

Internal Control System in Cooperatives: A Systematic Review

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Abstract

Internal control plays an essential role in improving the efficiency of resources and ensuring the achievement of organizational goals. This study aimed to systematically synthesize articles published in Vietnam and abroad on the topic of “internal control” and “internal control system” in cooperatives during the period of 2012-2023. The conceptual framework of internal control, research methods, and main results of publications were summarized. The findings showed that empirical studies on internal control have frequently been conducted in financial and credit organizations, however, there are limited studies in the cooperative model. The publications focused on three main contents, namely the status and structure of internal control in organizations; the roles and impacts of internal control on performance and corporate governance; and the factors affecting the effectiveness and efficiency of internal control. The COSO framework has been applied by most authors in analyzing the current situation of internal control and internal control systems. The positive impacts of internal control on efficiency (ROA and ROE) and the sustainability of cooperatives were confirmed by the authors. Limitations in human resources, scale, technology, and staff awareness of internal control were considered as barriers to implementation of internal control in organizations.

Keywords

Internal control, internal control system, cooperatives

Introduction

Internal control (IC) plays an essential role in monitoring an organization’s activities (Tran *et al.*, 2021), especially in the context of a changing technology environment, the increasing complexity of business transactions, and the limitations and weaknesses of internal management that often lead to a rise of risks in organizations. According to the Committee of Sponsoring Organizations (COSO, 2013), IC is a process performed by the board of directors, or other individuals in an entity, and is designed to provide reasonable assurance to the organization, in order to achieve their objectives of

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effective and efficient activities; financial statement reliability and regulations compliance; risk reduction; and achievement of organization goals. An effective internal control system (ICS) would support and monitor performance effectively, enhance regulations compliance, ensure capital management efficiency (Ha My Trang *et al.*, 2022), reduce the organization's loss risk, reduce frauds and asset losses (Ha & Dung, 2018; Long *et al.*, 2022), and maintain continuous operation.

A cooperative is a collective economic model that is voluntarily established by members with common interests, who cooperate and support each other in doing business, in order to boost operational efficiency and meet the common needs of members. It is based on autonomy, self-responsibility, equality, and democracy in management and control (Government, 2012). In Vietnam, cooperatives have become an indispensable component of the economy that contribute to the economic growth (Garnevska *et al.*, 2014), especially in agricultural and rural areas, and they have a particularly important role in achieving the goals of sustainable growth, rural construction, poverty reduction, and environment improvement.

Effective cooperatives bring benefits to members, such as transaction cost reductions, product quality management improvement, market access enhancement, supportive policies access, training and technical support, and stable/competitive prices for purchasing and selling activities, which then raise the members' income. Cooperatives also set their own missions and goals as other business types. Instead of maximizing profits, cooperatives aim to maximize benefits for members and the community, and improve the members' capacity. There are, however, always barriers that prevent cooperatives from achieving their goals. For instance, disagreements within the cooperatives, the capacity weaknesses of managers and employees, the limitations of financial resources, or the shortage of knowledge and skills in the market and technology access (Bretos & Marcuello, 2017) are the weak points of the cooperative model.

IC in general has been considered as an effective tool for managers and enables organizations to prevent, detect, and promptly correct errors, limit damage, and attain their goals. Especially in the field of cooperatives, IC has been seen as one of the significant factors in managing and operating cooperatives effectively (Kiyieka & Muturi, 2018). Cooperatives perform the role of supporting, inspecting, and monitoring members' production processes to ensure that they comply with and meet the required standards, which then reduce risks in the production processes (Bharaditya *et al.*, 2017). Thereby, members could be able to obtain certificates in accordance with registered processes, which would lead to an increase in product consumption. Research has demonstrated that there is a positive relationship between IC and an organization's performance (Kule *et al.*, 2022; Ouko & Atheru, 2022), including agricultural enterprises (Shabri *et al.*, 2016). By contrast, ineffective IC could create great risks for an organization, including cooperatives (Bharaditya *et al.*, 2017; Rahim *et al.*, 2017; Utaminingsih *et al.*, 2020).

Briefly, the role of IC is undeniable for the operation of cooperatives in general and agricultural cooperatives in particular. However, research in this field is still very limited. This article aimed to systematically synthesize related research in terms of IC in cooperatives around the world as well as in Vietnam, thereby aiming to identify the main research directions and research gaps of this topic.

Methodology

This work leveraged articles from ScienceDirect, Google Scholar, and NASATI (a Vietnamese database) to explore the field of IC systems within cooperatives. Keywords related to IC systems and their application in economic organizations, including cooperatives and enterprises, guided the search and article download process. The search was set to include recent publications from 2012 to 2023 to capture current ideas and developments on IC systems in economic organizations, particularly in cooperatives in Vietnam. For selecting specific articles for review, the Preferred

Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework was used to ensure transparency and provide a systematic approach for selecting high-quality publications.

In total, 591 Vietnamese articles and 358 international articles (949 articles altogether) were retrieved, covering cases of IC systems in various economic organizations. Since there were limited results specifically for IC systems in Vietnamese cooperatives, articles were also gathered on IC system applications in other countries and other economic organizations, including enterprises. All 949 articles were downloaded for further review.

