

## Earnings Management and Internal Control System in State-Owned Companies: Evidence from Serbia

MILICA DJORDJEVIĆ, DEJAN SPASIĆ & TADIJA DJUKIĆ

**Abstract** The aim of the research is to examine the relationship between earnings management (EM) and internal control system (ICS) in state-owned companies in the Republic of Serbia. On a sample of 64 state-owned companies founded by local self-government (11.92% of the total population in the Republic of Serbia), for the period 2018-2021, we examined the achieved level of implementation of EM practices in those entities, the relationship between EM and ICS, as well as the efficiency and effectiveness of ICS in deterring management from manipulations through earnings management. The basis for our analysis is the financial reports audited by the State Audit Institution (SAI), which means that 256 observations were made for the analyzed four-year period. Using the Chi-square tests of independence, we found that there is no positive correlation between earnings management on the one hand and financial management and control, as well as internal audit on the other hand, in state-owned companies in Serbia. Nevertheless, we point out the necessity of improving these two elements of the comprehensive ICS at the level of state-owned companies, in order to reduce the risk of manipulative financial reporting.

**Keywords:** • discretionary accruals • financial management and control • internal audit • central harmonization unit • earnings management

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## 1 Introduction

The economic development and expansion of each country are largely conditioned by the quality of services of general interest and the efficiency of state-owned companies as the most important stakeholders in that area. As they finance their business from the public budget, state-owned companies are obliged to ensure the transparency and publicity of their business through efficient and effective reporting. In this sense, financial statements of state-owned companies are basic source of information about their financial status and performance. Information in financial statements helps evaluate the state-owned companies' previous and future results, and, therefore, is considered crucial for decision-makers. Certainly, the condition of relying on that information is its reliability and objectivity, i.e. a previously established high-quality financial reporting system. Within that reporting system, ICS represents the mechanism which significantly contributes to increasing the credibility of information disclosed in the financial statements. Internal control system in the public sector in the Republic of Serbia takes place under the Public Internal Financial Control system (PIFC), which the European Commission developed to protect and ensure the proper use of public funds in the countries to join the EU. The scope of work of ICS is very broad. Nevertheless, under the entire system of financial and non-financial controls, ICS significantly preserves the integrity of financial statements.

Financial statements include plenty of information. Nevertheless, "one of the most significant criteria for evaluating the performance and prospects of a business is earnings measured by accounting" (Doan, Trang, Pham, Soa, & Tran, 2021, p. 131). Earnings can most simply be defined as the difference between investment and return and represent something every company strives to achieve. As Dechow and Schrand (2004) note, earnings are simply current-period revenues and expenses that are received and paid in cash plus accruals. However, given that they finance their operations from the public budget, which depends on their performance, state-owned companies are under pressure to achieve positive business results. They tend to boost efficiency, provide higher-quality public services at lower prices, and continuously improve the economy as a whole and its competitiveness, but do not rule out the possibility of manipulation, i.e. earnings management, with overall purpose of presenting a company's performance diverse from what it really is. As, however, earnings management could have a long-term and comprehensive negative impact on the entire economy, the establishment of an efficient ICS is aimed at suppressing the management's intention to do such actions.

Ineffective mechanisms of internal controls or their absence, therefore, significantly affect possible fraud in reported earnings and in disclosed financial statements in general. It is generally accepted that manipulative financial reporting, i.e. fraud in the presentation of realized earnings, together with corruption and

asset misappropriation, are the three primary categories of occupational fraud schemes in any company, including state-owned enterprises. According to the latest research by the Association of Certified Fraud Examiners (ACFE), “financial statement frauds, in which the perpetrator intentionally caused a material misstatement or omission in the organization's financial statements, were the least common category (5% of schemes) but also caused the greatest median loss (USD 766,000 per case)” (ACFE, 2024, p. 10).

Preventing fraudulent financial reporting is important not only for the company itself, but also for the sustainability of certain sectors of the economy (Sadka, 2006; Xin, Zhou, & Hu, 2018; Ali, Klasa, & Yeung, 2014; Gil, 2024) and the national economy and society as a whole (Rezaee, 2005; Yao, Pan, Yang, Chen, & Li, 2019). Namely, fraudulent financial reporting “distorts the allocation of economic resources in the economy” (Kedia & Philippon, 2009), but it is also a consequence of the shadow economy, which is especially present in countries in transition, such as Serbia. Specifically, earnings manipulation, as well as all other criminal acts that characterize the system of the shadow economy “significantly reduces budget revenue”... i.e. causes “significant material damage to society” (S. Knežević, Cvetković, M. Mićović, Mitrović, & Milojević, 2021, p. 131).

Due to the specificity of ownership and management structures, as well as often weaknesses in internal controls, fraudsters find the public sector attractive for their activities, especially in transition economies (Giri ū nas & Mackevičius, 2014; Singal, Nagi, & Goyal, 2019; Alfian, Ritchi, & Adrianto, 2023; Bartulović, Perkušić, & Kovačević, 2023).

Even if the ICS function is generally weak or dysfunctional, awareness of such a condition can increase its effectiveness and mitigate or eliminate EM. Our research therefore focuses on this topic, for a sector highly susceptible to manipulative financial reporting and fraud in general. Namely, examining the relationship between ICS and EM in state-owned companies in the Republic of Serbia primarily aims to determine how much ICS can detect and prevent EM. This points to the quality of ICS, i.e. the procedures it implements, while its possible deficiencies send a clear signal to regulatory and professional bodies of the need to improve the ICS in this area. In that sense, we defined two hypotheses. First, we start from the assumption that there is a significant positive correlation between effective FMC and EM (H1), and then we test the assumption of the same level of correlation between functional IA and EM (H2).

