática, as conclusões têm implicações para as organizações que procuram melhorar os seus sistemas de controle interno, enfatizando a importância do compromisso, da comunicação e da avaliação para garantir a fiabilidade. Socialmente, o estudo sublinha a importância de mecanismos de controle interno fiáveis e fiáveis, que podem promover a integridade e a responsabilidade dentro das organizações e, por extensão, contribuir para a confiança geral da comunidade nestas instituições.

Originalidade/Valor: A originalidade deste estudo reside no seu foco específico nas cooperativas de poupança e crédito no cantão de Tambo, fornecendo uma avaliação detalhada dos seus processos de controle interno usando o modelo COSO. A investigação acrescenta valor ao oferecer conhecimentos práticos para organizações que pretendem melhorar os seus sistemas de controle interno, tornando-a um recurso valioso para profissionais e decisores políticos. Além disso, o estudo contribui para o discurso acadêmico mais amplo sobre os processos de controle interno, reafirmando a importância do comprometimento e da comunicação dentro das organizações para alcançar confiabilidade e baixos níveis de risco.

Palavras-chave: Risco, COSO, Trust, Cooperativas de Crédito.

EVALUACIÓN DE LA EFICACIA DEL CONTROL INTERNO EN COOPERACIONES DE CRÉDITO: UN ESTUDIO BASADO EN COSO

RESUMEN

Propósito: El propósito de este estudio fue evaluar el proceso de control interno en las organizaciones, específicamente enfocándose en las cooperativas de ahorro y crédito del cantón Tambo. El objetivo fue evaluar el cumplimiento de acciones, actividades, planes, políticas, estándares, registros, procedimientos y métodos al interior de estas organizaciones. El estudio buscó brindar información sobre la confiabilidad de los controles internos y su impacto en el logro de objetivos en empresas públicas, privadas y mixtas.

Marco teórico: El estudio se basa en el modelo COSO (Comité de Organizaciones Patrocinadoras de la Comisión Treadway), que proporciona un marco integral para los sistemas de control interno. La investigación se basa en conceptos y principios de este modelo para evaluar la confiabilidad de los componentes de control interno dentro de las cooperativas de ahorro y crédito del cantón Tambo.

Diseño/Metodología/Enfoque: Esta investigación empleó dos enfoques principales: cuantitativo y bibliográfico. El enfoque cuantitativo implicó el uso de un cuestionario de control interno diseñado específicamente para las cooperativas de ahorro y crédito del cantón Tambo. El cuestionario se estructuró en base a los componentes del modelo COSO. El enfoque bibliográfico implicó una revisión extensa de la literatura existente y fuentes relevantes para establecer una base teórica para el estudio. Estos métodos se utilizaron para evaluar la confiabilidad de los controles internos en las organizaciones investigadas.

Hallazgos: El estudio encontró que las cooperativas de ahorro y crédito del cantón Tambo demostraron altos niveles de confiabilidad en los componentes de la metodología COSO I. Los procesos de control interno al interior de estas organizaciones fueron efectivos, indicando compromiso, responsabilidad, integridad, objetivos comunes, comunicación y evaluación entre los trabajadores. Los hallazgos sugieren que los sistemas de control interno implementados contribuyen significativamente a la confiabilidad general y los bajos niveles de riesgo de las organizaciones.

Implicaciones prácticas, sociales y de investigación: desde una perspectiva de investigación, este estudio aporta información valiosa sobre la efectividad de los procesos de control interno dentro de las cooperativas de ahorro y crédito, particularmente cuando se evalúa a través de la lente del modelo COSO. En la práctica, los hallazgos tienen implicaciones para las organizaciones que buscan mejorar sus sistemas de control interno, enfatizando la importancia del compromiso, la comunicación y la evaluación para garantizar la confiabilidad. Socialmente, el estudio subraya la importancia de mecanismos de control interno confiables y confiables, que pueden fomentar la integridad y la responsabilidad dentro de las organizaciones y, por extensión, contribuir a la confianza general de la comunidad en estas instituciones.

Originalidad/Valor: La originalidad de este estudio radica en su enfoque específico en las cooperativas de ahorro y crédito del cantón Tambo, brindando una evaluación detallada de sus procesos de control interno utilizando el modelo COSO. La investigación agrega valor al ofrecer conocimientos prácticos para las organizaciones que buscan mejorar sus sistemas de control interno, lo que la convierte en un recurso valioso para profesionales y formuladores de políticas. Además, el estudio contribuye al discurso académico más amplio sobre los procesos de control interno, reafirmando la importancia del compromiso y la comunicación dentro de las organizaciones para lograr confiabilidad y bajos niveles de riesgo.

