

The Effect of Organizational Characteristics on the Relationship Between Internal Audit and Information Security

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Abstract: The role of internal audit in assessing the security level of the information systems that are working in an organization is a very important aspect that must be taken into account. The organizations are safe from the informational point of view they implement information systems in accordance with the security standards recognized as the best. The purpose of this study is to investigate the effect of organizational characteristics on the relationship between internal audit and information security among universities. The needed data was gathered through a questionnaire. In order to test hypotheses, Pearson correlation coefficient and single factor ANOVA were used. According to the research findings, the variables such as top management supports and organizational characteristics are effective on the relationships between internal audit and information.

Key words: Internal audit, information security, top management, organizational characteristics, universities

INTRODUCTION

In recent years, major changes in the business environment has emerged on the world stage that I have deep effects on the function and activity of companies left. One of these changes will be to develop an economy based on knowledge and intellectual capital increased competition and other risk rapid developments in information technology and attention to sustainable development noted. Ever-increasing expansion and sophistication of economic institutions in the modern world, inter minable progression of technology, increased number of transactions, pressures brought about by shortage of resources, increased competition, ample risks in many field that put aims and goals of the organization at stake from both internal angles and external ones have all led to the fact that mindset of the management be focused on endless issues. Hence, rendering the direct and individual control on the institutions impossible. Lack of direct control on organizational operations and the distance of senior management from all the institution's activities have caused the fact that the management would have to implement an internal efficiency control as an integral part of management system in order to do his/her counseling job. This way internal accounting has turned into a prominent factor in internal control systems. Today no internal control structure in complete without an internal accountant. Internal accountant has the

responsibility of providing services for economic institutions to do their tasks the best (Bailey *et al.*, 2003).

A company's information is considered as property or asset of the firm. This means that ultimate responsibility for information should be on the whole firm not just the role of senior information security employee or similar positions in the company. Although, specifying and using most of the techniques related to information security is the task of the senior information security employee, the director should attempt to supervise correctly and ensure that the security is effective and in place (Gramling Myers, 2003).

Accounting information system, as a component of information management has the task of providing useful information for the decision making process to happen. Useful information is defined as having relativeness and being on time as well as security so that their information be credible and correct for managers to decide upon. Systems security has engaged the mindset of managers by recent advances in computer technology. One of the concerns of the directors is protecting system information against trespassing of illegal persons and institutions. Information stored on systems with low degrees of security will not be credible and there always will be threat of stealth. Company's managers in their realm of tasks and responsibilities have the liability to secure job environments and information in the viewpoint of maintaining the interests of the organizations.

Accountants should include the whole gamut of reliability of the information of the proprietor, security in accounting information systems, etc. (Messier and Schneider, 1988). Managers and accountants ought to have the knowledge about all types of attacks and threats, securing methods and optimizing the security in information systems so that they can successfully make security in information systems. On the one hand, it is impossible to bring about security in a system completely. However, managers should always attempt to sharpen the level of security in systems to acceptable levels using experts and academic people. Making acceptable levels of security in accounting information systems will increase the reliability and validity of financial reports. This, in turn will lead to the usefulness of information on monetary reports in order for users in and out of organizations to decide correctly (Henry, 1997).

Literature review: Davis (1997) in a research entitled 'professional ethics and relations with information security management' evaluated the links between information security management and employee's professional codes of ethics. According to the obtained results, information security management had significant positive relations with compliance of employees with professional ethics. In other words, we can state using info security instruments and executing the approaches in the field not only does not hold negative influence on compliance with professional ethics but also our findings showed positive collaboration with ethical norms.

Hussein *et al.* (2008) conducted a research entitled 'an evaluation on the effects of internal accounting variables on auditors' program's and the results illustrated that independent accountants rely on the results of works of internal auditors. This reliance can save both time and budget in accounting programs. Mazaryazi presented a paper entitled 'A face changing of accounting in the era of IT dominance'. In the paper the how of influence of information technology and communication has been dealt with. It has focus on challenges that cause changes in accounting and auditing.

Steinbart *et al.* (2012) evaluated the nature of internal accountants and their ability in implementing organizational territory in institutions of Egyptian stock market. The research was conducted using questionnaires. The results illustrated that internal auditing in institutions in the stock market has sample problems in current situation that has effects on organizational territory negatively. Hence, a lot of effort should be made to progress organizational principles in Egypt. Ali *et al.* (2009) found that there is positive link between corporate governance and benefit management as well as risk management. Karagiorgos *et al.* (2010) referred to >70 factors that have

effects on the quality of documents analyzed by auditors. They state that internal auditing had effects on many factors relating to documents provided by the proprietor. Staciokas and Rupsys (2005) found that huge auditing institutions are more credible as compared with small ones.