We believe that our study, with the defined objective and hypotheses, makes a twofold contribution - academic and practical. First, our study should fill the gap in the literature regarding the topic we are dealing with from the perspective of state-owned companies in the Republic of Serbia. To the best of our knowledge, very few researches refer to the topic of manipulative financial reporting in

Serbian state-owned companies. Apart from dominant legal and macroeconomic considerations related to state-owned companies, some authors mainly deal with specific issues of corporate governance in these entities, including the role of both internal audits in general (Bonić & Đorđević, 2018; Borović & Zakić, 2013) and financial management and control to prevent managers' opportunistic behavior (Aleksić-Mirić, Todorović, & Janićijević, 2018). From the perspective of using accounting data, some authors analyze the key performance of state-owned companies (Jakopin, Gračanac, & Aničić, 2021), taxation issues that affect their performance (G. Knežević & Pavlović, 2023) or, in more detail, the quality of corporate governance and financial reporting manipulation risk (Malinić, 2015). However, very little attention has been paid to the issue of earnings management in state-owned companies and the mechanisms of its detection and prevention, except from the perspective of statutory audit (Đorđević & Spasić, 2022).

Second, the results of our research can also contribute to the corporate governance practices of state-owned companies, as they highlight the importance of establishing internal control mechanisms over financial reporting in order to detect and prevent manipulation of reported earnings. This issue is of particular importance for state-owned companies, which are considered ineffective and not sufficiently transparent in the Serbian economy.

The paper has the following structure. The first section of the paper provides theoretical background and an overview of the relevant literature for the field, based on which hypotheses are developed. In the second section of the paper, the design of empirical research, its results, main findings and further recommendations are presented.

## **2 Literature overview and hypotheses development**

Earnings Management as a concept and practice has become particularly important in recent years, since “a certain number of serious scandals occurred in firms (like the collapse of Entron Company) who overstated profits to trick investors and users” (Sharf & Nassar, 2021). As it is a category that has attracted the attention of numerous theoreticians and practitioners, today in the literature we can find different definitions of EM. Ronen and Yaari (2008) define earnings management as the deliberate adjustment of a company's reported earnings by managers. This adjustment can be done with the intention of misleading external users of financial statements, such as investors or creditors, or to influence the outcomes of contractual agreements, such as executive compensation contracts or debt covenants. In both cases, the purpose of earnings management is considered as a tendency to manipulate the perception of the company's financial performance. EM can arise from the flexibility of accounting standards which is why Dechow and Skinner (2000) define earnings management as the “misuse of accounting techniques and principles, including both legitimate practices and deliberate

omissions of material facts, considering that the intention behind this manipulation is to deceive users of accounting information.” Similarly, Healy and Wahlen (1999) describe earnings management as “the use of managerial judgment in financial reporting and structuring transactions to alter financial reports. The purpose of this alteration is either to mislead stakeholders about the company's underlying economic performance or to influence contractual outcomes that rely on reported accounting numbers.” These definitions, although taking different approaches, unequivocally indicate that EM, depending on the management's interests, implies intervention to show a better or worse performance and financial status of the company.

The study of EM first appeared in private companies. However, as state-owned companies apply the accrual accounting methods, the concept of EM increasingly attracts scholars' attention in the field (Bisogno & Donatella, 2021). In addition, the management of state-owned companies is increasingly taking on the characteristics of the management of private companies. That is, state-owned companies are increasingly exposed to the capital market and tougher competition, and in order to attract funds, they must continuously improve their performance (Goldeng, Grünfeld, & Benito, 2008; Bonić & Đorđević, 2018; Li, Liu, & Wei, 2023). Hence, management's desire to shape profit is not strange. Capalbo, Sorrentino and Smarra (2018) pointed out that “there is an equal possibility that ownership over state-owned companies by political communities will have a positive effect on EM and the possibility that the impact will be negative.” Arguments in favour of a positive relationship rely on: (a) the expectation of a relatively lower quality of corporate governance in state-owned companies, which is often linked to a greater degree of managerial autonomy (Shleifer & Vishny, 1989); (b) the greater heterogeneity of state-owned accountees, which increases the potential addressees of state-owned companies and creates incentives for EM (Grossi & Thomasson, 2015); (c) the fact that state-owned companies' economic and financial results impact a quantitatively and qualitatively unidentifiable group of subjects (the community acting as the residual owner), thus “decreasing the expectation that reporting of those results will be monitored, as compared to the alternative hypothesis of readily-identifiable private investors” (Capalbo et al., 2018); (d) “the limited technical expertise of the addressees of state-owned companies reporting” (Koh, 2003); and (e) managers manipulate information to “avoid the sanctions after crossing the spending ceiling, which is often accomplished by exaggerating deductions” (Schettini & Terrab, 2020).