Palabras clave: Riesgo, COSO, Fideicomiso, Cooperativas de Crédito.

INTRODUCTION

Within administrative management, it is important to point out that there are different stages or levels of management, which are responsible for fulfilling different types of roles at the managerial level, including accounting, that is why Murillo-Virella et al. (2019, referenced by Rodríguez, Palacios, Reinoso, & Luna, 2020), defines administrative management as an agglomeration of certain activities used to guide an organization through a reasonable behavior of tasks, resources, and efforts, when you have the power to dominate and coordinate the different roles and different actions that are performed within the company, can identify

problems and can achieve their objectives, for good administrative management in the systematic conduct results in a correct obtaining favorable data for the company (page 605).

Thus, these rational behaviors of resources and efforts can in some way be measured by internal control, whether accounting or personnel, where problems and their causes can be identified to take the necessary corrective actions and reorient the company's objectives and vision that could somehow be compromised or deviated from their path.

Internal control is the process designed by the management of an organization through which actions, activities, plans, policies, standards, records, procedures, and methods are carried out to provide reasonable assurance in the achievement of objectives. It has become a fundamental tool for the operation and development of public, private, and mixed companies.

The mission of the savings and credit cooperatives is based on the social purpose of providing financial services to their members. In Ecuador, in the last 5 years, these cooperatives have become important in the country's economic development.

In El Tambo Canton, there exist financial entities that provide their services as private banks and credit and savings cooperatives. In 2012, the Popular and Solidarity Economy Superintendence was funded as a regulation and control organism; credit and saving cooperatives integrate Ecuador's popular and solidarity economies.

In 2014, the policy board and financial and monetary regulation issues the organic monetary and financial code to regulate Ecuador's monetary and financial policy.

The importance for the credit unions of an internal control system has increased in the latest years since it provides reasonable security in completing the objectives, avoiding losses, treasuring, and protecting the cooperative resources.

THEORETICAL FRAMEWORK

Internal Control Definition

Auditing systems would not exist without accounting, which is why it is important to take a brief look at the history of accounting and how it has evolved since its beginnings, until recent days, thanks to commerce, properties, and societal development, as established by Montesino (1993, referenced by Reinoso, Cárdenas & Muñoz, 2019) and presented in **Figure 1**.

Figure 1. Accounting historical periods

<p>EMPIRIC PERIOD (From Ancient History - 1202)</p>	<p>Characteristics Non-existence of complete accounting systems, existence of accounting concerns since the most remote times (accounting records are found among Sumerians, Egyptians, Greeks and Romans) connection between the development of accounting and economic activities (in the High Middle Ages a flourishing mercantile activity develops which demands the gradual improvement of the accounting technique that will go from the Single Entry to the Double Entry method)</p>
<p>GENESIS PERIOD AND EMERGENCE OF THE DOUBLE ENTRY SYSTEM (1202-1494)</p>	<p>Characteristics Development of the simple entry and its subsequent transformation into the double entry, growth of commercial activity, expansion of trade, development of credit activities, birth of commercial companies</p>
<p>PERIOD OF EXPANSION AND CONSOLIDATION OF THE DOUBLE ENTRY SYSTEM (1494-1840)</p>	<p>Characteristics Extension of the principles of double entry (spread throughout Europe) Progressive improvement of the concept of periodical results and inventory valuation - a long but not fruitful stage</p>
<p>SCIENTIFIC PERIOD (1840-PRESENT)</p>	<p>Characteristics The accounting thought of this period can be divided according to the different doctrinal currents: legal, contist and neo-contist. Economic approach, patrimonialism, hacendalist school.</p>

Note: Adapted from “*Contabilidad gubernamental y normas internacionales de contabilidad para el sector público ecuatoriano*” by Reinoso, Cárdenas, & Muñoz, 2019, *Revista Venezolana de Gerencia*.
 Source: Prepared by Authors (2023)

In **Figure 1**, it can be observed how accounting grew from single to double entry thanks to the expansion of trade and all its associated elements such as banking, credit, commercial, and trading companies, among others, which also gave way to the birth of different accounting doctrines.

Mantilla (2012) defines internal control as a process exercised by the board of directors, management, and other personnel of the entity, designed to provide reasonable assurance regarding the achievement of the following objectives: operational efficiency and effectiveness, reliability of financial reporting, and compliance with applicable laws and regulations. In the broadest sense, it comprises the structure, policies, organizational plans, all methods and procedures, and the quality of the company's personnel.

Copa Sayay (2018), shows us that the Popular and Solidarity Superintendence in the internal control manual for nun financial associations and cooperatives defines internal control as:

The set of norms, principles, fundamentals, processes, procedures, actions, mechanisms, techniques, and control instruments that, orderly interrelated and linked to the people that make

up an organization, support the fulfillment of its institutional objectives and contribute to the achievement of its corporate purpose (pág. 14).