The selection process is detailed in **Figure 1**. After removing 727 duplicates, an additional 115 records were excluded during screening, and 20 more were removed at the final selection stage, resulting in a total of 85 articles included in the review. These articles were classified

based on their focus on ICs within industry, economic organizations, and other relevant contexts in both Vietnam and internationally.

Results

Overview of research on internal control in Vietnam

Studies on IC and ICS have been carried out by several authors in Vietnam in the fields of banking and insurance (Nguyen Tuan, 2016; Hung & Tuan, 2019; Hoang Thi Huyen, 2020; Quoc Trung, 2021; Nguyen Thi Cuc Hong, 2021; Nguyen Thi Quynh Huong, 2021); construction (Hoang Thi Hong Le *et al.*, 2022; Tri *et al.*, 2020; Vu *et al.*, 2020); garment and agriculture (Nguyen Thi Bich Thuy & Nguyen Thi Khanh Phuong, 2012; Nguyen Thi Phuong Lan & Le Thi Lan Huong, 2013; Do Huy Thuong & Nguyen Thi Phuong Hong, 2020;

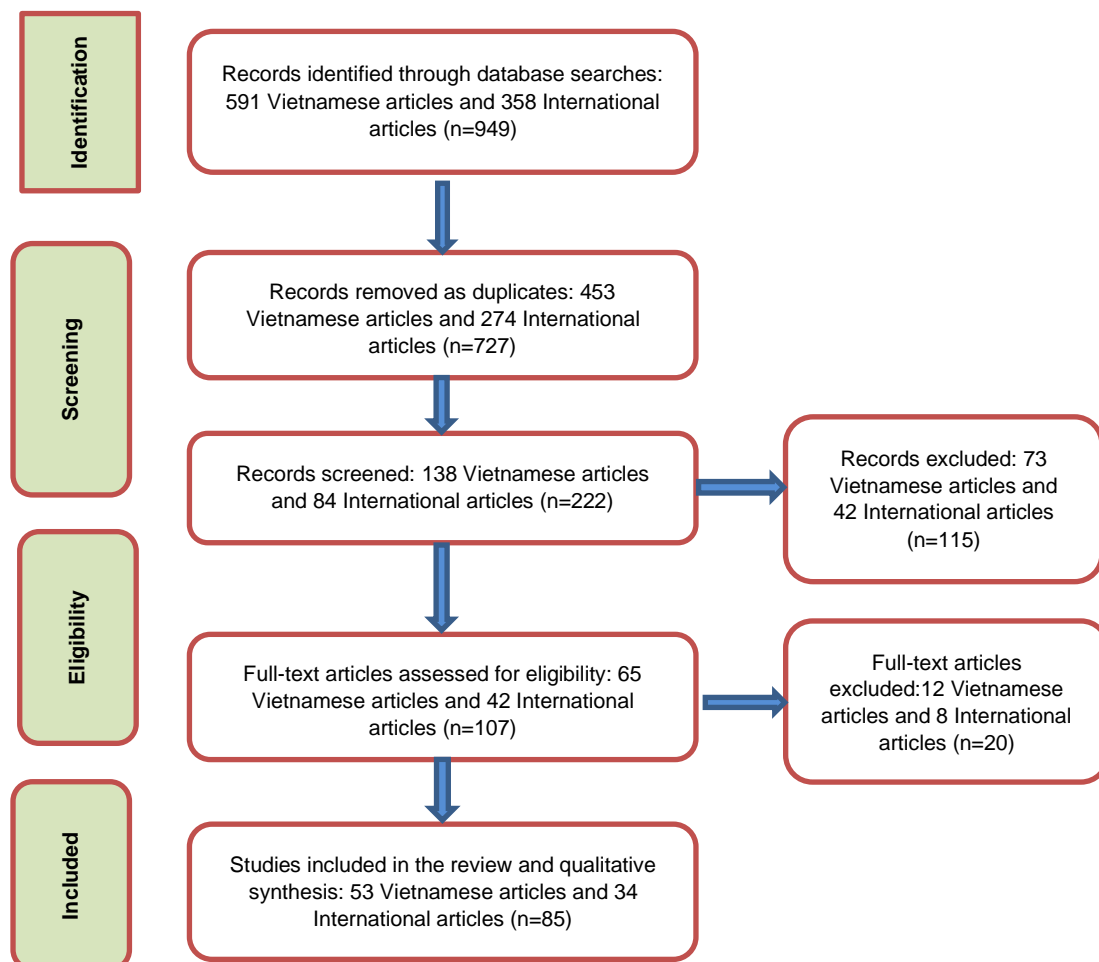


Figure 1. PRISMA flow diagram showing the selection of articles for this review work

Trinh Le Tan & Dao Thi Dai Trang, 2020; Tran Trung Tuan & Tran Thi Song Lam, 2021); wood-working (Tran Thi Quanh & Le Mong Huyen, 2017); and other fields (Pham Duc Binh, 2013; Anh *et al.*, 2020; Thuan, 2020; Nguyen Thi Que *et al.*, 2021; Nguyen, 2021; Le Quoc Hoi *et al.*, 2022); and in the model of corporations and listed companies (Nguyen Thi Phuong Hoa & Nguyen To Tam, 2013; Nguyen Thi Que *et al.*, 2021), enterprises in general (Nguyen Thi Phuong Lan & Le Thi Lan Huong, 2012; Le Thi Lan Huong & Nguyen Thi Phuong Lan, 2018; Ha & Dung, 2018; Do Vu Phuong Anh, 2022); small and medium-sized enterprises (Nguyen Hoang Son *et al.*, 2020; Thuan, 2020; Le Quoc Hoi *et al.*, 2022), and also in universities, public organizations, and other unit models (Dinh The Hung *et al.*, 2013; Nguyen Huu Tan & Tran Dinh Khoi Nguyen, 2020).