A relatively limited number of studies suspect that EM is present in state-owned companies, bearing in mind that the examination of this phenomenon in this area is of recent date. Ruggiero, Sorrentino and Mussari (2021) found that “managers of state-owned enterprises (SOEs) with higher levels of public ownership are more inclined to engage in earnings management practices.” This suggests that the presence of public ownership can be a motivating factor for managers to prioritize

manipulative reporting. On the other hand, Capalbo, Frino, Mollica and Palumbo (2014) found that EM practices by state-owned enterprises tend to decrease as firm size increases. This could be due to various challenges and complexities that larger firms face in implementing EM. However, Capalbo et al. (2014) also noted that EM practices increase with profitability, indicating that more financially successful SOEs are more likely to prioritize earnings concerns. These findings suggest that the level of public ownership, firm size, and profitability are important factors that influence the adoption of EM practices in state-owned enterprises. Managers of SOEs with higher public ownership and greater profitability are more likely to engage in EM, while larger firms may face challenges in implementing such practices. Gaio and Pinto (2018) confirmed in their research that managers of state-owned companies apply less accounting conservatism as a result of protection by the state and that they are not immune to the pressure of the capital market. So higher level of EM was even recorded in these companies than in private-owned. The issue of EM in state-owned companies was especially addressed by authors from China. Namely, Wang and Yung (2011), first of all, concluded that the Chinese government in various ways encourages state-owned companies which, in turn, leads to a lower level of EM compared to private-owned companies. However, the authors themselves state that these are very surprising results and their further research proves that the difference in the level of EM in state-owned companies and private-owned companies is becoming smaller as state-owned companies are increasingly exposed to the capital market. This is confirmed by research of Chen, Lee and Li (2008) who indicate that the Chinese government with its control mechanisms in state-owned companies creates incentives and regulatory support for management opportunism, which certainly negatively affects the objectivity of financial reporting. This practice is particularly prevalent at the local government level i.e. companies at the local government level have a higher EM compared to the companies controlled by the central government. Also, Liu, Saidi and Bazaz (2014) claim that state-owned companies record a higher level of EM compared to private-owned companies and that state-owned companies “have more earnings smoothing, more frequently managed earnings toward targets, less frequent timely recognition of losses, and less value relevance, relative to non-state-owned firms”.

As EM undoubtedly has far-reaching negative consequences on the entire economy, establishing mechanisms aimed at ensuring high quality financial reporting and establishing a foundation of trust in the communication of state-owned companies with their stakeholders is crucial. One of these mechanisms is ICS which the Serbian public sector implements under the Public Internal Financial Control system, the construction of which began with the 2009 Strategy for the Development of Public Internal Financial Control and the Budget Law. The opening of negotiation chapter 32 (Financial Control) in 2015 imposed an obligation to build an efficient PIFC in the context of EU accession. The basic elements of the PIFC system are:

- 1) Financial Management and Control (FMC) at public entities;
- 2) Internal Audit (IA) at public entities;
- 3) Central Harmonization Unit (CHU) at the Ministry of Finance.

FMC implies the entire financial and non-financial system of controls of financial, operational and strategic systems of public entities, including organizational structure, methods and procedures. FMC mainly aims to ensure the compliance of operations and transactions with the regulatory framework, preserve the integrity of financial statements and use funds efficiently while protecting data and information and detecting irregularities in operations. The basic elements of the FMC system set in accordance with the COSO framework (COSO, 2013) are: "control environment, risk assessment, control activities, information and communication (including the accounting system), monitoring and evaluation of the system (monitoring and self-assessment)." FMC is established at all public entities and at all organizational levels, regardless of its size and number of employees, and is implemented by managers and all employees.

IA performs an independent, professional and systematic assessment of the FMC system, which entails the revision of the established controls and all business functions and processes. It objectively collects, checks, analyzes, evaluates information and prepares reports for the administration (management) on the basis of which it makes decisions. IA should provide reasonable assurance about the economy, efficiency and effectiveness of all business processes in the context of achieving the goals set. IA has a dual role: (1) controlling – it involves assurance services in the form of financial audit, audit of business compliance with regulations, evaluation of internal and other forms of controls, and (2) advisory – it involves consultations to improve management (especially risk management), IT audit, performance audit (expediency), ensuring information security. The importance of internal audit for the improvement of the public sector entities business was especially confirmed by the adoption of the new Global Internal Audit Standards that will enter into force in January 2025, where special attention, among other things, is devoted to "information that would help and facilitate the operational work of internal auditors in public sector" (Beke-Trivunac, 2023).

CHU was established to harmonize the FMC system and IA methodology. This unit confirms the quality and independence of all functions within the PIFC system and is there to promote and provide support in FMC and IA development, coordinate and guide training for managers of public entities, employees in charge of FMC and internal auditors. This unit serves as an "expertise center" when it comes to internal financial supervision in the public sector.

FMC and IA, as forms of internal control in public entities, provide business support through the improvement of the entire management system and operations when spending public funds in accordance with the goals and the budget (Borović

& Zakić, 2013). In this regard, the scope of work of FMC and IA is very broad. Nevertheless, these two types of internal control have a special role and importance in improving the quality of financial reporting by identifying and managing risks that would make the information necessary for compiling financial statements and the financial statements themselves unreliable (Leech, 2003). More specifically, the FMC emphasizes procedures and policies and that:

“relate to keeping records that reasonably, in detail, accurately and fairly reflect the transactions and use of the company's assets, provide reasonable assurance that transactions during the accounting period were recorded in accordance with generally accepted accounting principles and that inflows and outflows were realized in accordance with the authorizations of the company's management and provide reasonable assurance of preventive and timely identification of unauthorized acquisition, use or disposal of the company's funds that may have an impact on its financial statements” (SEC, 2003).

