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## **The influence of the audit committee on the internal audit operations in the system of corporate governance – evidence from Croatia**

Boris Tušek\*

*Faculty of Economics and Business, University of Zagreb, J.F.Kennedy Sq. 6, 10000 Zagreb, Croatia*

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The activities of the internal audit and audit committee in a company are of exceptional importance for the good practice of corporate governance. For the audit committee, performing numerous roles and responsibilities of are not possible without the appropriate interactions with the internal audit department. On the other hand, the quality of the internal audit operations in a company is largely determined by the cooperation with the audit committee. This research analyses the influence of the audit committee on the internal audit operations in the sense of achieving the numerous roles and tasks of modern internal auditing in the system of corporate governance. On the basis of the conducted empirical research, using a questionnaire, the following hypothesis was tested: the efficiency of the internal audit function increases through its inclusion in the activities of the audit committee. Before the analysis and discussion on the results of the conducted empirical research on the influence of the audit committee on the improvement of internal audit activity, obtained by using methods of analysis and synthesis, induction, deduction and comparative method, some relevant aspects are researched regarding the relation between the internal audit function and the audit committee in the system of corporate governance.

**Keywords:** internal audit; audit committee; corporate governance

**JEL classifications:** M42, G34.

### **1. Introduction**

The internal audit function is an irreplaceable resource and source of information for the audit committee. In other words, the achievement of the numerous obligations and responsibilities of the audit committee is not possible without appropriate communication with the internal audit department. On the other hand, one of the key factors for successful internal audit operations in a certain organisation is the support that the audit committee offers to the internal audit and its activities. That support can, at the same time, have a positive influence on the quality of the information foundation that internal auditing offers to the audit committee for the purpose of achieving its supervisory roles. The internal audit must permanently develop new approaches to internal auditing, to design new auditing products and services, and all of this in conjunction with the growing complexity of demands that are set before business decisions in modern conditions. Related with this, it can be expected that internal auditing will be increasingly directed to anticipating possible risks in certain areas of business activities and in consulting

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\*Email: [btusek@efzg.hr](mailto:btusek@efzg.hr)

management on the possibilities of managing these risks in the sense of forming and monitoring an appropriate internal control system where the risks will be efficiently reduced.

The purpose of this research is to analyse the influence of the audit committee in improving internal audit activities, or increasing the efficiency of the internal audit function in the company. Efficiency most often concerns the capability of achieving results and objectives. In this context, a greater efficiency of the internal audit function implies a greater quality of internal auditing operations and achieving its numerous responsibilities, which also includes reaching the expected results in the system of corporate governance.

Because internal auditing is a relatively new research field in transition countries, as well as in Croatia, empirical research on the influence of the audit committee on the internal audit operations has not yet been conducted. In this context, there is a need to upgrade the existing literature by designing and conducting the empirical research, taking into account the current characteristics of the environment and development stage of corporate governance in Croatia.

## **2. The relation between internal auditing and the audit committee**

Expectations of internal auditing nowadays are emphasised worldwide, especially in terms of its active inclusion in the creation of value added, primarily by generating information necessary for the identification, understanding and assessment of risks. The permanent task of the internal auditor is dealing with the comprehensive internal control system as an instrument of risk management, including implementation of appropriate internal controls in the business system and constant concern that their function can significantly contribute to the realisation of the chosen strategies of risk management (Moeller, 2009).

When it comes to the business activities of large, diversified and decentralised business systems, in today's exceptionally complex and unstable conditions, there is a matter of sufficiency of internal monitoring and its business activities. In such organisations, it is common to organise the internal audit function that monitors internal controls, or offers an additional, higher level of monitoring of the complete business activities of the company. Internal auditing should support and assist in the identification and assessment of exposure to risks and should contribute to a quality of managing those risks; above all, by maintaining and continuing improvement of the internal control system.

The audit committee is a sub-committee or a consulting body of the supervisory board that has the task of monitoring the process of financial reporting, especially with regard to annual financial statements, and monitoring business risks and control procedures as instruments of risk management as well as monitoring the processes of external and internal auditing. Achieving these fundamental roles along with the tasks of the auditing committee are not possible without results and findings of internal auditing.