Internal control involves all personnel and internal bodies that make up the organization and its finality is to enable the measurement, analysis, and improvement of the organization's management (Vargas Huaman, 2020, pág. 2). Internal control is performed by the different hierarchical levels, where the administrators, members of the management and other personnel contribute in the adequate function of the control system. All the human talent belonging to the company is responsible for the study of the control, where it is possible to maintain and consolidate a good structure, reaching the fulfillment of the objectives through the effectiveness of its operations (Yupanqui Valente & Valdivieso Parrales, 2021, pág. 26).

In Ecuador, the Internal Control Standards for Entities, Public Sector Agencies, and Legal Entities under Private Law with Public Resources issued by the Comptroller General's Office define internal control as the integration process that contributes to achieving institutional objectives while protecting public resources, adopting timely measures to correct organizational deficiencies through compliance with legal, technical and administrative regulations to promote efficiency and effectiveness of operations (Parra, Muñoz, Sánchez, & Zamora, 2021, pág. 350).

Therefore, internal control plays a fundamental role in organizations of all sectors, and its implementation and execution are the responsibility of corporate governance. In which, the administration establishes the reins of the organization, placing special importance and establishing responsibilities at all levels, including supervision and enterprise risk management (Parra, Muñoz, Sánchez, & Zamora, 2021, pág. 351).

Internal Control Objectives

- Protect assets and safeguard the organization's property
- Ensure the reasonableness and reliability of financial information.
- Ensure the integrity of information systems.
- Ensure that applicable regulations are complied with.
- Promote operational efficiency.
- Ensure compliance with planned goals and objectives to fulfill the organization's mission

Committee of Sponsoring Organizations (2010, as cited by Parra, Muñoz, Sánchez, & Zamora, 2021), in its model, identifies five interrelated components of internal control, as

follows:

- **Internal control environmental:** It is the foundation for effectiveness, and provides discipline and structure to the organization, stimulating and influencing the activity of personnel concerning control of their activities. It is in essence the main element on which the other four components are based or act and indispensable, in turn, for the realization of the control objectives themselves.
- **Risk assessment:** the probability of uncertain occurrence of facts or events that affect the scope of internal control, it is a process to identify and respond to business risks and the results derived from them. An assessment of existing or possible risks is required to take the necessary actions to manage them.
- **Control activities:** are performed throughout the organization, at all levels, and in all functions. It includes a range of diverse activities such as approvals, authorizations, verifications, reconciliations, operational performance reviews, asset security, and segregation of duties. The organization's human resources execute the activities that are manifested in policies, procedures, and systems.
- **Information and communication systems:** important for financial reporting, it consists of the procedures and records established to initiate, record, process, and report the organization's transactions and to maintain accountability for the related assets, liabilities, and equity.
- **Monitoring (Supervision and follow-up of controls):** Every internal control system tends to deteriorate no matter how strong it is, thus losing its effectiveness. In this situation, it is essential to exercise permanent supervision to make the necessary adjustments following the changing environment (págs. 351-352).

