



# Internal Control Systems and Private Hospitals' Performance: Innovation, Earnings Management, and Transformational Leadership

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## Abstract

The purpose of this study is to evaluate the impact of internal control systems on private hospitals' organizational performance via considering the role of earnings management, innovation and transformational leadership. The proposed hypotheses were tested using PLS-SEM in SmartPLS-3 with survey data from 333 of private hospitals' financial managers and accounting staff in Iran. The results show that the internal control systems of have a positive effect on performance, real and accruals earnings management, and the innovation intensity. Also, accruals earnings management has a positive effect on the hospitals' performance and mediates the relationship between internal control systems and performance, but real earnings management and innovation do not have such an effect. In addition, transformational leadership does not have the power to moderate the relationship between internal control systems and hospitals' performance. The study's findings show usefulness of the internal control systems in order to the adoption, designing and implementation of proactive internal control systems to enhance operational efficiency, effectiveness and competitive advantage in private hospitals.

**Keywords:** Internal Control System, Performance, Earnings Management, Private Hospitals, Transformational Leadership.

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## Introduction

Organizational performance is one of the things that has long been the focus of various groups (including managers of organizations, investors and researchers) (Kim, 2020; Garcia Osma et al., 2022; Hoai et al., 2022; Liu et al., 2023; Somwethee et al., 2023). However, performance is one of the most controversial concepts that so far has not been agreed upon by various researchers and theoreticians (Hoai et al., 2022), and this is the reason that, considering all the research that has been done in the past decades, it is still in this field, many studies should be done. On the other hand, internal control systems are critical to an organization's efficiency and promotes the adherence to norms and rules. Accordingly, it can be expected that the internal control system will improve the organizational performance. However, the evidence in this regard is limited in the hospitals of private sector. Therefore, the main question that this research seeks to find an answer to is whether the internal control system has the power to influence the private hospitals' organizational performance in Iran. And if there is an effect, which way do these effects take place? In this research, the earnings management, innovation and transformational leadership are emphasized. Accordingly, the purpose of this study is to evaluate the impact of internal control systems on private hospitals' organizational performance via considering the role of earnings management, innovation and transformational leadership.

Based on the theoretical literature and the conducted studies, research hypotheses were developed as follows. The present study has 11 primary hypotheses.

**H1:** The internal control system has an effect on the hospitals' performance.

**H2:** The internal control system has an effect on the accrual earnings management in hospitals.

**H3:** The internal control system has an effect on the real earnings management in hospitals.

**H4:** The internal control system has an effect on the innovation intensity in hospitals.

**H5:** The accrual earnings management has an effect on the hospitals' performance.

**H6:** The real earnings management has an effect on the hospitals' performance.

**H7:** The accrual earnings management plays a mediating role in the relationship between internal control system and hospitals' performance.

**H8:** The real earnings management plays a mediating role in the relationship between internal control system and hospitals' performance.

**H9:** The innovation intensity has an effect on the hospitals' performance.

**H10:** The innovation intensity plays a mediating role in the relationship between internal control system and hospitals' performance.

**H11:** The transformational leadership plays a moderating role on the relationship between internal control system and hospitals' performance.

## Methodology

The statistical population of this research consist of private hospitals' financial managers and accounting staff in Iran. The approximate number of financial managers and accounting staff in the private hospitals in Iran was considered a large statistical population. Using Morgan's table for large population (from 100000), the sample size consisted of 384 persons. In sum, we the collected of survey data from 333 of private hospitals' financial managers and accounting staff in Iran. In the present study, internal control systems were the independent variable. The questionnaire developed by Chiu and Wang (2019), as a prominent questioner, which was developed based on the COSO framework which consists of 17 questions was utilized. Also, this research used a questionnaire developed by Spekle and Verbeeten (2014) to measure the hospitals' performance (dependent variable). In addition, a scale of 5 items developed by Hoai et al. (2022) is used to measure the transformational leadership as a



moderator variable. Finally, this research used the real earnings management, accrual earnings management and innovation intensity as a mediating variable. Possible answers to questions in this study are categorized on a 7-point scale.

Also, the collected data was calculated using the Excel software and the proposed hypotheses were tested using partial least squares structural equation modeling (PLS-SEM) in SmartPLS-3. This technique generates significance values (P-Value) based on the bootstrapping method with replacement and, therefore, does not impose assumptions about the distribution of variables, including the assumption of normality. Due to the lack of need for normality assumptions, the sample size, and the complexity of the model resulting from the number of constructs in this study and the interactive conditions (moderating variables) that need to be included, it is considered the most suitable analytical method.

## Finding

Table 1 presents the descriptive statistics for each main construct. These statistics—including means, standard deviations, and confidence intervals—help establish a foundational understanding of how respondents perceived each construct. The results show meaningful variation across items, which supports the validity of including these constructs in the subsequent PLS-SEM analysis. Moreover, the fact that mean values deviate from the midpoint of the measurement scale suggests thoughtful participant engagement and reflects underlying trends in hospital management practices. Descriptive statistics related to organizational performance indicate above-average performance overall, although some hospitals demonstrate relatively weak organizational outcomes. For internal control systems, the average score reflects an almost above-average and acceptable condition. Regarding earnings management, results show that private hospitals generally employ both real earnings management and accrual-based earnings management techniques. However, based on the observed ranges and standard deviations, some hospitals apply minimal earnings management while others engage in it more intensively. Finally, innovation intensity is found to be at a moderately high level overall, though some respondents reported the absence of any innovation compared to the previous year. A one-sample t-test was also conducted to determine whether the mean scores significantly differed from the theoretical midpoint. The results indicated that all constructs scored significantly above the midpoint, further confirming the strength and relevance of the measured perceptions.