The obligation of establishing the audit committee in companies of public interest in the Republic of Croatia, and the committee's activities, are regulated by the Auditing Act. The audit committee, according to the Auditing Act, has the following activities: to monitor the procedure of financial reporting, to follow the efficiency of the internal control system, internal auditing, and the system of risk management, to monitor the implementation of the financial statements audit, to monitor the independence of independent auditors or auditing companies performing the financial statements audit, and especially contracts on additional services, to give recommendations to the concluding agreements

regarding to choice of the independent auditor or auditing company, to discuss plans and the annual report of the internal audit and other important matters regarding this area.

The audit committee can strengthen the internal audit function and turn the internal audit into an important resource for implementation of its obligations (Turley & Zaman 2004). The audit committee has the obligation and responsibility to: evaluate the organisational independence of the internal audit function and the individual objectivity of internal auditors, to discuss with the chief audit executive reports and the most significant findings of the internal audit activity, especially on the operative efficiency of internal controls, and to examine and approve the annual internal audit plan, to examine and approve the budget for the internal audit, to consider the relation between the internal and external audit and to coordinate its work, and participate in activities of appointing and dismissing the chief audit executive (Moeller, 2009). All of these activities can simultaneously influence the improvement of the internal audit operations in an organisation.

There are several research articles dealing with influences of individual characteristics of the audit committee on the relationship between the audit committee and the internal audit function, but they were primarily conducted in countries with a developed auditing profession and system of corporate governance, mainly outside of Europe. In that context, previous research analysed the relation between the audit committee and the internal audit function in Canada (Scarborough, Rama, & Raghunandan, 1998; quoted in Goodwin, 2003, p. 264.), Singapore (Goodwin & Yeo, 2001), United States of America (Raghunandan, Read, & Rama, 2001; quoted in Goodwin, 2003, p. 264.), Australia and New Zealand (Goodwin, 2003). The above-mentioned studies were mainly focused on determining the influence of independence of the audit committee members on the relationship between the audit committee and the internal audit function (Goodwin & Yeo, 2001; Scarborough et al., 1998; quoted in Goodwin, 2003, p. 264), then determining, separately, the influence of the independence of the members and their competence in the area of accounting and/or finance on the relationship between the audit committee and the internal audit function (Goodwin, 2003); that is, determining, altogether, the influence of independence and competence of the audit committee members (Raghunandan et al., 2001; quoted in Goodwin, 2003, p. 264) on the relationship of the audit committee and the internal audit function (Scarborough et al., 1998; quoted in Goodwin, 2003, p. 264).

Goodwin and Yeo (2001) have been researching the relationship of the audit committee and the internal audit operations in Singapore and they concluded that there is a higher probability that an audit committee consisting exclusively of non-executive members has a higher interaction with the internal audit function than those audit committees that consist of executive members, i.e., the frequency of meetings between audit committees and internal audit functions and probability of private meetings between them, without the presence of management, is higher in the situation when all members of the audit committee are non-executive members.

Raghunandan et al. (2001, quoted in Goodwin, 2003, p. 264) have conducted a research into the relationship of audit committees and the internal audit operations in the USA and affirmed a positive correlation between the existence of accounting and financial knowledge, competence of the audit committee members, frequency of meetings between the audit committee and the chief audit executive and examining suggestions and the results of internal audit operations by the audit committee.

Goodwin (2003) has conducted the research of the relation of audit committees and the internal audit operations on the sample of Australian and New Zealand companies and determined that independence of the audit committee members and their competence in the area of accounting and finance have a complementary influence on the relationship of the audit committee and the internal audit function. Contrary to this, the number of audit committee members with accounting experience is associated with the extent that the audit committee reviews the work of the internal audit function. As stated above, research results confirm the recent requests that members of the audit committee have to be independent from management and have appropriate knowledge in areas of accounting and/or finance.