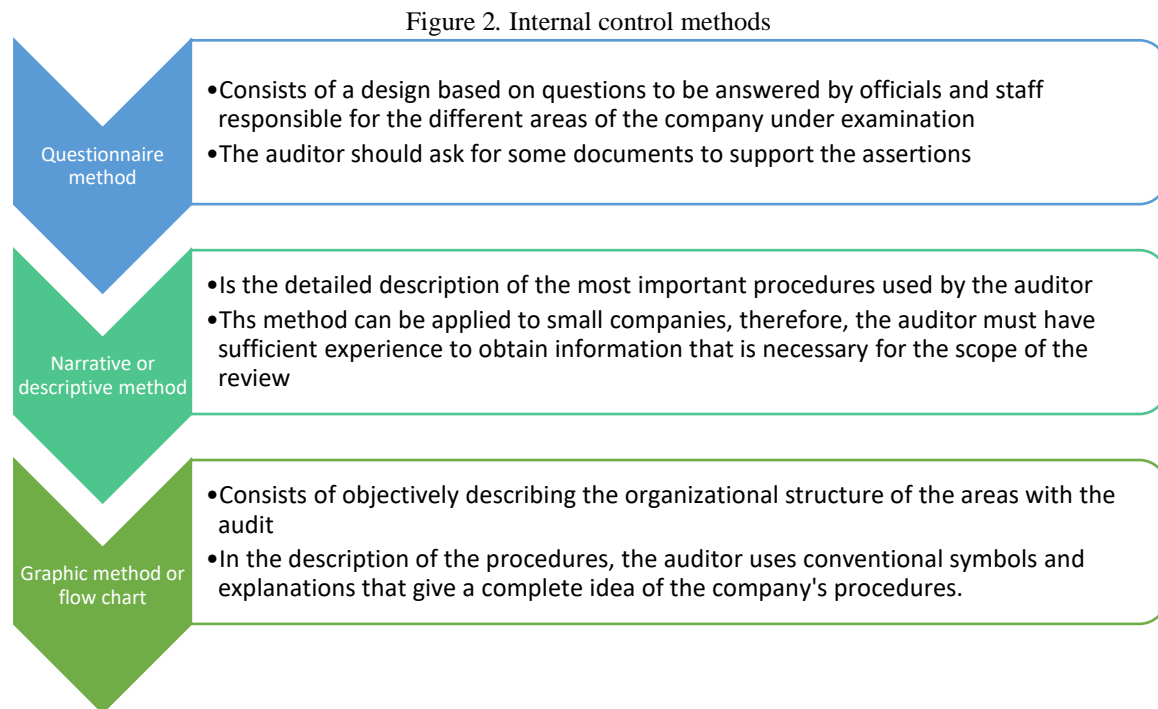
Internal Control Benefits

Ruiz, U. (2015, as cited by Parra, Muñoz, Sánchez, & Zamora, 2021) referring to the benefits of the internal control system, cites the following:

- It provides reasonable and reliable assurance of the adequate management of the entity's risks.
- It establishes the forms of action at all levels of the organization by setting clear and measurable objectives and control activities.
- Defines the standards of conduct and performance, acting as a driver for the establishment of the internal control system of the entities.

- Establishes the monitoring mechanisms for the resolution of deviations to the functioning of the Internal Control System (pág. 18).

Internal Control Evaluation Methodology



Source: Prepared by Authors (2023)

Note: adapted from “Evaluación de control interno en el departamento de crédito en una Cooperativa de Ahorro y Crédito: Caso Rhumy Wara Ltda”, by Caisabanda & Francisca, 2019, Pontificia Universidad Católica de Ecuador.

Figure 2 shows different methods to evaluate internal control, the questionnaire method, the narrative or descriptive method, and finally the graphical method or flow chart, the latter is the most advisable method, since it graphically shows the information of the previous two methods, because it is a simpler way to explain to the company if financial and operational controls are absent, identify deviations in procedures, among others.

Credit Union

The credit unions emerge as a Popular and Solidarity Economy or Social Economy movement that promotes the development and growth of territory based on the generation of employment, and equitable distribution of surpluses, that, as told by Castelló & Trias (2015), combines profitability, social inclusion, and democratic management.

As indicated by Galarza, García, Ballesteros, Cuenca y Fernández (2017, as cited by García Bravo, Hurtado García, Ponce Álava, & Sánchez Moreira, 2021), in Ecuador, in recent years, financial institutions as part of the social and solidarity economy sector have increased their importance as members of the national financial sector, helping to achieve superior socioeconomic results for their members and society in general, within the framework of compliance with corporate social responsibility and national development objectives (pág. 230).

Likewise, as indicated by Fernández, Hernández, Hernández & Chicaiza (2018, as cited by García Bravo, Hurtado García, Ponce Álava, & Sánchez Moreira, 2021) indicate that credit unions, with the mission of achieving sustainable and integral management, have strengthened their social, technical and economic development. And on this technicality, internal control is of great relevance, since it has the potential to provide reasonable security in the flow of operations and internal transactions, through properly structured policies and procedures. This is one of the business tools with the greatest benefit on the quality of internal processes and the verification of requirements and regulations set by external control entities (pág. 2030).

Credit unions are legal entities distinct from the group of commercial companies, which have substantive features derived, among others, from the existence of their legal regulation, with a long tradition and; in the various political, economic, and social circumstances they have had to face, they have demonstrated their capacity to generate welfare and wealth for their members, becoming the engine of economic and social life in many territories and the main business instrument at the service of their inhabitants (Segui, Mateos, Mari, & Zamorano, 2011, pág. 4).

Credit Union Classification

The Organic Law of Popular and Solidarity Economy of the Financial System (2011, as cited by Quijosaca Zuña, 2022), establishes the following classification:

- **Producer cooperatives:** These are those in which the members are personally dedicated to productive activities, lawful and managed in common, such as home gardens, fishing, handicrafts, industry, textiles, etc.
- **Consumer cooperatives:** Their purpose is to supply their members with any kind of freely marketable goods, such as the consumption of necessities and the supply of seeds, fertilizers, etc.
- **Housing cooperatives:** Their purpose is the acquisition of real estate for the

construction or remodeling of housing or offices or the execution of urbanization works for the benefit of its members.