Gramling and Myers (2003) evaluated the links between internal auditing and corporate governance. The main finding was the stimulating effects of internal auditing on implementing corporate governance. Louni in a research work entitled 'your security threat: Employees?' found that more than a third of security defects in England were the results of employees and a third of worst security accidents were the results of computer viruses. Brown (1983) in his paper entitled 'independent auditors' judgment in evaluation of internal auditor's functioning state that two factors have the most power on judgement of auditors in this profession that are in case of importance: internal auditors being not biased and the functioning of ex-auditors. Moreover, he states in his conclusion that in case internal auditors act without bias and have professional skills, the costs for auditing process of the owner decreases. The third factor that has effects on judgment of auditors in his opinion is the amount of experience that internal auditors hold.

MATERIALS AND METHODS

The research according to its goals is considered an applied research. In research classification according to goals is applied, according to method is descriptive and is classified in correlational studies. Researches are normally divided into several types and this research is survey type. Studies of this type deal with description, prediction and link analysis among variables. Questionnaires are to be used in this research. In fact, this research aims to collect data to describe the existing facts and do assumption tests to answer the question brought in the research.

Statistical population: The population of this research consists of IT circle employees and accounting group of Sanandaj County's universities amounting to 128 people.

Variables in the research: The variables are Independent variable, internal auditing (support brought by senior managers, organizational features; dependent variable, information security).

RESULTS AND DISCUSSION

An evaluation of the assumption of data being normal using KS test: According to the results of below Table because the levels of significance for all the components

Table 1: The results of normal independent test

Factors	Sig.	p-values	Assumption verification	Conclusion
Organizational features	0.458	0.05	H ₀	Normal
Senior manager's support	0.199	0.05	H ₀	Normal

were $p > 0.05$, the variables had normal distribution. Hence, parametric test will be used for testing assumptions.

The research assumptions:

- H₁: Support of senior management has a significant relation with internal audit and information safety

One-sample mean test was used in order to investigate the hypothesis. Also dimension components were investigated in each of the hypotheses. The results of this analysis are presented in Table 1. As it can be seen, Sig. value which is equal to 0.000 is smaller than $\alpha = 0.05$. Therefore, null hypothesis (H₀) (based on: supports of senior managers has no significant relation on internal audit and information safety) is rejected and the hypothesis (H₁) (based on: supports of senior managers has significant relation on internal audit and information safety) is confirmed. In the other hand as lower and upper limits of the presented confidence distance are positive, it is a reason for rejecting null hypothesis. Also with regard to Table 1, it can be said that with regard to the average of 3.7051 and statistics value of t equal to 16.448 which is > 1.96 and the value of this statistics is in critical area. So, the mean difference of score 3 is significant. Therefore, supports of senior managers on internal audit and information safety are in an appropriate situation, i.e. in the level of 5% error, it can be claimed that supports of senior managers has a significant relation with internal audit and information safety.

With regard to the observed histogram highest concentration among the responses of the studied people is related to the options of moderate and high as the result, it can be said that in the view of respondents, supports of senior administration between internal audit and information safety has an appropriate situation (Fig. 1).

- H₂: The organizational characteristics are effective on the relation between circles of internal audit and information safety

One-sample mean test was used in order to investigate the hypothesis. Also dimension components were investigated in each of the hypotheses. The results

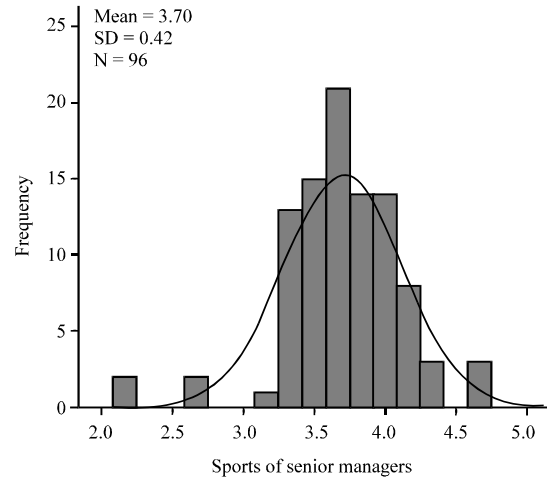


Fig. 1: Histogram of supports of senior managers on internal audit and information safety