The relationship between the internal audit function and the audit committee is an important element of the entire system of the corporate governance (Bishop, Hermanson, Lapidés, & Rittenberg, 2000; Scarbrough et al., 1998, quoted in Boubaker & Taher, 2013, pp. 2 and 4). Bishop et al. (2000, quoted in Boubaker & Taher, 2013, p. 4) point out the importance of the interaction – as for the internal audit function, so for the audit committee. He also concludes that intensifying the interaction between them can improve the overall quality of the corporate governance. According to Boubaker & Taher (2013), previous studies (Goodwin, 2003; Raghunandan et al., 2001; Scarbrough et al., 1998; Zain, Subramaniam, & Stewart, 2006) are directed to follow three main aspects of observation: (1) the frequency of the meetings between the audit committee and chief audit executive; (2) involvement of the audit committee in dismissing the chief audit executive; and (3) inspection of the performed engagement of the internal audit operations by the audit committee.

The audit committee has important responsibilities related to the internal audit operations, such as inspection of the internal auditing programme and ensuring the adequacy of scope of the work of the internal audit function. As such, the audit committee has the potential to improve the internal audit operations (Zain et al., 2006 quoted in Boubaker & Taher, 2013, p. 6). The audit committee has to have an efficient communication with the internal audit function, i.e., frequent meetings and discussions with the chief audit executive in order to provide a prompt review of the specific questions and areas (Raghunandan et al., 2001; Scarbrough et al. 1998, quoted in Boubaker & Taher, 2013, p. 5). According to the International Standards for the Professional Practice of Internal Auditing (International Professional Practices Framework, 2013), the chief audit executive has to communicate with, and be in direct interaction, with the audit committee. That means that chief audit executive frequently attends and participates in meetings of the audit committee related to responsibilities of the audit committee for audit oversight, financial reporting, risk management and internal controls. Such a presence in meetings allows the exchange of information related to plans and activities of the internal audit function and on any other questions of mutual interest.

Zain and Subramaniam (2007) obtained results of the research conducted in Malaysia that shows the existence of rare, informal communication and limited private meetings between the members of the audit committee and internal audit operations, including the need for the clarity of reporting. In addition, according to the results of the research conducted, the importance of the influence of the audit committee in supporting the activity of the internal audit operations is highlighted.

Boubaker & Taher (2013) have researched the relationship between the audit committee and the internal audit function as well as the influence of the audit committee features on stated relationships in Tunisia. This study has shown that the competence and frequency of the meetings of the audit committee have a positive influence on the

interaction of the audit committee with the internal audit function, while the size of the audit committee negatively influences this interaction. In addition, according to results of the research, the independence of the audit committee members has no significant influence on the interaction between the audit committee and the internal audit function.

Cohen and Sayag (2010) in their empirical research tried to prove the hypothesis that greater support of the highest management level is related to internal auditing quality. They have empirically identified the existence of very high correlation between the support of the highest management level and the internal audit quality within companies from Israel. In addition, they identified the existence of a positive correlation between the organisational independence of internal auditing and its quality.

Coetzee and Fourie (2010) have researched the perceptions of chief executive officers, chief financial officers or chief operating officers, as well as chairpersons of the audit committee of the top listed companies in South Africa on the role of the internal audit function in respect of risk. They identified that, based on the perception of chairmen of audit committees and executive directors, it is possible to expect in the future an increase of the contribution of the internal audit function to risk management processes. This results from a higher status and acceptance of internal auditing within the company and cooperation with the audit committee and management.

### 3. Empirical research

#### 3.1. Methodology of research

The purpose of the conducted research is to analyse the influence of the audit committee on the internal audit operations in the company, with respect to quality improvement regarding performance, achieving expected results, purposes and the objectives of the internal audit function. Based on the collected data using the questionnaire and its statistical analysis, the following hypothesis is tested:

**Hypothesis 1.** *The efficiency of the internal audit function increases through its inclusion in the activities of the audit committee.*

The efficiency of the internal audit function involves achieving its objectives on a certain level, i.e. a certain level of accomplishing the fundamental reasons of existence and performing internal auditing within the company is necessary. It is also determined by the degree of harmonisation of the internal audit activities with International Standards for the Professional Practice of Internal Auditing, and gratification of user needs (Mihret, 2010, p. 38).

Empirical research, based on a questionnaire, has been conducted on the sample of internal auditors and the audit committee members in the Republic of Croatia. The survey has been conducted on the sample of 65 examinees in the period from February 2013 to December 2013. The questionnaire for internal auditors consisted of 28 questions structured into three groups, according to the objectives of the research, including: general information about the company, information on existing relationships between the internal audit function and the audit committee, and the personal standpoint of examinees about a relationship between the internal audit function and the audit committee. The questionnaire for members of the audit committees consisted of 25 questions structured into the previously mentioned three groups. Most of the questions were closed questions, with the possibility of choosing one or more from provided answers, but some were open questions, allowing for freedom in answering by examinees. Data

collected using the survey method were analysed with selected methods of descriptive and inferential statistics.