On the other hand, an internal audit, by critically evaluating the existing plan that describes the financial reporting process, as well as conducting a “walk-through” of the transaction to confirm the flow of the process, is in a position to assess the risk of exposure to manipulations and take actions to minimize that risk. Also, by constantly monitoring internal controls over financial reporting and conducting tests to assess their effectiveness, internal audit timely identifies all signals that indicate the likelihood of abuse. The procedures implemented by the internal audit, with the aim of preventing manipulative management behavior, are shown in Table 1.

**Table 1:** Internal audit procedures

Area of abuse	Internal audit procedures
<b>Financial reporting</b>	Inventory audit Cut-off tests Collection of supporting documentation and reconciliation Observation of internal controls Observation of segregation of duties Examination of employees with access to accounts Analytical observation of income and expenses Changes in accounts and comprehensibility of estimates
<b>Corruption</b>	Monitoring the effectiveness of the segregation of duties Audit of employee expense reports Looking for weaknesses in internal controls Analytical procedures and risk assessment techniques Checking how the technology works Eavesdropping

Source: Adapted from Burnaby, Howe and Muehlmann (2011).

Bearing this in mind, it is fully justified that the potential of internal audit to prevent management abuses and actions to report higher profit and better financial position or show lower profit and worse financial position is particularly emphasized. That is why the examination of the relationship between EM and ISC has attracted numerous authors. Doyle, Ge and McVay (2007) indicate a connection between the weakness of the overall internal controls in the company and poor accounting. In their research, Singer and You (2011) have found a correlation between compliance with Section 404 of the SOX Act (relating to regulation of internal controls over financial reporting) and improvement in reliability of the information disclosed within financial statements - already within the first two years of application of the Act. Furthermore, Hu, Weng and Wang (2020) also examine the impact of regulation in China on reporting quality and conclude that the quality of earnings reporting improved significantly after compliance with C-SOX (a regulation in China that is the equivalent of the US SOX Act). Goh and Li (2011) find a positive relationship between the higher quality of accounting and the timely correction of deficiencies in internal control.

The aforementioned results support the assumption that ICS significantly affects EM reduction, and based on that, the following hypotheses are set:

- H1: There is a significant positive relationship between effective FMC and EM;
- H2: There is a significant positive relationship between functional IA and EM.

### **3 Methodology**

#### **3.1 Sample selection**

In order to test the connection between EM and ICS, state-owned companies founded by local self-government units of the Republic of Serbia were taken into account, whose financial statements and business regularity were subject to audit by the State Audit Institution (Sector 2) in the period from 2018 until 2021. Data sources primarily include State Audit Institution's Annual Reports from 2018 to 2021, evidencing audits performed on financial statements of 73 public companies. Audit reports of financial statements and business regularity of analyzed companies were the source of data on the auditor's findings regarding the establishment and functioning of ICS and internal audit as a form of internal supervision in these companies.

In order to detect manipulative financial reporting, the financial statements of companies from 2018-2021 were used. These financial statements were obtained from the Serbian Business Registers Agency website. However, nine public companies were excluded from the research due to incomplete data. Therefore, the final sample consists of 64 state-owned companies and a total of 256 financial statements for analyzed four-year period. These financial statements were used for

the calculation of EM purposes. According to the data of the Serbian Business Registers Agency, 536 state-owned companies were operating in the Republic of Serbia in 2021 (Serbian Business Registers Agency, 2022, p. 67). Therefore, the final sample consists of 11.92% of the total number of state-owned companies in the Republic of Serbia, which can be considered relevant for our research. In addition, given that the sample included only state-owned companies whose financial statements were subject to independent audit, the final sample represents 87.67% of this group of companies.

### 3.2 Selection and measurement of variables

#### 3.2.1 Measurement of dependent variable

In order to test the defined hypotheses, EM was determined as a dependent variable. The Discretionary accruals model has been implemented for the EM calculation. This model suggests separation of the total calculation into non-discretionary and discretionary parts, where non-discretionary represents economically determined calculation, while discretionary is a managerially determined calculation, given managerial discretionary right to choose accounting methods and estimates deriving from the flexibility of International Accounting Standards/International Financial Reporting Standards.

Hence, Discretionary Accruals (DA) are used as a measure of EM. In case when public companies would not manipulate the financial result, DA component could be expected to be zero. In all other cases, DA value would be significantly different, evidencing practice of financial result manipulation during the analyzed period. Moreover, if the DA has a positive value, it signals that the manipulation of reported profit or loss has occurred in order to present it in a better light, i.e. an overestimation of income and/or an underestimation of expenses was made. In the opposite case, when DA has a negative value, the manipulation was done with the aim of presenting profit worse than it actually is (underestimating income/overestimation of expenses). For calculating DA, a modified Jones model known as Kasznik model (Kasznik, 1999) was applied.