**Table 1. Descriptive statistics (N = 333)**

Variables	Theoretical range	Actual range	Mean	S.D.	t-stat	Sig.
OP	1-7	1.14-7	4.71	0.91	14.130	0.000*
ICS	1-7	2.23-6.70	4.63	0.71	16.316	0.000*
REM	1-7	1.25-7	4.57	1.17	9.019	0.000*
AEM	1-7	1-7	4.52	1.12	8.438	0.000*
II	0-7	0-6.87	4.34	2.01	3.117	0.002*
TL	1-7	1.60-7	4.42	0.96	7.975	0.000*

Notes: OP, ICS, REM, AEM, II, and TL are the organizational performance, internal control systems, real earnings management, accrual earnings management, innovation intensity, and transformational leadership, respectively. Also, \* represent significance level of 0.01.



We ran partial least squares structural equation modeling (PLS-SEM) to testing hypotheses. Figure 1 depicts the result of this research. This study found that the internal control systems of private hospitals have a positive effect on performance, real and accruals earnings management, and the innovation intensity. Also, accruals earnings management has a positive effect on the private hospitals' performance and mediates the relationship between internal control systems and performance, but real earnings management and innovation intensity do not have such an effect. In addition, transformational leadership does not have the power to moderate the relationship between the internal control systems and the private hospitals' performance.

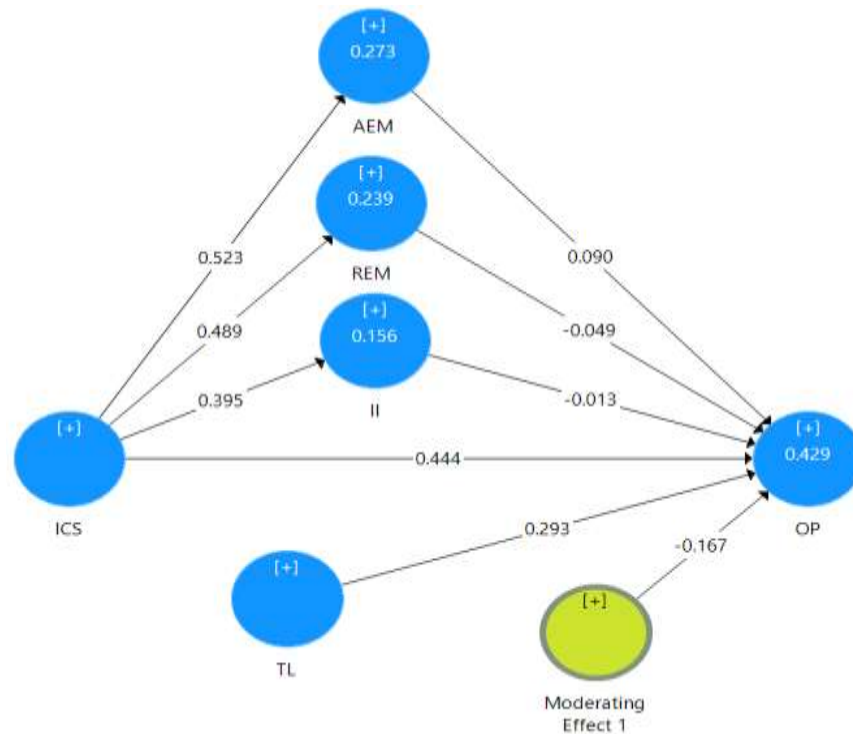


Figure 1. The results of path coefficients of research model

## Conclusion

The goal of this research is to evaluate the impact of internal control systems on private hospitals' organizational performance via considering the role of earnings management, innovation and transformational leadership. Actually, this research is based on the importance of internal control systems in the functioning of medical informatics and by utilizing data from private hospitals in Iran, demonstrated the role of the internal control systems in determining the organizational performance of private hospitals. In general, based on the results of the present study and according to the significant effect of the internal control systems on private hospitals' performance, real and accruals earnings management, and the innovation intensity and the mediating role of accruals earnings management in the relationship between the internal control systems and private hospitals' performance and since main objective of organizations is improving their performance, we recommendation that actual and potential user (such as managers) considered these relations.

Our finding exhibits several strengths that contribute to its value in the field of organizational performance, particularly in the context of private hospitals. This paper

effectively highlights the role of internal control systems in enhancing organizational performance. This issue is very important given the increasing development and expansion of medical information systems. More precisely, it discusses how internal control systems can improve earnings predictability, reduce inefficiencies, and align management processes with organizational goals, which is crucial for medical information systems in private hospitals. These findings suggest that private hospitals seeking to improve their performance need to improve internal control systems.

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