Most of the studies (nearly 80%) approached IC based on the COSO model with five factors, namely control environment (CE), risk assessment (RA), control activities (CA), information and communication (CI), and monitoring. According to the COSO's theoretical framework (1992, 2013) with five elements and 17 principles, researchers have developed scales to evaluate IC in accordance with organizational characteristics, industries, and organizations.

Published research has focused on three main areas of IC in enterprises and organizations, namely:

(1) Research on the general situation of IC in organizations

With the model of state-owned enterprises, IC is mainly carried out by a supervisory board. It is still formal, however, it is also inefficient, not focused on IC activities, and the controllers lack the authority, conditions, criteria, and standards to implement financial and operational control (Tran Viet Lam, 2012). In his research, Tran Viet Lam (2012) said that the COSO model with five components has been considered as theoretical guidelines for building and perfecting the ICS for state-owned enterprises. In this specific business type, it is essential to create a CE for all

members to identify their roles and responsibilities and participate in IC activities. In the RA component, firstly, it is necessary to identify the objectives of the enterprise. There are normally three groups of objectives, namely operational, financial reports, and compliance goals, from which to identify and evaluate possible risks that threaten the achievement of goals. In addition, with monitoring components, to effectively evaluate and monitor the ICS, there should be coordination between IC and external control by agencies such as the Government Inspectorate and the State Audit.

Using the descriptive statistics method, based on the COSO approach, authors Nguyen Thi Le Ha & Tran Thi Anh (2018) and Trinh Le Tan & Dao Thi Dai Trang (2020) described the current situation of IC of surveyed businesses, detailed in specific factors. Surveying 336 small and medium-sized enterprises in Thai Nguyen, Nguyen Thi Le Ha & Tran Thi Anh (2018) illustrated that the CA were evaluated well, while the four remaining elements were assessed at an average level. With this type of business, due to limitations in scale and resources, the components of IC might not be clearly identified, however all the elements would still be implemented (Pham Thanh Thuy, 2019). The authors believed that to build an effective ICS in this business type, organizations should focus on improving the quality of human resources and regular IC monitoring. Dinh The Hung *et al.* (2013) demonstrated that CE, RA, the accounting information system, control procedures, and monitoring were the basic necessary elements of ICS of universities. In the case of the CE component, the main factors were from both outside and inside an organization, namely management philosophy, leadership style, employee capacity, organizational structure, personnel policies, government and industry policies, and regulations that universities must comply with.

(2) Research on the impact/relationship between IC and performance and information quality

Table 1. Classification of published articles on ICS in Vietnam

Criteria	No. of Papers	Frequency (%)
By Industry	53	
Manufacturing (wood, textiles, agriculture, rubber, etc.)	15	28.3
Commerce/trade	1	1.9
Services (banking, credit)	11	20.8
Other (education, media, tax)	6	11.3
None*	20	37.7
By type, organization	53	
Listed companies	4	7.5
Government	1	1.9
Small and medium	8	15.1
Bank	11	20.8
General enterprises	23	43.4
Other	6	11.3
By ICS approach framework	53	
COSO	39	73.6
COSO, Basel	3	5.7
Other	11	20.8
By main content	53	
Situation of IC (ICS) in organizations	9	17.0
The role and impact of IC (ICS) on an organization's performance	17	34.0
Factors affecting ICS, effectiveness of IC (ICS)	26	49.1

Note: * No industry mentioned.

Quantitative methods, exploratory factor analysis (EFA), and regression analysis were applied to evaluate the impact of IC in general and each element in the ICS on an organization's performance. The IC was based on the five elements of the COSO model, while the organization's performance was measured by the ROA indicator (Nguyen Thi Kim Anh & Nguyen Thi Phuong Hoa, 2018; Hoang Thi Huyen, 2020), and the ROE indicator was used to calculate financial efficiency (Nguyen Thi Que *et al.*, 2021). The results confirmed the positive relationship between the quality of IC, the elements of IC, and the organization's performance. Nguyen (2021) affirmed that monitoring and CI were the two factors that had the strongest impacts on the efficiency of pharmaceutical companies. IC and the ICS's elements had positive influences on the performance efficiency of nearly 500 surveyed forestry enterprises (Nguyen Thi Kim Anh &

Nguyen Thi Phuong Hoa, 2018) and surveyed garment and agricultural enterprises (Do Huy Thuong & Nguyen Thi Phuong Hong, 2020), and significantly affected the financial efficiency of listed companies and construction enterprises (Nguyen Thi Que *et al.*, 2021; Hoang Thi Hong Le *et al.*, 2022; Tran Thi Khanh Linh *et al.*, 2023).