According to this model, total accruals are composed of non-discretionary accruals and a residual variable or an error that represents a discretionary portion of total accruals (Formula 1):

$$TA_{it}/A_{it-1} = \beta_0 \cdot 1/A_{it-1} + \beta_1 \cdot (\Delta REV_{it} - \Delta REC_{it}/A_{it-1}) + \beta_2 \cdot (PPE_{it}/A_{it-1}) + \beta_3 \cdot (\Delta CFO_{it}/A_{it-1}) + \varepsilon_{it} \quad (1)$$

Where:

$TA_{it}$  – total accruals for the company  $i$  in the current period  $t$ ;

$Ait-1$  – total assets for the company  $i$  in the previous year  $t-1$ ,  
 $\beta_0, \beta_1, \beta_2, \beta_3$  – estimated parameters or regression coefficients;  
 $\varepsilon_{it}$  – residual variable or Discretionary Accruals (DA)=Earnings Management (EM),  
 $\Delta REV_{it}$  – change in net sales revenues of the company  $i$  in the current year  $t$  compared to the previous year  $t-1$ ;  
 $\Delta REC_{it}$  – changes in net receivables from sales in the current year  $t$  compared to the previous year  $t-1$ ,  
 $\Delta CFO_{it}$  – change in net cash flow from operating activities in the current year  $t$  compared to the previous  $t-1$ ,  
 $PPE_{it}$  – gross value of property, plant and equipment for the company  $i$  in the current year  $t$ .

The procedure of calculating DA comprises three phases.

In the first phase,  $TA_{it}$  is determined based on the cash approach represented in the following Formula 2:

$$TA_{it} = NI_{it} - CFO_{it} \quad (2)$$

Where:

$NI_{it}$  representing net income for the company  $i$ , in current year  $t$ .

The second phase includes calculation of the non-discretionary  $NDA_{it}$  using multiple linear regression analysis:

$$NDA_{it} = \beta_0 * 1/Ait-1 + \beta_1 * (\Delta REV_{it} - \Delta REC_{it}/Ait-1) + \beta_2 * (PPE_{it}/Ait-1) + \beta_3 * (\Delta CFO_{it}/Ait-1) \quad (3)$$

Finally, in the third stage, we get  $DA_{it}$  based on the following:

$$TA_{it} = NDA_{it} + \varepsilon_{it}(DA_{it}), \text{ i.e. } \varepsilon_{it}(DA_{it}) = TA_{it} - NDA_{it} \quad (4)$$

To alleviate potential heteroskedasticity, all variables included in the model need to be divided by the value of total assets at the beginning of year  $At-1$ . After taking into calculation stated variables and introducing a multiple linear regression analysis, the values of regression coefficients ( $\beta_0, \beta_1, \beta_2, \beta_3$ ) were obtained, and the model of discretionary accruals for state-owned companies in the Republic of Serbia has been created in the following form:

$$\varepsilon_{it}(DA_{it}) = TA_{it}/Ait-1 - (-8309,77)/Ait-1 + (-0,008) * (\Delta REV_{it} - \Delta REC_{it}/Ait-1) + (-0,063) * (PPE_{it}/Ait-1) + 0,616 * (\Delta CFO_{it}/Ait-1)$$

Based on the information provided, the model was applied to the sampled companies to examine the prevalence of earnings manipulation in their financial statements. The model aimed to determine which state-owned companies' discretionary accruals (DA) deviated significantly from zero, indicating potential earnings manipulation. To test the claim about earnings manipulation, a t-test was performed for each state-owned company individually. The average DA value of each company was compared to the expected value of zero. The results showed that in 23 state-owned companies, the deviation of DA from zero was statistically significant, suggesting that these companies manipulated their income. Furthermore, it has been found that out of the 23 companies with statistically significant deviations, 6 had negative DA values, indicating that they manipulated their results downwards. On the other hand, 17 companies had positive DA values, suggesting that they manipulated their results to present better income than actually achieved. To connect earnings management (EM) with the auditor's opinion, the discretionary accruals (DA) were assigned values: 0 if manipulation was identified and 1 if manipulation was not identified. This classification likely helped in assessing the relationship between EM and the auditor's opinion on the financial statements of the state-owned companies.

### 3.2.2 Measurement of independent variables

As FMC and IA are forms of internal control systems that are expected to eliminate management's actions aimed at earnings management, their effectiveness assumes independent variables. The FMC effectiveness is something auditors establish and takes the following values: 0 if auditors do not identify irregularities in FMC and 1 if auditors identify irregularities and give a recommendation to eliminate them.

The analysis of audit reports of financial statements and the regularity of operations of individual state-owned companies by year and findings related to FMC are presented in Table 2.

**Table 2:** Auditor's findings related to FMC

Auditor's findings	2018		2019		2020		2021		Total	
Established irregularity	21	91.30%	10	83.33%	12	80%	12	85.71%	55	85.94%
No irregularity found	2	8.7%	2	16.67%	3	20%	2	14.83%	9	14.06%
Total audit findings	23	100%	12	100%	15	100%	14	100%	64	100%

Source: Audit reports of financial statements and regularity of operations of individual companies.

The efficiency of IA also takes values: 0 in case of the so-called functional IA, that is, IA that has prepared at least one audit report in the reporting period and 1

if IA has not been established, i.e. if it is only normatively established and does not function. The analysis of the auditor's report regarding IA is presented in Table 3.

**Table 3:** Auditor's findings related to IA

Auditor's findings	2018		2019		2020		2021		Total	
Established irregularity	19	82.61%	8	66.67%	9	60%	13	92.86%	49	76.56%
No irregularity found	4	17.39%	4	33.33%	6	40%	1	8.14%	15	23.44%
Total audit findings	23	100%	12	100%	15	100%	14	100%	64	100%

Source: Audit reports of financial statements and regularity of operations of individual companies.