- **Credit unions:** Their objective is to provide financial intermediation services and meet the needs of their members (pág. 13).

According to Turner (1996, as cited by Cárdenas et al, 2021) a credit union is an entity that provides financial self-help to its members to save money and pool resources to provide low-cost loans, operates within a clearly defined area of location, and has a common bond among its members. The objectives of a credit union are multiple and could be categorized as a combination of social purposes, summarized in:

- Promote saving
- Provide loans to members at a reasonable interest rate
- Help members make effective use of their financial resources (pág. 163).

By law, credit union members must be united by a "common bond of occupation or association or belong to groups within a neighborhood, community or district" (Hannan, 2002, as cited in Cárdenas, Treviño, Cuadrado, & Ordóñez, 2021). Similar development trends and problems can be observed in credit unions. These include:

- A first stage in which credit unions begin as local institutions operating in a given community or radius, whose membership is granted based on a common bond, in which members offer voluntary services and are highly motivated, factors that make them highly competitive.
- A subsequent stage is the interaction between primary credit unions. This is the basis for developing secondary or tertiary credit. Through the creation of a central fund and cooperation with others to strengthen the development of secondary or tertiary credit (pág. 164).

McKillop et ál. (1997, as cited in Cárdenas, Treviño, Cuadrado, & Ordóñez, 2021) have also chronicled the development of the credit union industry in three stages, which he calls "nascent," "transitional" and finally to a "mature" stage. The nascent industry represents a stage of development where credit unions are viewed as self-help organizations with a strong social purpose. Key attributes of this stage include small asset size, a close common bond among members, and an emphasis on voluntarism. The transition stage, where the seeds of change are sown within credit unions, shows a relaxation of the cooperative philosophy and ideals. This is caused by the need for cost efficiency and economies of scale due to asset growth and market competition (pág. 164).

The mature stage puts an end to the development trajectory of credit unions. According to McKillop et ál (1997, as cited in Cárdenas, Treviño, Cuadrado, & Ordóñez, 2021), the key attributes of this stage are the adoption of new features such as large asset size, a less restrictive interpretation of the common bond requirement for members, change in their operational strategies, diversification of products and services, management professionalism rather than voluntarism, the transformation of their ideological and institutional nature. Credit unions are becoming more business oriented and common bonds have lost prominence (pág. 164).

Table 1. Risk models

Type of risk	Description
Planned risk of detection	It is a quantification of the risk that audit evidence for a segment will not detect errors above a tolerable amount if such errors exist. There are two important points regarding the planned risk of detection: first, it depends on the other three factors in the model. The planned risk of detection will change only if the auditor changes one of the other factors. Second, it determines the amount of substantive evidence the auditor plans to accumulate, inversely to the size of the planned risk of detection.
Inherent risk	It is a quantification of the auditor's assessment of the likelihood of material misstatement (error or fraud) in a segment before considering the effectiveness of the internal control structure. Inherent risk is the susceptibility of the financial statements to material misstatement assuming there are no internal controls.
Control risk	Control risk is a measure of the auditor's assessment of the likelihood that errors above a tolerable amount in a segment will not be prevented or detected by the client's internal control. Control risk presents 1) an assessment of the effectiveness of the client's internal control structure in preventing or detecting errors, and 2) the auditor's intention to make that assessment at a level below the maximum (100%) as part of the audit plan.
Accounting acceptable risk	It is a measure of the auditor's readiness to accept that the financial statements contain material misstatements after the audit has been completed and an unqualified opinion has been issued. When the auditor chooses a lower audit risk, it means that the auditor is more confident that the financial statements are free of material misstatement. A zero risk would imply complete certainty and a 100% risk would imply complete uncertainty. Total certainty (zero risk) of the accuracy of the financial statements is not practical in economic terms since the auditor does not guarantee the total absence of material misstatement.
Engagement risk	Engagement risk is the risk that the auditor or the audit firm will suffer damage due to a client relationship, even if the audit report presented to the client was correct. Engagement risk is closely related to the risk of the client's business. For example, if a client files for bankruptcy after completing an audit, the likelihood of a claim against the CPA firm is reasonably high even if the quality of the audit was good.

Note. This table shows the types of risk that auditors are vulnerable to assuming the auditing. Taken from Gestión de Riesgos Corporativos en el Análisis de Procesos Empresariales y Auditorías con énfasis en la Evaluación del Riesgo de Control (pages. 29-30), González, 2019.

Source: Prepared by Authors (2023)

Auditors may encounter several elements that must be evaluated to achieve a successful audit, since there is generally no such thing as a perfect audit, there will always be errors that

may be minuscule and without major consequences as others that can lead to major financial problems for an organization. Hence this classification of risk is presented below in

Table 1, which attempts to group them.