It has been suggested that control aims at helping organizations supervise and manage risks and ensure the quality of financial statements. Therefore, a number of research has been carried out to evaluate the impacts of the ICS's components on risk control quality (Nguyen Thi Phuong Lan & Le Thi Lan Huong, 2013; Hoang Thi Huyen, 2020), or the effects of IC on the quality of financial statement information (Nguyen Thi Phuong Hoa & Nguyen To Tam, 2013; Nguyen Anh Hien, 2019; Pham Thanh Thuy, 2019; Thuan, 2020). Studies have shown that there is a positive

relationship between the ICS's components and the quality of financial statement information, as well as the risk control quality. According to Nguyen Anh Hien (2019), CE and CA were considered as the two fundamental factors that affected financial statement quality of surveyed enterprises in Ho Chi Minh City, Binh Duong, and Dong Nai. Through regression analysis, Thuan (2020) believed that the effectiveness of the ICS had a positive impact on the quality of financial statement information of small and medium-sized enterprises in Vietnam. Specifically, when the efficiency of the ICS increased by 1 point, the financial statement quality rose by 0.275 points. In addition, the above author strongly believed that an organization's managers needed a mechanism to monitor the design and operation of the ICS according to the Vietnam Accounting Law 2015.

Researching the ICSs in three business models, namely corporations or economic groups, small and medium enterprises, and banks, Pham Duc Binh (2013) suggested that IC plays an essential role in helping businesses achieve their goals. In addition, IC has a significant role in promoting innovation activities in small and medium-sized enterprises (Le Quoc Hoi *et al.*, 2022), and enhancing innovation intensity, which beneficially affects the operational performance of public organizations in Vietnam (Hoai *et al.*, 2022). However, the ICS still has weaknesses, especially in small and medium-sized enterprises, so it has not fully promoted its roles and effectiveness in management.

(3) Studies on factors affecting IC activities, ICS, or the effectiveness of IC

The majority of research (50%) focused on understanding and analyzing factors affecting the efficiency or effectiveness of IC in businesses and organizations. The effectiveness or efficiency of IC has been measured through several criteria, for instance operational efficiency, reliable financial statements, and laws and regulations compliance (Nguyen Thi Cuc Hong, 2021), or political goals, financial efficiency, and reliability of settlement reports, which were associated with the radio station model (Nguyen Huu Tan & Tran Dinh Khoi Nguyen, 2020).

The methods of exploratory factor analysis, testing the reliability of the scale, and multiple regression models were applied to evaluate and analyze the factors affecting the efficiency or effectiveness of IC. Researching 150 enterprises in Binh Duong, Long *et al.* (2022) illustrated that two factors, CE and RA, affected the effectiveness of the ICS. In addition, according to Tran Thi Quan & Le Mong Huyen (2017), the factors of CE, CA, and CI influenced the effectiveness of IC at wood processing enterprises in Binh Dinh province, of which CE had the greatest impact. The authors concluded that the characteristics of small and medium-sized enterprises, limited resources, and poor management systems would all lead to greater understanding and concerns about IC, especially in that RA and monitoring were inadequate. Based on the analysis of 187 enterprises, Trang (2022) confirmed that 60.9% of the changes in effectiveness and efficiency of IC were explained by all five COSO IC elements. In the transportation business model, moreover, Vu *et al.* (2020) suggested that 80.4% of the variation in the effectiveness of IC was explained by the five IC components. Many authors also asserted that the effectiveness and efficiency of IC were affected simultaneously by all five factors, however, the impact level of each would be different. In fact, CE and RA were considered as the two factors that had the strongest impact on the effectiveness of IC in the group of non-financial enterprises in the study of Nguyen Xuan Thuan *et al.* (2021), in the Agribank group (Nguyen Thi Quynh Huong, 2021), and at the Ho Chi Minh City Tax Department (Huynh Tan Dung & Nguyen Thi Thanh Huong, 2023). In contrast, Van Thi Thai Thu & Dang Hieu Nghia (2021) and Co Thi Diem & Le Hoang Phuc (2022) pointed out that RA was the factor of least concern in rubber companies in Kon Tum and firms in the Tra Vinh area. Based on the studies of Nguyen Thi Loan (2018), Tri *et al.* (2020), and Co Thi Diem & Le Hoang Phuc (2022), monitoring had the strongest impact on the effectiveness of IC in construction businesses and commercial banks. Meanwhile, in the models of public non-business units (Tran Van Tung & Ngo Ngoc Nguyen Thao, 2021) and

transportation companies (Vu *et al.*, 2020), CA was considered to be the most influential factor, while monitoring was the least effective factor.