Out of the total number of participants of the research, 34 of them, or 52.3%, were internal auditors, while 31 examinees or 47.7% are referred to as members of the audit committee (Table 1).

The research includes companies from various economic activities, as can be seen in Table 2. Some examinees from the sample, 21 or 32.3%, are from the financial intermediation sector, while the rest of the examinees, 44 or 67.7% are from remaining specified economic activities.

The analysis performed on the general information contained in first part of the questionnaire shows us that the highest number of examinees, 43 or 66.2% are employed within companies with more than 500 employees (Table 3), and only 4 or 6.2% are employed within companies with fewer than 50 employees.

As shown in Table 4, the break-down of examinees included in the sample, according to the size of a company, indicates that the largest number of examinees, 59 or 90.8% are employees of large companies, five examinees, or 7.7%, are employees of medium-sized companies, and one examinee, or 1.5%, is employed in a small company.

### 3.2. Results and discussion

In order to test the research hypothesis, the viewpoints of both groups of examinees were analysed. Analysis includes investigating the influence of the audit committee on the internal audit operations within a company from the point of view of internal auditors and the chairmen of the audit committee. With this, efficiency is most often defined by achieving basic results and goals. In that context, as previously stated, a higher efficiency of the internal auditing implies an increase in the auditing process quality and managing that process in respect of achieving the objectives of the internal audit function in the system of corporate governance.

As the results show, not one respondent from the total sample, which includes 65 examinees, believes that the cooperation of the internal audit function and the audit committee does not have an influence on the increase of the quality of the internal audit operations, six or 9.2% believe that influence is insignificant, while 19 or 29.2% believe that the influence is medium. Furthermore, 49.3% or 32 examinees from the sample believe that cooperation has a great influence, while the remaining 12.3% or eight examinees believe that there is an exceptionally strong influence of cooperation between the internal audit function and the audit committee regarding the increase in the work quality of the internal audit operations.

The mean of 3.65, from Table 5, shows the degree or level of influence of the cooperation between the internal audit function and the audit committee within a company on the increase in quality of the internal audit operations.

Table 1. The structure of examinees included in the sample.

A group of examinees	Count	Table N (%)
Internal auditor	34	52.3
Member of AC	31	47.7

Source: Author's calculations.

Table 2. The structure of economic activities of examinees included in the sample.

Type of economic activities	Total number of examinees		Number of examinees in the sample			
			Internal auditor		Member of AC	
	Count	Table N (%)	Count	Table N (%)	Count	Table N (%)
Mining and quarrying	1	1.6	1	2.9	0	0.0
Manufacturing	6	7.7	5	14.7	1	3.2
Gas production, energy and water	6	9.2	3	8.9	3	9.7
Building	3	4.6	1	2.9	2	6.5
Wholesale and retail	2	3.1	1	2.9	1	3.2
Transportation, warehousing and communications	13	20.0	5	14.7	8	25.8
Financial services	21	32.3	13	38.3	8	25.8
Other social and personal service activities	1	1.6	0	0.0	1	3.2
Other	12	18.4	5	14.7	7	22.6

Source: Author's calculations.

Table 3. The structure of the sample according to the number of employees.

Number of employees	Total number of examinees		Number of examinees in the sample			
			Internal auditor		Member of AC	
	Count	Table N (%)	Count	Table N (%)	Count	Table N (%)
Less than 50	4	6.2	1	1.5	3	4.6
51–200	5	7.7	3	4.6	2	3.1
201–500	13	20.0	7	10.8	6	9.2
More than 500	43	66.2	23	35.4	20	30.8

Source: Author's calculations.

Table 4. Structure of the sample according to the size of a company.

Size of a company	Total number of examinees		Number of examinees in the sample			
			Internal auditor		Member of AC	
	Count	Table N (%)	Count	Table N (%)	Count	Table N (%)
Large	59	90.8	30	46.2	29	44.6
Medium-sized	5	7.7	3	4.6	2	3.1
Small	1	1.5	1	1.5	0	.0

Source: Author's calculations.