METHODOLOGY

According to the nature of the study, this paper has two approaches: firstly, **quantitative**, since an objective reality is analyzed from numerical measurements, and statistical analysis to determine patterns of behavior according to the object of study. And, secondly, a **bibliographic** to support the subject and an internal control questionnaire are used to obtain the qualification of each of its components according to the COSO model to determine its reliability

In the same manner, the analytical method is applied with the internal control questionnaire technique, using a bank of questions based on Resolution 128, which refers to the rules for the comprehensive risk management of savings and credit cooperatives, and Resolution 0279, which refers to the control standard for the management of operational risk and legal risk in the entities of the popular and solidarity financial sector under the control of the SEPS, based on the internal control structure proposed by the COSO model, identified by five interrelated components, which are the following:

- Control environment
- Risk evaluation
- Control activities
- Information and communication
- Supervision and monitoring

With the application of the internal control questionnaire, we determined the level of confidence and risk that exists in the processes of the cooperatives and the total average of the cooperative sector.

The internal control questionnaire was applied to the person responsible for managing the agency, since he/she is the person who knows the processes, in the questionnaire to evaluate the internal control, closed questions were used, if the answer is yes, it is valued with (1) and if the answer is no it is valued with (0).

The research is done in 5 credit unions of El Tambo canton, which are:

- COAC CB Cooperativa
- COAC Yuyay Ltda.

- COAC Cañar Ltda.
- COAC La Merced
- COAC Jardín Azuayo

The information is used to consolidate, tabulate, organize, and construct the levels of confidence and risk, and finally, an analysis is made to evaluate the internal control system of the credit unions.

Table 2. Valuation matrix: Confidence level - risk level

Confidence level		
Low	Moderate	High
15% - 50%	51% - 75%	76% - 95%
85% - 50%	49% - 25%	24% - 5%
High	Moderate	Low
Risk level		

Source: Prepared by Authors (2023)

Risk assessment is performed using parameters or qualities such as high, moderate, low, and effective control system; being the simplest way to identify risk within the mentioned qualities, which would indicate that a risk rated as high should have priority in the entity, not a low risk. In the internal control questionnaire, each question was given a value of (1) if it complies and (0) if it does not comply with the process.

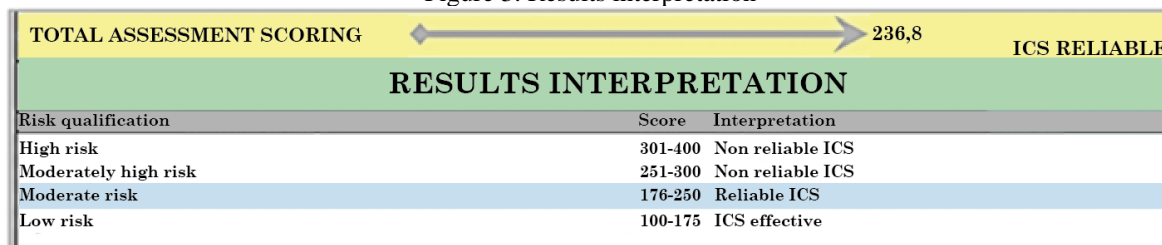
Table 3. Risk assessment ranges

Risk assessment		
Low	Moderate	High
≤ 0,24	0,25 - 0,49	≥ 0,5

Source: Prepared by Authors (2023)