Besides the COSO five elements that affect the effectiveness and efficiency of the ICS, other factors, including organization characteristics, organization scale, human resources, legal environment, and so forth have been considered in several studies. Nguyen Thi Cuc Hong (2021) argued that business characteristics had an impact on the effectiveness of ICS in commercial enterprises in Ho Chi Minh City. Some authors believed that business scale (Tran Trung Tuan & Tran Thi Song Lam, 2021; Co Thi Diem & Le Hoang Phuc, 2022), form of ownership, and the characteristics of the board of directors had a direct impact on IC in enterprises (Do Vu Phuong Anh, 2022). Enterprise scale is reflected through the average number of employees, total revenue, and average total assets. Accordingly, large-scale companies with state capital and directors with university degrees tend to implement more IC activities than private enterprises. Furthermore, Le Thi Lan Huong & Nguyen Thi Phuong Lan (2018) pointed out that an organization's culture, especially a cooperation culture, was one of the factors that had a strong impact on the ICS. Political and interest groups were addressed as two new factors that influenced the effectiveness of IC at commercial banks in Vietnam (Vu, 2016). Meanwhile, Tran Van Tung & Ngo Ngoc Nguyen Thao (2021) expressed that the level of information technology application was one of the factors that affect the effectiveness of ICS in public organizations.

To sum up, research in Vietnam has mostly confirmed the positive roles and necessity of an ICS for organizations in terms of reducing risks, improving operational efficiency, and ensuring information reliability, as well as ensuring the achievement of organization goals. Therefore, all types of organizations should build and maintain an ICS. Most of the published articles pointed out that the five internal factors based on the COSO model have an impact on the effectiveness of an ICS. The IC model, however, differs in each unit depending on

many factors, including the organization's characteristics, scale, and resources (COSO, 2013), and their level of information technology adoption. The literature review so far has demonstrated that, until now, there has been no official published research on IC in cooperatives and agricultural cooperatives in Vietnam.

Overview of research on IC in cooperatives around the world

Most of the research on IC in cooperatives around the world has been conducted in cooperatives that operate credit and financial activities, which are also considered as potentially risky business fields. Studies on IC in agricultural cooperatives are still very limited. These studies have largely approached the conceptual framework and elements of IC based on the COSO, which has been a popular model so far in both practice and theory.

In terms of contents, the majority of publications (71%) focused on analyzing and evaluating the influence of IC on the cooperative's performance, financial statement integrity, or the level of fraud and risk management (**Table 2**). Quantitative methods and regression analysis were applied to analyze the relationship and evaluate the impact of the IC components, or each IC element, on the cooperative's operational efficiency, profitability, financial efficiency, risk management, and financial statement quality. The research results addressed that IC, which followed the COSO model, had a positive relationship with the operational efficiency, profitability (Shabri *et al.*, 2016; Rachman, 2017; Asio, 2019), stability, and sustainability of cooperatives (Miniano & Concepcion, 2018) or the success of cooperative businesses (Ritonga *et al.*, 2023). The impacts of some elements in IC such as CE, RA, CI (Iheanacho, 2019), or CA (Olowolaju & Adeyemo, 2020) on a cooperative's performance were positive and significant. By contrast, from a case study at a CSM social cooperative in Nigeria, Makut & Ibrahim (2021) concluded that there was no correlation between CE, CI, and monitoring with the performance of this cooperative.

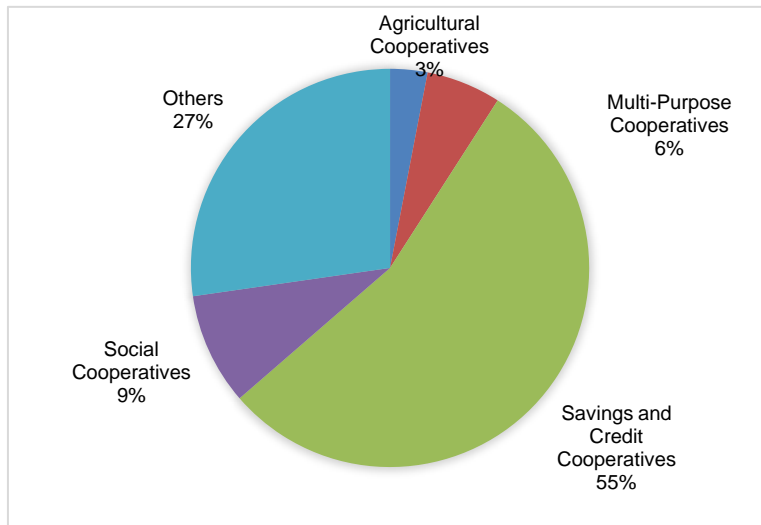


Figure 2. Number of international articles by main fields of cooperatives

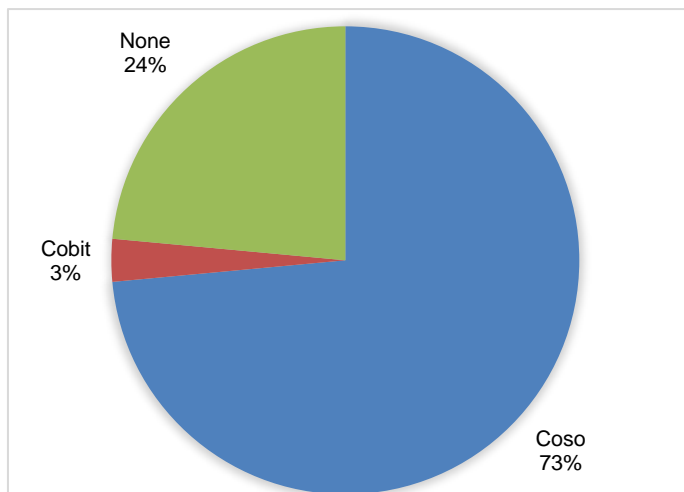


Figure 3. Number of international publications by ICS framework approach.