Table 5. The mean of examinees on the influence of cooperation of the internal audit function and the audit committee on the increase in quality of the internal audit operations.

	Mean	Median	Mode	Standard deviation
INFLUENCE_ON_QUALITY_IA	3.65	4.00	4.00	.82

Source: Author's calculations.



In a concrete case, the application of a scale from 1 to 5 to estimate that influence is 66.25%,<sup>1</sup> which is an above-average level (more than 50%). The empirical  $z$ -value for the one-tailed test using the upper border of the sampling distribution is 2.620 while the calculated  $p$ -value is 0.00439. Since the  $p$ -value is smaller than the theoretical significance level of 5% (0.05) and 1% (0.01), the hypotheses that 66.25% is significantly higher than the average can be accepted.

The distribution of frequencies and relative frequencies of answers about the influence of cooperation between the internal audit function and the audit committee on the increase in quality of the internal audit operations in a company shown by the examinees category and the results of descriptive statistics are illustrated in Table 6.

The total mean of the examinees category from the sample, and internal auditors and members of the audit committee, is 3.65. The mean value for the internal auditors from the sample is 3.53 and is slightly lower than the total average, while the mean value for the members of the audit committee is 3.77 and is slightly higher than the total average. The empirical value of the  $F$ -test is 0.434 while the calculated  $p$ -value is greater than the theoretical significance level of 5% ( $0.513 > 0.05$ ), meaning that the assumption of equality of variances between the two means can be accepted. Finally, the value of the  $t$ -test is 1.209 while the calculated  $p$ -value for the two-tailed test is 0.231, which is greater than the theoretical significance level of 5%, so it can be concluded that there is no statistically significant difference between the means considering the perception of internal auditors on the one side and members of the audit committee on the other (Table 7).

The results of two sub-samples are normalised, resulting in proportions of 63.25% for internal auditors and 69.25% for members of the audit committee. Testing the difference between the two obtained proportions results in an empirical value of the  $z$ -test of  $-0.511$  and a  $p$ -value for the one-tailed test of 0.3049, which is greater than the theoretical significance level of 5% so it can be concluded that there is no statistically significant difference between the two proportions, even though, from the perception of

Table 6. Examinees' point of view and descriptive statistics on the influence of cooperation between the internal audit function and the audit committee in a company on the increase in quality of the internal audit operations.

Observation			Frequency	Percent
Internal auditor	Valid	2.00	4	11.8
		3.00	11	32.4
		4.00	16	47.1
		5.00	3	8.8
		Total	34	100.0
Member of AC	Valid	2.00	2	6.5
		3.00	8	25.8
		4.00	16	51.6
		5.00	5	16.1
		Total	31	100.0
Descriptive statistics	Mean	Median	Mode	Standard deviation
Internal auditor	3.53	4.00	4.00	.83
Member of AC	3.77	4.00	4.00	.80

Source: Author's calculations.

Table 7. T-test of difference between grades of internal auditors and members of the audit committee on the influence of cooperation between the internal audit function and the audit committee in a company on the increase in quality of the internal audit operations.

		Levene's test for equality of variances		t-test for equality of means			
		<i>F</i>	Sig.	<i>t</i>	df	Sig. (2-tailed)	Mean Difference
INFLUENCE_ON_QUALITY_IA	Equal variances assumed	.434	.513	-1.209	63	.231	-.24478

Source: Author's calculations.

members of the audit committee the average level of influence is greater than the average level of influence from the perception of the internal auditors (69.25% > 63.25%). Regarding the results of the testing, it can be concluded that, on average, the opinion of internal auditors and the members of the audit committee is that cooperation between the internal audit function and the audit committee has a great influence on an increase in the quality of the internal audit operations.

In order to test the research hypothesis, the examinees were supposed to evaluate the quality of communication and interaction between the internal audit function and the audit committee within a business using the five-point Likert scale, where point, i.e. grade 1 means that there is no communication, while grade, i.e. grade 5 means that the communication is excellent. Descriptive statistics of both examinees' categories are given in Table 8.