RESULTS INTERPRETATION

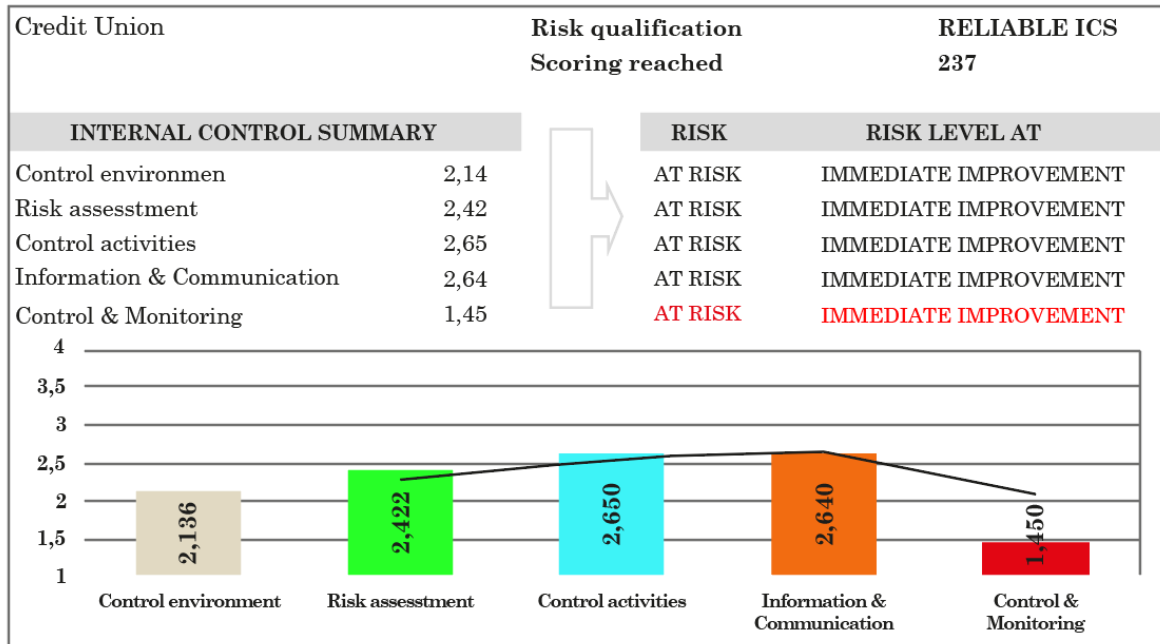
Figure 3. Results interpretation



Source: Prepared by Authors (2023)

Note: adapted from “Modelo de auditoría integral para pequeñas Cooperativas de Ahorro y Crédito ecuatorianas”, by Veloz-Navarrete, Vargas-Ulloa, & Villa-Maura, 2017, Revista Ciencia UNEMI.

Figure 4. Results interpretation



Note: Adapted from “Modelo de auditoría integral para pequeñas Cooperativas de Ahorro y Crédito ecuatorianas”, by Veloz-Navarrete, Vargas-Ulloa, & Villa-Maura, 2017, Revista Ciencia UNEMI.
 Source: Prepared by Authors (2023)

Figure 3 and **Figure 4**, it can be observed an example of how to interpret the results of the components of the internal control system, in this context results that are at risk, whether low or moderate, are interpreted as a warning signal that must be corrected immediately, because although they imply a reliable internal control (score 237), in auditing systems any detected risk must be corrected. In this context, the evaluation of this internal control system was based on its classification parameters and the risk classification of the German Confederation of Cooperatives, as follows (**Figure 5**).

Figure 5. Internal control classification

Score	Interpretation
301-400	Non reliable ICS
251-300	Non reliable ICS
176-250	Reliable ICS
100-175	Effective ICS

Note: Adapted from “Modelo de auditoría integral para pequeñas Cooperativas de Ahorro y Crédito ecuatorianas”, by Veloz-Navarrete, Vargas-Ulloa, & Villa-Maura, 2017, Revista Ciencia UNEMI
 Source: Prepared by Authors (2023)

Figure 6. Risk classification

Risk	Classification
Low	1
Moderate	2
Moderately High	3
High	4

Note: Adapted from “Modelo de auditoría integral para pequeñas Cooperativas de Ahorro y Crédito ecuatorianas”, by Veloz-Navarrete, Vargas-Ulloa, & Villa-Maura, 2017, Revista Ciencia UNEMI.
 Source: Prepared by Authors (2023)

In this context, the scores obtained by the components of the internal control system in the example show that the control environment, risk assessment, control activities, and information and communication are above 2 points, which gives them a moderate risk rating. And the monitoring and control system is above 1 point, which qualifies it as low risk, as seen in **Figure 6**. These results indicate immediate improvements.

RESULTS

Table 4 shows the results of the confidence level and risk level for each component, each of the cooperatives, and the total average.

Tabla 4. Confidence level and risk level for each component, each of the cooperatives, and the total average.

Credit Union	Control environment		Risk assessment		Control activities		Information and communication		Monitoring and follow-up		Total, per credit union	
	Confidence level	Risk level	Confidence level	Risk level	Confidence level	Risk level	Confidence level	Risk level	Confidence level	Risk level	Confidence level	Risk level
CB Cooperativa	94%	6%	100%	0%	97%	3%	100%	0%	100%	0%	98%	2%
COAC Yuyay	84%	16%	90%	10%	76%	24%	75%	25%	100%	0%	85%	15%
COAC Cañar Ltda.	84%	16%	90%	10%	93%	7%	100%	0%	75%	25%	88%	12%
COAC La Merced	84%	16%	100%	0%	100%	0%	100%	0%	100%	0%	97%	3%
COAC Jardín A	87%	13%	100%	0%	100%	0%	100%	0%	100%	0%	97%	3%
Total	87%	13%	96%	4%	93%	7%	95%	5%	95%	5%	93%	7%

Source: Prepared by Authors (2023)

In the control environment component, 7 subcomponents and 31 questions were established, obtaining a total average total confidence level of 87% and a risk level of 13%. When analyzing each saving and credit cooperative, it is found that one institution has a confidence level of 94% and a risk level of 6%, two entities have a confidence level of 87% and a risk level of 13%, and two cooperatives have a confidence level of 84% and a risk level of 16%. With the data analyzed, it can be deduced that the internal control system is reliable since it is within the ranges established in the risk and confidence level weighting matrix.