Studies on the relationship of ICS and CA to a cooperative’s financial performance have provided evidence that demonstrates a positive and statistically significant relationship. Similarly, the positive impact between IC and financial statement quality was also confirmed through a study in the financial and credit cooperative model (Anggulyah *et al.*, 2019; Tokan *et al.*, 2021; Bhusal, 2023). Along with this, the positive relationship between IC, the quality of IC and risk management, and fraud control, especially fraud in accounting, was also supported by the authors (Table 2).

Studies have provided empirical evidence demonstrating the roles and positive impacts of IC on a cooperative’s performance, financial

statement information reliability, and risk management and control. The current situation of IC in cooperatives, however, reveals that there are many differences and inadequacies among cooperatives around the world. Most of the boards of credit cooperatives in Malaysia were highly aware of the importance of an ICS (Ariffin *et al.*, 2016), whereas for multi-function cooperatives in Ethiopia, a rather high percentage of cooperative members did not know about the behavior rules or information related to the cooperative’s control activities (Rao & Entehabu, 2014), or IC was not highly appreciated by employees (Rahim *et al.*, 2017) leading to a very poor ICS. Meanwhile, in the study of IC in four cooperatives in Panabo city (Philippines),

Enrique & Tagadiad (2021) stated that the level of the cooperative's IC was very high, which means IC was implemented well. Sulung (2017) carried a study on the ICS of credit cooperatives in Indonesia, which showed that control activities and monitoring were applied at all three stages of the financing process in the credit cooperatives. The above author believed that the lack of knowledge and the weaknesses in control and monitoring were the main reasons that hindered

most of the microfinance cooperatives. In the case of multi-function cooperatives, IC procedures play an important role in ensuring information reliability and completeness. Furthermore, Mungmai *et al.*, (2022) suggested that the accounting IC and financial IC of agricultural cooperatives in Ubon Ratchathani province (Thailand) were at a high level, and appropriate ICS could prevent errors intentionally and unintentionally.

Table 2. The role and impact of IC (ICS) on the activities (performance) of cooperatives

Source	Method	Variables		Key results
		IC (ICS) variables	Dependent variables	
<i>Impact of IC (ICS) on operational efficiency, profitability, and sustainability of cooperatives (10 articles/30%)</i>				
Shabri <i>et al.</i> (2016)	Qualitative, case study	ICS: 5 components (COSO)	Cooperatives' profitability	An effective ICS was believed to have the potential to increase a cooperative's profits, and promote the stability and growth of the cooperative
Rachman (2017)	Multiple regression analysis	ICS: 5 components (COSO) & Cooperative governance	Cooperative's performance: decision making, advisory, guardian, sustainability, and symbolic function	52.4% of the variation in the performance of cooperatives could be explained by IC and governance
Miniano & Concepcion (2018)	Qualitative & Quantitative	Effectiveness of IC through 5 components (COSO)	The cooperative's operational sustainability: political, economic, social, technological, and legal	A significant relationship between the ICS effectiveness and a cooperative's sustainability
Hasibuan & Indayani (2019)	Multiple regression analysis	ICS, cooperative management capacity	Cooperative business development	ICS has a positive effect on the business development of a cooperative
Iheanacho (2019)	Chi-Squared test statistics	CE, RA, CA	The performance of cooperatives (via a 5-point Likert-scale)	A significant influence of CE, RA, and CA on a cooperative's performance
Asio (2019)	Anova, Pearson r correlation coefficient and linear regression	ICS: 5 components (COSO) and moderating variables (cooperatives' profile)	The cooperative's operational efficiency: portfolio quality; efficiency; stability; operations and assets structure	CA has a significant impact on the operational efficiency of selected multi-function cooperatives
Olowolaju & Adeyemo (2020)	Likert ratings, regression analysis and paired sample t-test	CA (directive, preventive and detective)	Cooperative's performance: capital share, investment, membership, dividends, timely and adequate loan disbursement	A significant influence of IC on the performance of society's cooperatives
Danayanti <i>et al.</i> (2020)	Multiple-Linear Regression analysis	ICS: 5 components (COSO)	The efficiency of lending	A significant positive effect of three components of the ICS structure (CE, RS, and monitoring) on a cooperative's efficiency of lending
Makut & Ibrahim (2021)	Multiple-Linear Regression analysis; case study	CE, CA, Monitoring	The performance of cooperatives (via a 5-point Likert-scale)	No statistically significant correlation between the three IC components and a cooperative's performance
Ritonga <i>et al.</i> (2023)	Multiple-Linear Regression analysis	ICS, Size, Type, Education level	The cooperative's success	A significant positive effect of four variables (ICS, size, type, and education level) on the success of a cooperative businesses