of this analysis are presented in Table 1. As it can be seen, sig. value which is equal to 0.000 is $< \alpha = 0.05$. Therefore, null hypothesis (H₀) (based on: organizational features have no significant relation on internal audit and information safety) is rejected and the hypothesis $> (H_1)$ (based on: organizational features has significant relation on internal audit and information safety) is confirmed. In the other hand, as lower and upper limits of the presented confidence distance are positive, it is a reason for rejecting null hypothesis. Also with regard to Table 2, it can be said that with regard to the average of 3.677 and statistics value of t equal to 16.314 which is > 1.96 and the value of this statistics is in critical area, so the mean difference of score 3 is significant. Therefore, organizational features on internal audit and information safety are in an appropriate situation, i.e., in the level of 5% error, it can be claimed that organizational features have a significant relation with internal audit and information safety (Table 2 and 3). With regard to the observed histogram, highest concentration among the responses of the studied people is related to the options of moderate and high; as the result, it can be said that in the view of respondents, organizational features between internal audit and information safety has an appropriate situation (Fig. 2). The result of this test with the value $\chi^2 = 78.710$ and in the level of 66% confidence, i.e., in the error level of 1% (Sig. = 0.000) is significance and it can be said that there is a significant difference between the effective factors in internal audit and information safety (Table 4 and 5).

The result of the mean of ranks shows that among the investigated factors “supports of senior managers” with the coefficient 3.84 is the first priority; as the result, it has

Table 2: Descriptive indicators related to the fourth hypothesis (supports of senior managers on the relation between internal audit and information safety) ($H_0: \mu = 3$)

Variables	Number	Average	SD	Mean error deviation
Supports of senior managers	96	3.705	0.420	0.043
Spiritual supports of administration	96	4.115	0.869	0.089
Cooperation and companionship of administration	96	3.938	0.792	0.081
Creation of an intimate and empathy space	96	3.531	0.767	0.078
Having a leadership style	96	3.396	0.607	0.062
Organizational culture	96	3.365	0.505	0.052
Transparency of rules and organization regulations	96	3.885	0.663	0.068

Table 3: One-factor mean average related to fourth hypothesis (supports of senior managers on internal audit and information safety) ($H_0: \mu = 3$)

Variables	t-value = 3		Sig. level	Mean difference from average limit	Confidence interval of 95% for mean difference		Test result
	t-statistics	df			Lower limit	Upper limit	
Supports of senior managers	16/448	95	0.000	0/705	0/62	0/79	Significant relation
Spiritual supports of administration	12/567	95	0.000	1/115	0/939	1/291	Significant relation
Cooperation and companionship of administration	11/595	95	0.000	0/938	0/777	1/098	Significant relation
Creation of an intimate and empathy space	6/785	95	0.002	0/531	0/376	0/687	Significant relation
Creation of an intimate and empathy space	6/785	95	0.002	0/531	0/376	0/687	Significant relation
Having a leadership style	6/393	95	0.006	0/396	0/273	0/519	Significant relation
Organizational culture	7/072	95	0.000	0/365	0/262	0/467	Significant relation
Transparency of rules and organization regulations	13/088	95	0.000	0/885	0/751	1/021	Significant relation

Research data

Table 4: Descriptive indicators related to the H_0 (organizational features on the relation between internal audit and information safety) ($H_0: \mu = 3$)

Variables	Number	Mean	SD	Mean error deviation
Organizational features	96	3.677	0.407	0.042
Encourage and reward system	96	3.990	0.657	0.067
Appropriate authority	96	3.406	0.674	0.069
Giving enough opportunity	96	3.542	0.753	0.077
Organizational structure	96	3.594	0.591	0.060
Access to managers	96	3.854	0.833	0.085

Table 5: One-factor mean test related to 2th hypothesis (organizational features on internal audit and information safety) ($H_0: \mu = 3$)