Out of 65 examinees from the sample, 3.1% answered that there is no communication between the internal audit function and the audit committee in a business, 15.4% answered that the communication is weak, 21.5% think that the communication and interaction is moderate, while 33% of examinees think that there is a very good communication and 26.2% that communication is excellent.

Normalising the mean of 3.65 on the scale from 1 to 5, results in 66.25%, which is higher than the average level of communication (greater than 50%). The empirical value of the *z*-test is 2.620 while the calculated *p*-value for the one-tailed test is 0,0044, which is lower than 5% but also lower than 1% of the theoretical significance level, which

Table 8. Descriptive statistics on the opinions about the quality of communication and interaction between the internal audit function and the audit committee.

Quality of communication	Frequency		Percent	
1...No communication	2		3.1	
2...Weak communication	10		15.4	
3...Moderate communication	14		21.5	
4...Very good communication	22		33.8	
5...Excellent communication	17		26.2	
Total	65		100.0	
Descriptive statistics	Mean	Median	Mode	Standard deviation
Quality of communication	3.65	4.00	4.00	1.12

Source: Author's calculations.

means that the average communication quality within the research sample is statistically significantly higher than average (50%).

Table 9 shows that means, i.e. average grades of the quality of communication between the internal audit function and the audit committee in a company business are the same, based on what can be concluded that there is no statistically significant difference in evaluation between internal auditors and the audit committee members. In a case like this there is no need for additional testing.

In the context of testing the initial research hypothesis that the efficiency of the internal audit function increases through its inclusion in activities of the audit committee, it is necessary to test if there is a statistically significant correlation between the quality of communication and interaction between the internal audit function and the audit committee, and the influence of cooperation between the internal audit function and the audit committee on the increase in quality of the internal audit operations. Related to this, Spearman's coefficient of correlation is used. The coefficient of correlation should be positively pre-sign and statistically significant, in order to validate that the efficiency of the internal audit function increases through its inclusion in activities of the audit committee.

The correlation matrix shows (Table 10) the positive weak correlation of 0.388, which is statistically significant at the theoretical significance level of 1%. Therefore, by taking into account the results of conducted tests, it can be concluded that the greater quality of communication and interaction between the internal audit function and the audit committee in a company means a greater influence of cooperation between the internal audit function and the audit committee in terms of increasing efficiency of the internal audit operations. Therefore, it is possible to conclude that companies with established proper communication and dialogue between the internal audit department and the audit committee have, on average, increase of quality of the internal audit operations due to higher influence of cooperation and interaction between the internal audit function and the audit committee. The results are in accordance with the research hypothesis.

Table 9. The opinion of the examinees and descriptive statistics on the quality of communication and interaction of the internal audit function and the audit committee by the groups of examinees.

		Frequency		Percent
Internal auditor	Mark	1	1	2.9
		2	5	14.7
		3	8	23.5
		4	11	32.4
		5	9	26.5
		Total	34	100.0
Member of AC	Mark	1	1	3.2
		2	5	16.1
		3	6	19.4
		4	11	35.5
		5	8	25.8
		Total	31	100.0
Descriptive statistics	Mean	Median	Mode	Standard deviation
Internal auditor	3.65	4.00	4.00	1.12
Member of AC	3.65	4.00	4.00	1.14

Source: Author's calculations.

Table 10. Spearman's coefficient of correlation.

			Communication	INFLUENCE_ON QUALITY_IA
Spearman's rho	COMMUNICATION BETWEEN IA_AC	Correlation coefficient	1.000	0.388**
		Sig. (1-tailed)		0.001
		N	65	65
	INFLUENCE_ON QUALITY_IA	Correlation coefficient	0.388**	1.000
		Sig. (1-tailed)	0.001	.
		N	65	65

\*\*Correlation is significant at the 0.01 level (1-tailed).

Source: Author's calculations.

However, it is interesting to test the differences between the correlations of the internal auditors, on one side, and members of the audit committee on the other. According to the correlation matrix shown in Table 11, the correlations between the two groups are of equal intensity (0.393 or 0.401). Both coefficients of correlation are positive and statistically significant at the significance level of 5%.