For the risk assessment component, 10 questions were asked, resulting in an average level of confidence and total risk of 96% and 4%, respectively. The results by cooperatives indicate that three of them have a confidence level of 100%, one has a confidence level of 96% and a risk level of 4%, and another institution has a confidence level of 90% and a risk level of 10%.

In the third component, control activities, 29 questions were incorporated, obtaining a confidence level of 93% and a risk of 7%; in the case of each credit union we found that two entities have a confidence level of 100%, the other three entities have values of 97%, 93%, 76% and a risk level of 3%, 7% and 24%.

In the internal control, information, and communication component, the results indicate that 4 credit unions have a confidence level of 100% and the overall average is 95%, the number of questions applied was 4.

In the monitoring and follow-up component, 4 questions were used, resulting in an overall average level of confidence and risk of 95% and 5%, respectively, in the case of each identity with a confidence level of 100%.

Once each of the components has been analyzed, it is determined that the overall average level of confidence and risk in the internal control of the credit unions is 93% and 7%, respectively; likewise, one institution has a level of confidence in its internal control system of 98% and a risk level of 2%; the other institutions have confidence values of 98%, 97%, 93%, 88% and 85%. Therefore, according to the percentages obtained, it is concluded that the internal control system is reliable according to the ranges established in the valuation matrix.

Table 4. Risk assessment

Credit union	Control environment	Risk assessment	Control activities	Information and comunicartion	Monitoring and follow-up	Total, per credit union
Valuación del riesgo						
CB Cooperativa	0,02	0,00	0,01	0,00	0,00	0,03
COAC Yuyay	0,04	0,02	0,06	0,04	0,00	0,16
COAC Cañar Ltda.	0,05	0,02	0,02	0,00	0,02	0,11
COAC La Merced	0,04	0,00	0,00	0,00	0,00	0,04
COAC Jardín Azuayo	0,03	0,00	0,00	0,00	0,00	0,03
Total	0,04	0,01	0,02	0,01	0,00	0,07

Source: Prepared by Authors (2023)

The risk assessment carried out on the credit unions shows that the entities do not identify risks since the values are below 0.24, which indicates that the risk is low, as shown in **Table 5**; therefore, we can indicate that the internal control system of the institutions is generally effective.

DISCUSSION

The results of this research are consistent with the research done by Quinaluisa, Ganchozo, Reyes, & Arriaga (2017), about the parameters used to measure the levels of confidence and risk within the internal control component of private companies resulted in an overall confidence level of 80% and a risk level of 20% rated as low. In the present research work, the confidence level of the 5 cooperatives was on average 93% high and the inherent risk was on average 7% low. In another research done by Gómez, Herrera, & Villanueva (2019), where the same parameters are evaluated by the department of a certain company, the results at the management level indicate a 40% low confidence level and a 60% high inherent risk. The results at the accounting department level indicate a confidence level of 55% moderate and an inherent risk level of 45% moderate. These results could not be comparable, since they are made by department and the present work at the global level of each cooperative. In another study by Flores Salazar & Guevara Montoya (2017), The results indicate for the company in the study a confidence level of 69% moderate and a risk level of 31% low, which although not similar to the present work concerning confidence, is within the low-risk levels. Although these results reflect an efficient internal control system, in an audit process for a company or organization, detectable risks may compromise that efficiency in the future, which is why organizations must make the necessary corrective measures to eliminate those risks that may affect the objectives and goals set.

CONCLUSIONS

The six credit unions evaluated all presented high levels of trust and low inherent risks. In the control environment component, the level of trust was 87%, and a risk level of 13%, indicating a high degree of commitment of the workers to the company, since there are ethical values, integrity, and competence. In the risk assessment component, the level of confidence was 96% and the risk level was 4%, indicating that the risks faced by the organization and the objectives to be achieved are recognized. In the control activities component, the level of confidence was 93% and a risk level of 7%, indicating that there are control levels such as policies and procedures. In the information and communication component, the confidence level was 95% and the risk level 5%, indicating that there is an exchange of information among workers for the management of the organization finally monitoring and follow-up, the confidence level was 95% and risk level 5%, indicating that continuous and timely evaluations are carried out and deficiencies are reported.

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