Source	Method	Variables		Key results
		IC (ICS) variables	Dependent variables	
<i>Impact of IC on financial performance of cooperatives (6 articles/18%)</i>				
Mathew (2019)	Multiple Regression analysis	CE, RA	ROE	Positive and significant effects of CE and RA on a cooperative's financial performance
Kiyieka & Muturi (2018)	Quantitative	IC (via Internal audit, RA, CI) & corporate governance	Financial performance	43.3% variation of a cooperative's financial performance explained by IC
Kule <i>et al.</i> (2022)	Quantitative	CE and financial accountability	Financial performance	CE and financial accountability are true drivers of financial performance of savings and credit cooperatives
Wamukota <i>et al.</i> (2022)	Cronbach's Alpha, regression analysis	Monitoring, CA	Financial performance	43% of variance of a cooperative's financial performance can be explained by CA and monitoring
Ouko & Atheru (2022)	Regression analysis	ICS: 5 components (COSO)	ROE	A significant positive impact of ICS (5 components) on the financial performance in savings and credit cooperatives in Makueni County, Kenya
Bhusal (2023)	Regression analysis	ICS: 5 components (COSO)	Financial performance	A significant positive impact of ICS on the financial performance of savings and credit cooperatives
<i>Impact and relationship of IC (ICS) with corporate governance and fraud risk (6 articles/18%)</i>				
Maru & Mwengei Ombaba (2018)	Cronbach's Alpha, Pearson Correlation	IC (Monitoring, Accounting, CI, Policies, and procedures)	Corporate governance	IC has a significant positive impact on corporate governance
Wanjala & Riitho (2020)	Ordinary Least Square Regression	ICS: 5 components (COSO)	Fraud mitigation	All components of the ICS have a positive and significant relationship with fraud mitigation in Saccos in Kenya
Bakar <i>et al.</i> (2020)	Quantitative	6 components of ICs: Integrity & ethical values; Commitment for competency; Business philosophy; Organization structure; Allocation of power & responsibility; Human resource policies	Risk management	There is a relationship between the 6 components of ICs and risk management, especially business philosophy, structure, and division of responsibility
Utaminingsih <i>et al.</i> (2020)	Quantitative: partial least squares structural model (PLS-SEM)	The effectiveness of IC measure via 5 components of IC (COSO)	Fraud	A significant negative effect of control effectiveness on employee fraud in cooperatives
Enrique & Tagadiad (2021)	Quantitative	ICS: 5 components (COSO)	Corporate governance: management, board, remuneration, members, ownership, audit, behavior	74.7% the variance of corporate governance can be explained by ICS
Khamimah <i>et al.</i> (2021)	Quantitative; multiple linear regression	IC via 5 components (COSO)	Tendency of accounting fraud	No significant effect of IC on accounting fraud trends in cooperatives of the Gajah Mungkur sub-district of Semarang, Indonesia
<i>Impact of IC (ICS) on the quality of financial statements (2 articles/6%)</i>				
Anggulyah <i>et al.</i> (2019)	Multiple linear regression	ICS: 5 components (COSO)	The quality of financial statements: relevant, reliable, can be compared, can be understood	A significant positive effect of ICS on the quality of financial statements
Tokan <i>et al.</i> (2021)	Multiple linear regression	ICS	The quality of financial statements	The more effective the ICS, the better the quality of financial statements

Asio (2019) believed that control activities in different sized cooperatives are different. Actually, in small-scale cooperatives, control procedures and processes tend to be simpler. The study by Shafie *et al.* (2018) aimed to examine the influence of cooperative characteristics (such as organizational culture, organizational structure, environmental factors, and the age of the cooperatives) on the effectiveness of IC in the top 100 cooperatives in Malaysia. The results showed that organizational culture and the cooperative's age had an impact on IC effectiveness. The authors also believed that the lack of funding and quality human resources were difficulties that cooperatives face when operating IC. The study of Mungmai *et al.* (2022) showed that the lack of understanding of relevant regulations on accounting and laws by cooperative officers were the weakest points in

accounting IC of agricultural cooperatives in Ubon Ratchathani Province, Thailand. In a case study of cooperatives in Semarang city, Indonesia, Rizki & Anisykurlillah (2018) said that there were simultaneously positive significant effects of competence, motivation, role, and work experience of the supervisory board on the effectiveness of a cooperative's IC. Meanwhile, weakness of knowledge and lacks of control and monitoring systems were the problems causing deficiencies in the activities of credit cooperatives (Sulung, 2017). Failure to provide complete and timely information about the codes of conduct to the cooperative's members (Rao & Entehabu, 2014), incomplete data, completely manual transaction processing, and incompetent staff (Rahim *et al.*, 2017) were also problems that cooperatives faced in designing and implementing IC (ICS).