Variables	t-value = 3		Sig. level	Mean difference from average limit	Confidence interval of 95% for mean difference		Test result
	t-statistics	df			Lower limit	Upper limit	
Organizational features	16/314	95	0.000	0/677	0/595	0/76	Significant relation
Encourage and reward system	14/761	95	0.000	0/99	0/857	1/123	Significant relation
Appropriate authority	5/906	95	0.000	0/406	0/27	0/543	Significant relation
Giving enough opportunity	7/05	95	0.002	0/542	0/389	0/694	Significant relation
Organizational structure	9/847	95	0.006	0/594	0/474	0/714	Significant relation
Access to managers	10/044	95	0.000	0/854	0/685	1/023	Significant relation

Table 6: The result of Friedman’s test of effective factors on internal audit and information safety

Statistics	Value of statistics
Number	96
Chi square test	78.710
Degree of freedom	4
Significance level	0.000

the highest importance among effective factors in internal audit and information safety “Organizational features”. With the coefficient 3.68 locates in the second priority;

Table 7: The result of the means for effective factors of Freedman’s test on internal audit and information safety

Components	Mean of the ranks	Ranks
Knowledge level	2/59	4
Communication skills	2/62	3
Personality characteristics	2/28	5
Supports of senior managers	3/84	1
Organizational features	3/68	2

Research data

“communication skills” with the coefficient 2.62 locates in the third priority. “Knowledge level” with the coefficient

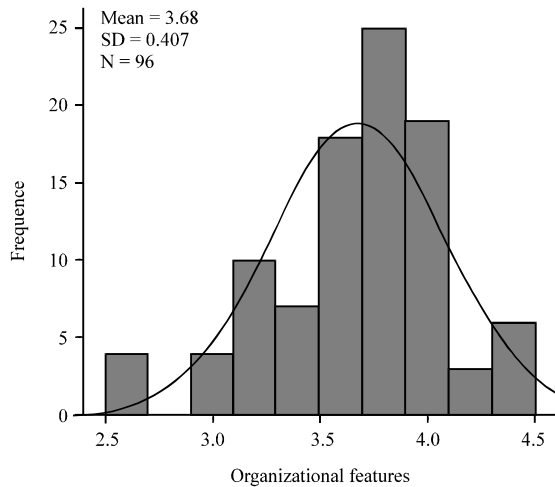


Fig. 2: Histogram of organizational features on internal audit and information safety

2.59 is in the fourth priority. “Personality characteristics” with the coefficient 2.28 is in the fifth priority and is the last one having the lowest importance (Table 6 and 7).

CONCLUSION

Since, the main concern of the staff is to satisfy the requests and duties they have the 5 issue which is commonly ignored is security issues. Its main reason can be lack of a documented and announced rule to the staff. The most important point is that lacking written regulations causes: first, the staffs don’t know what duties they have for preserving organization information and second, in the occurrence of their violation, no authority exists for handling the violations. According the performed studies the condition for the success of information security system is the continuity of information security cycle. If the continuity of information security cycle is lowered, it can be claimed that information security management system will be vanished in other occupations of managers and users. Hence, the creation of information security constitutions, selection of information security manager and continuous supervision on the senior manager of the organization are among the essential elements of holding information security in organization. Auditors can also help in different ways to the security of accounting informational systems. They can cooperate with engineers and designers of system in the stage of system designation; because they have more information than these people in the context of internal controls and security methods. However, senior managers use the output of information systems but they never use the system for data processing.

Administration may doesn’t have enough information and knowledge about the security concerns related to the system; auditors can inform administration about the security of systems. The increase of administration awareness and its attention to the security of system can increase the control and make the security of systems in the top priorities. Auditors also can train the users of system about the security of accounting informational systems. One of the security threats of information systems is human mistakes which the training can decrease these mistakes.

SUGGESTIONS

In this study with regard to the findings obtained from research, some suggestions are presented in a few parts separately as following:

The suggestions based on research results: In this study, the suggestions based on research hypotheses are separately presented: with regard to the results of the H₁, the supports of senior managers (including the context of spiritual supports of administration, administration cooperation, creation of communion space, existence of appropriate leadership style, appropriate organizational culture, transparency of organizational regulations of spiritual supports) on the relation between circles of internal audit and information security in the universities of Sanandaj, special attention must be allocated. With regard to the results of the H₂ of organizational features (including in the context of encourage and reward system, existence of appropriate authority, giving enough opportunity, appropriate organizational structure, possibility of access to managers) on the relation between the circles of internal audit and information security in the universities of Sanandaj, special attention must be allocated.

Practical suggestions:

- Documentation of information related to data bases and timing programs of preparing backup
- Promoting participation culture especially in the relation with sharing knowledge between the staff of offices

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