### 3.3 Methods

Given the categorical nature of both independent and dependent variables, Chi-square tests of independence have been applied for hypotheses testing. In other words, the testing will help in establishing whether there is a statistically significant difference in auditor's findings regarding FMC and IA between those state-owned companies in which EM was identified and those in which it is lacking.

## 4 Empirical results and discussion

In order to scrutinize the existence of a relationship between the effectiveness of FMC and EM, Chi-square test of independence was applied first. Table 4 shows levels of effectiveness of FMC (effective and ineffective) in two types of Serbian state-owned companies: those in which manipulation was identified and those in which it was not.

**Table 4:** FMC \* manipulation crosstabulation

			Manipulation		Total
			Exist	Not exist	
FMC	Efficient	Count	2	7	9
		% within FMC	22.22%	77.78%	100.0%
		% within manipulation	8.69%	17.07%	14.06%
		% of total	3.13%	10.93%	14.06%
	Ineffective	Count	21	34	55
		% within FMC	38.18%	61.82%	100.0%
		% within manipulation	91.30%	82.93%	85.93%
		% of total	32.81%	53.13%	85.93%
		Count	23	41	64
		% of total	35.9%	64.1%	100.0%

Source: Authors' calculation.

Chi-square test of independence (with the Yates continuity correction) shows no significant relationship between the observed variables,  $X^2 (1, N = 64) = 2.282$ ,  $p = .347$ ,  $\phi = .302$ .

The situation is similar to the relationship between IA and EM. More precisely, Table 5 summarizes the results of distribution of functional/non-functional IA in state-owned companies in the Republic of Serbia in which manipulation has been identified and in those in which manipulation has not been identified.

**Table 5:** Internal Audit \* manipulation crosstabulation

			Manipulation		Total
			Exist	Not exist	
Internal Audit	Functional	Count	5	10	15
		% within functionality	33.33%	67.77%	100.0%
		% within manipulation	21.74%	24.39%	23.44%
		% of total	7.82%	15.63%	23.44%
	Dysfunctional	Count	18	31	49
		% within functionality	36.74%	63.24%	100.0%
		% within manipulation	85.71%	75.61%	76.56%
		% of total	28.13%	48.43%	76.56%
		Count	23	41	64
		% of total	35.9%	64.1%	100.0%

Source: Authors' calculation

The conducted Chi-square test of independence (with the Yates continuity correction) does not show a significant relationship between the observed variables,  $X^2 (1, N = 64) = 2.326$ ,  $p = .178$ ,  $\phi = .423$ .

The presented results unequivocally point to the fact that none of the set hypotheses about the relationship between EM, on the one hand, and FMC and IA individually, as a form of ICS, on the other hand, have been confirmed. The distribution of efficient FMC and functionally organized IA in state-owned companies in which EM has been identified and in those in which it has not been identified is not statistically significant. Indeed, effective FMC is significantly more prevalent in companies where EM has not been identified than in those where it has (7 to 2). However, if we look at the percentage of companies in which the FMC functions inefficiently, the difference is not large (82.93% in which EM has not been identified compared to 91.30% in which it has). It is similar to an internal audit. Although functional internal audit is more prevalent in companies in which no EM has been identified (10 compared to 5), the percentage share of dysfunctional internal audit in companies in which manipulation has been identified is not significantly higher compared to companies in which it has been identified (85.71% to 75.61%).

The obtained results inevitably point to the need to examine the causes of this situation. In the SAI's annual reports for 2018, 2019, 2020 and 2021 (State Auditing Institution, 2018, 2019, 2020, 2021) is stated that when examining the functioning of the FMC in most companies, the auditors were generally unable to obtain assurance that the system is designed to ensure functioning business operations in accordance with the objectives of the FMC. In line with the SAI analysis, we performed an analysis of irregularities in the area of FMC on the selected sample, which is presented in Table 6.

**Table 6:** Irregularities related to FMC

Element of the system	2018	2019	2020	2021	Total
Control environment	6	3	5	2	16
Risk assessment	13	6	7	4	30
Control activities	18	5	6	14	43
Information and communication	6	2	1	1	10
Monitoring and evaluation of the system	2	7	6	2	17
Total	45	23	25	23	116
The total number of state-owned companies where irregularity was found	21	10	12	12	55

Source: Authors' calculation based on: SAI's annual reports (State Auditing Institution, 2018, 2019, 2020, 2021)

Table 6 clearly shows that in as many as 55 out of a total of 64 state-owned companies, at least one irregularity in the functioning of the FMC was identified. At the same time, out of the total number, the largest number of irregularities related to control activities, was followed by risk assessment. When analyzing individual audit reports, the SAI notes the following most common cause of irregularities: firstly, state-owned companies have not adopted a risk management strategy, which is the basis for identifying, assessing and controlling risks. In addition, they have not adopted written policies and procedures (internal acts do not exist or they are incomplete), companies do not carry out control procedures over documentation and do not ensure protection against unauthorized access to funds and information. Finally, SAI find that state-owned companies very often do not submit the Annual Report on the financial management and control system to the Central Harmonization Unit, but also their internal acts are mutually inconsistent, accounting records are unreliable, etc.

As for IA, the situation is significantly less favorable. That is, of the 64 analyzed state-owned companies, a functional IA was established only in 15. Of the remaining 49, in 4 it was partially established (formally but not functioning), while 45 state-owned companies did not establish IA in accordance with the Rulebook on Joint Criteria for Organisation and Standards and Methodological Instructions for the Conduct and Reporting of Internal Audit in the Public Sector. In addition, the underutilization of internal audit potential is also proven by the

fact that of 15 state-owned companies in which internal audit was functionally established, only in 6 state-owned companies did the internal audit unit perform more than one audit during the reporting period, while in the remaining 9 state-owned companies only one audit report was issued.