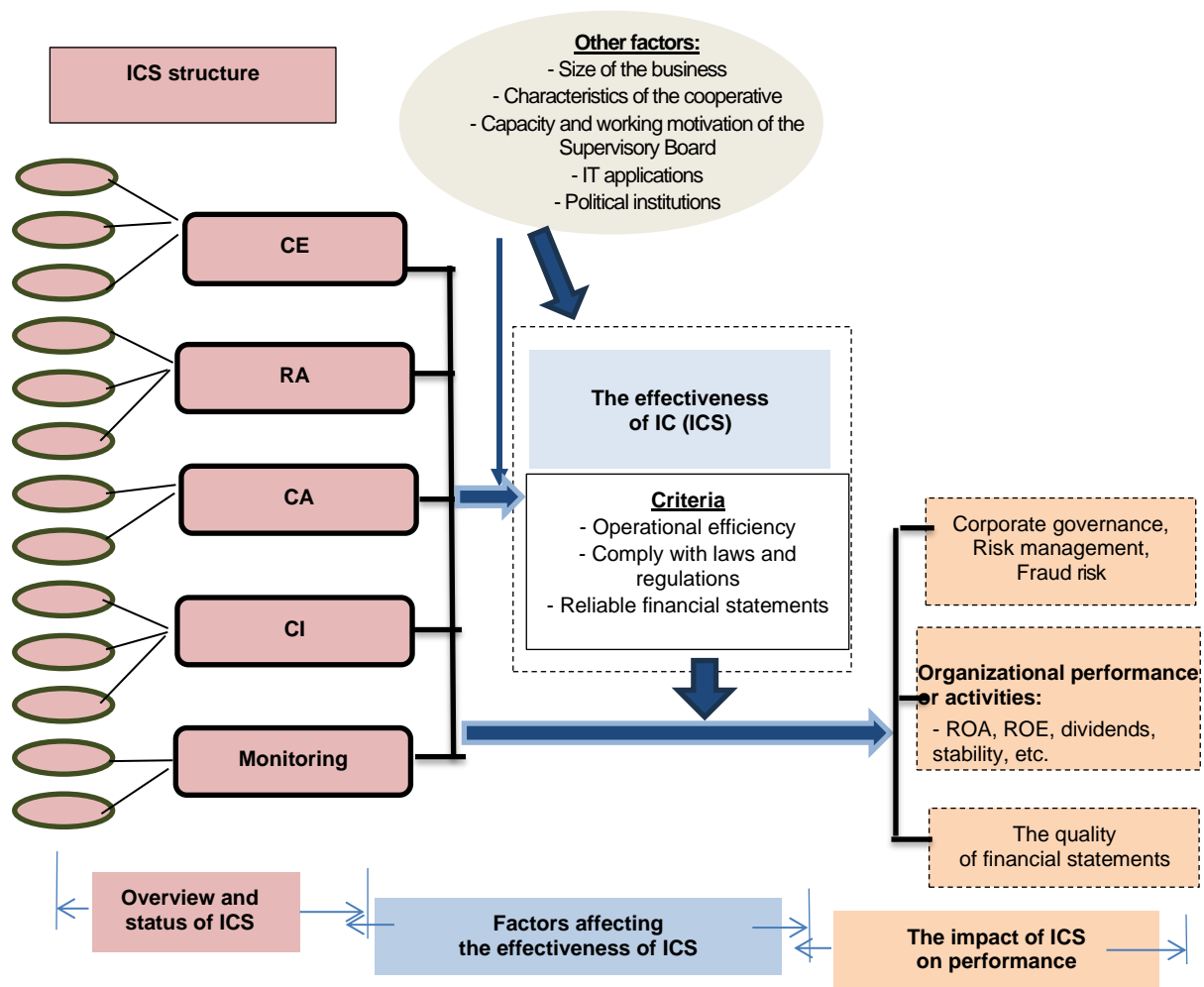


Figure 4. Main research contents of published papers related to IC (ICS) in organizations and cooperatives

To summarize, worldwide research includes several publications focused on IC in cooperatives and its role in reducing risks, improving operational efficiency, and enhancing financial performance. Most articles adopted the COSO model as a framework. However, there is limited research on IC specifically within agricultural cooperatives. Furthermore, there is a gap in detailed analyses exploring the impact of each component of internal control, identifying which components are most critical for control, and assessing how these impacts benefit cooperative members

Conclusions

Using the PRISMA framework, this article reviewed empirical studies on internal control (IC) in cooperatives, highlighting a recent increase in research both in Vietnam and internationally. This body of work primarily explored three key areas: the status, structure, and components of IC within organizations; factors influencing IC effectiveness; and the impact of IC on organizational performance. Studies have utilized both qualitative and quantitative approaches, employing methods such as reliability testing, exploratory factor analysis, and multiple regression analysis to identify variables affecting IC effectiveness.

Regarding the IC structure, most studies adopted the COSO framework, focusing on its five components. The experimental findings indicated that these COSO components play a significant role in enhancing IC effectiveness. Additional factors, such as organizational characteristics, human resources, organizational scale, and information technology, have also been examined for their influence on IC.

IC has proven to be essential across enterprises and cooperatives, from large to micro-scale models, by improving operational and financial efficiency, supporting sustainable development, and mitigating risks. It is widely recognized as a critical element of cooperative success and a reflection of effective governance.

Despite these insights, research on IC in agricultural cooperatives remains limited, both globally and in Vietnam. This gap is significant, as agricultural cooperatives are crucial for socio-economic development and directly impact the

economies of member households. Further detailed studies are needed to analyze how the individual IC components contribute to control effectiveness and to identify the most critical elements, particularly in light of the revisions to the Vietnamese Cooperative Law in 2023.

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