The above indicates that in the analyzed state-owned companies in the Republic of Serbia, first of all, in a large number of cases, there is a problem with establishing ICS – FMC, and especially IA, while a special problem is also the fact that in companies where ICS has been established, there are some obstacles for its effective functioning. Such findings are worrying but, on the other hand, not surprising considering that they are consistent with the research of numerous authors who indicated that, despite adequate regulations, a system of internal control in the public sector, especially in public companies in the Republic of Serbia is still in the initial phase and not sufficiently trained to perform its role effectively (Beke-Trivunac, Vukelić, & Milojević, 2024).

This situation certainly causes concern, which is why there is a need to investigate its cause. The Annual Report on the Financial Management and Control System, which all public entities are obliged to submit to the CHU, tracks the activities that entities have implemented and the results they have achieved in the process of introducing, developing and strengthening the FMC and IA. Nevertheless, the fact that many state-owned companies from the sample did not submit this report could indicate that the PIFC system establishment in those entities has not yet started. On the other hand, individual reports are not publicly available. For these reasons, general conclusions related to the state of FMC and IA in state-owned companies at the local level can be drawn on the basis of consolidated annual reports on the state of internal financial control in the public sector in the Republic of Serbia, which is composed by the CHU, in the part that refers to state-owned companies at the local level.

The consolidated annual report contains a “self-assessment” section, which combines individual annual reports on the FMC system and annual reports on performed audits and IA activities by public entities. The mentioned individual reports contain answers to a set of questions grouped into five areas (five components of the COSO model) that should be evaluated by choosing one of the five offered answers ranging from “NO” to “YES” (grades from 1 to 5) depending on the level of development/system implementation. With the intention of facilitating conclusions, a target value was set for each COSO element in the same range as the scores given by state-owned companies at the local level to the corresponding questions. The target value for each element is 4. Based on the analysis of the CHU Consolidated Annual Reports (Ministry of Finance, Central harmonization unit, 2020, 2021), Table 7 shows the most important results (through the average self-assessment scores of state-owned companies at the local level) for 2020 and 2021.

**Table 7:** Average self-assessment scores of state-owned companies

<b>FMC component</b>	<b>2020</b>	<b>2021</b>
<b>Control environment</b>	3.86	3.86
<b>Risk assessment</b>	3.88	3.91
<b>Control activities</b>	3.81	3.78
<b>Information and communication</b>	4.18	4.20
<b>Monitoring (supervision) and evaluation of the system</b>	3.61	3.68

Source: CHU Consolidated Annual Reports for 2020-2021 (Ministry of Finance, Central harmonization unit, 2020; 2021).

The previous table shows that in all observed years, except for information and communication, each of the elements requires additional improvements. The control environment is in third place when it comes to the total average grades, and there is space for its improvement by continuously improvements of the knowledge and skills of the employees, firstly by establishing an appropriate organizational structure and reporting line, as well as defining appropriate powers and responsibilities. The risk assessment element is closer to the target value, but it is still necessary to invest efforts in the identification and analysis of potential activities that may negatively affect the goal achievement. The connection between risk and control activities is significant, and grades slightly lower than expected in terms of control activities may indicate existing errors in work, as well as insufficient awareness of employees. However, there is significant space for progress and improvements, especially in the areas of defining control activities and their revision. The area of supervision and evaluation of the FMC system is the element that needs to be improved the most.

Based on the conducted qualitative analyses, the CHU observed problems and weaknesses in the establishment and development of the FMC system common to all entities: lack of personnel capacity, insufficient training of employees to whom tasks in the field of FMC are delegated, insufficient awareness of managers at all levels about the purpose and importance of the FMC system, the need to create methodological materials and tools, inadequately set goals of business processes, etc.

When the analysis focuses on the state and development of IA, the situation is as follows. First of all, there is a significant deficiency in the establishment of IA. In 2020, out of 139 state-owned companies at the local level that submitted the CHU annual report, only 43, i.e. 30.93%, had a functional IA. The other 96 companies either only had a normatively established IA (63, i.e. 49.64%) or did not have it at all (27, i.e. 19.42%). The situation did not particularly improve in 2021 either, when out of 160 state-owned companies that submitted their annual report to CHU, only 46, i.e. 28.75%, had a functional IA unit. The other 114 companies either only had a normatively established IA (84, i.e. 52.5%) or did not have it at all (28,

i.e. 17.5%). Furthermore, there is a problem related to the fact that the annual work plans of the IA have not been realized.

CHU recognizes the following weaknesses in the establishment and then in the functioning of the IA:

A large percentage of established IAs with two or fewer employees in charge cast doubt on whether IA standards can be fully respected. Beke-Trivunac et al. (2024) also point to this problem stating that “an average number of internal auditors by public entities raises skepticism about its quality.”

Although an effort has been made to employ a certain number of new internal auditors, the inability to attract and retain quality personnel is still evident, resulting in an inadequate number of internal auditors. This weakness is also recognized by Kostić (2022) and Jakovljević (2022) stating that a large number of young, educated and at the same time experienced internal auditors are not interested in working in the public sector due to low salaries. Further, due to long-term restrictions on employment, a decreasing number of candidates apply to attend basic IA education, which indicates a reduced potential for the influx of internal auditors into the public sector. Also, an additional reduction in the number can be expected due to natural attrition, bearing in mind the age of the population of employed internal auditors;

A significant number of IA units have not adopted an IA quality assurance and improvement program and do not perform a full internal evaluation of the IA work, apart from regular supervision by the IA manager. The reasons for such a situation are unfilled positions, that is, one person in charge of the IA unit or the vacant position of the head of the IA unit, so it is not possible to apply periodic self-assessment;

Insufficient support from company managers is one of the causes of identified weaknesses in the areas of filling the positions of internal auditors, implementing the recommendations of the IA, performing other tasks that are not related to the IA enabling the professional training of internal auditors, etc. Kostić (2022) states that regular management training on the importance of internal audit and familiarization with the consequences of its poor functioning in terms of irregularities and illegality in work is an effective tool for improving the existing internal audit. I. Čerdić, Knežević and Čerdić (2021) indicate that “only close cooperation and good teamwork between the executive and the internal auditor can achieve an effective internal audit in a public company”. Therefore, the quality of the implementation of the ICS can be improved only with greater involvement of the management (Maksimović & Jerotijević, 2023).

## 5 Conclusions

This study aims to investigate the potential of ICS to detect and prevent EM practise in state-owned companies in the Republic of Serbia whose founder is a local self-government unit. On a sample of 64 public companies and on the basis of data from financial statements for period 2018-2021 discretionary accruals as a proxy of EM were calculated. Insight into the characteristics and functioning of FMC and IA, as two forms of ICS, audit reports of financial statements and business regularity of identified companies were used. In order to determine the relationship between EM on the one hand and FMC and IA on the other, we applied Chi-square tests of independence whose results showed that there is no statistically significant relationship. These results are consistent with the research results of other authors (Beke-Trivunac et al., 2024; Jakovljević, 2022; Kostić, 2022; Maksimović & Jerotijević, 2023; I. Čerdić et al., 2021) who indicate that the ICS in the public sector in the Republic of Serbia is in the initial phase. The most common reasons for such situations are insufficient management support for establishment and effective functioning of ICS, low level of employee awareness of the importance of ICS, lack of qualified staff etc.

However, regardless of these results, this should by no means lead to the conclusion that these two forms of ICS have no potential for minimizing management's opportunistic behavior aimed at profit manipulation. On the contrary, FMC and IA, as a comprehensive system of controls, undoubtedly reduce the risks of abuse of resources, keeping books in an irregular manner, fraud, etc., and therefore, attention should be focused on the issues of fulfilling the obligations of establishing internal audit and investing efforts for its efficient functioning.

The situation in state-owned companies at the local level, and in general in the public sector in the Republic of Serbia, sends a clear signal to regulatory and professional bodies that more intensive work is needed aimed at providing support in building ICS and raising awareness of its importance. A large part of that effort is on the part of CHU, which monitors the situation and performs analyses, after which it implements activities with the aim of achieving progress in this direction. That is, the CHU is involved in the creation of planning documents related to the establishment and efficient functioning of the entire PIFC system, and, in addition, performs the following tasks: regular review of the quality of the FMC system and the work of IA units, training of managers and employees, continuous improvement of the regulatory-methodological framework, improvement of the management responsibilities concept, continuous training of internal auditors, promotion of the importance of the FMC, etc.

The last consolidated annual report of the CHU of 2021 states that there is a general positive trend in the development of ICS in the entire public sector in the

Republic of Serbia, but also that it is insufficient, so further efforts are absolutely necessary.

The importance of our research stems from the implications, that is, the contribution we provide to theory, legislators and management of state-owned companies in the Republic of Serbia. As we have already pointed out, there is a very small number of research on the causality of earnings management and internal control systems in state-owned companies in the Republic of Serbia, which consequently requires greater attention from the scientific public. In this sense, we believe that this research will encourage other researchers to provide additional findings and discuss possible improvements in this area.

We believe that this paper also meets the needs of practice. The results of our research also provide useful implications for the state, as the owner of companies important for providing certain services to citizens, but also for their managers, raising awareness of the need for continuous internal supervision over the financial reporting system. Prevention or timely detection of manipulative earnings management in state-owned companies is important not only for the state as the owner but also for the entire community - business, civil sector, various agencies, media, etc. In this sense, we believe that the contribution of our research is aimed at the widest range of stakeholders of state-owned companies.

Our research has several limitations. First, the initial sample of 73 and the final sample of 64 analyzed companies can be considered representative, as they represent 13.62% and 11.92%, respectively, of the total population of state-owned companies in the Republic of Serbia. However, the sample consists only of companies whose founders are local self-government units, while companies founded by central government were not taken into consideration. Therefore, certain methods, for example using a panel data regression model, could not be used. In addition, a period of four years may provide enough data to draw conclusions, which would be even more reliable if the time horizon of the analysis was longer. Finally, since there is no similar research for state-owned companies in the Republic of Serbia, it was not possible to verify the findings by comparing them with others.

The mentioned limitations provide an opportunity for further research. In addition to extending the sample to state-owned companies from the Republic of Serbia, in order to draw better conclusions, companies established by the government from other countries should also be included. Certainly, a comparative analysis would be meaningful if samples from countries with a similar legal environment and economic development were considered.

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