The research includes testing if the internal audit function delivers the risk assessment and the related internal audit plan directly to the audit committee of the company. The results obtained show that only one examinee stated that he or she *does not know* which of three possible answers to choose. Furthermore, 45 examinees (or 70.3%) answered *always*, while seven or 10.9% answered that the internal audit function *sometimes* delivers the risk assessment and related internal audit plan to the audit. The remaining 12 examinees or 18.8% answered that the internal audit function in a company *never* directly delivers the risk assessment and related internal audit plan to the audit committee. With the purpose of testing the initial research hypothesis, it is important to consider how the delivery of the risk assessment and related internal audit plan directly to the audit committee influences the increase in efficiency of the internal audit operations in a company. This is important, in the sense of meeting Standards requirements, according to which the risk assessment, internal auditing planning, and communication with the audit committee, represent the essential commitments of the internal auditor.

As shown in Table 12, the mean value of the influence of cooperation between the internal audit function and the audit committee in a company on the increase of the quality of the internal audit operations, of those that *always* delivers the risk assessment

Table 11. Spearman's coefficient of correlation according to groups of examinees.

Observation			Communication	
Spearman's rho	Internal auditor	INFLUENCE_ON QUALITY_IA	Correlation coefficient	0.393*
			Sig. (1-tailed)	0.011
			N	34
	Member of AC	INFLUENCE_ON QUALITY_IA	Correlation coefficient	0.401*
			Sig. (1-tailed)	0.013
			N	31

\*Correlation is significant at the 0.05 level (1-tailed).

Source: Author's calculations.

Table 12. Opinion of examinees on the influence of cooperation between the internal audit function and the audit committee in increasing quality of the internal audit operations regarding the delivery of the risk assessment and related internal audit plan.

		Influence_on_quality_IA	
		Count	Mean
Total	Always	45	3.64
	Sometimes	7	3.29
	Never	12	3.92
Internal auditor	Always	26	3.54
	Sometimes	4	3.25
	Never	4	3.75
Member of AC	Always	19	3.79
	Sometimes	3	3.33
	Never	8	4.00

Source: Author's calculations.

and related internal audit plan, is 3.64 (or 66% observing a normalised score). For internal auditors that answered *sometimes*, the mean value is 3.29 or 57.25%. However, 12 of those who answered that they *never* deliver the risk assessment and related internal audit plan to the audit committee, achieved the high mean value of the influence of cooperation of 3.92. This means that those examinees that do not deliver to the audit committee the risk assessment and related internal audit plan still consider that the cooperation between the internal audit function and the audit committee would influence the quality of the internal audit operations. In order to confirm whether there is a statistically significant difference in the observed means of the influence of cooperation between the internal audit function and the audit committee on the quality of the internal audit operations, an analysis of variance is used.

The results of the F-test shown in Table 13 indicate that there is no statistically significant difference between the group means (the empirical significance level is greater than 0.05 or the  $p$ -value is 0.279). In other words, it can be concluded that, on average, all examinees believe that cooperation between the internal audit function and the audit committee has relatively equal influence on the quality of the internal audit operations, regardless of whether the internal audit function directly delivers or doesn't deliver the risk assessment to the audit committee.

Additionally, for both examinees, the category included in the sample, the F-test shows that there is no statistically significant difference (for internal auditors and for members of the audit committee the obtained empirical significance level is greater than 0.05) between the average grades of cooperation of the internal audit function and the audit committee on the quality of the internal audit operations, of those that *always*, *sometimes* or *never* deliver the risk assessment and related internal audit plan.

By analysing the obtained results, it is evident that, on average, all examinees consider that cooperation between the internal audit function and the audit committee has a relatively equal influence on the quality of the internal audit operations, regardless of whether the internal audit function directly delivers or does not deliver risk assessment and a related internal audit plan to the audit committee. In other words, research did not show that delivering a risk assessment and internal audit plan directly to the audit committee for approval is an important element within cooperation between the internal audit function and the audit committee, which can have an influence on the increase of a quality of the internal audit operations in a company.

Table 13. Analysis of variance (ANOVA) – influence on the quality of the internal audit operations.

INFLUENCE_ON_QUALITY_IA		Sum of squares	df	Mean square	F	Sig.
TOTAL	Between groups	1.781	2	0.891	1.336	0.270
	Within groups	40.656	61	0.666		
	Total	42.438	63			
Internal auditor	Between groups	0.509	2	0.255	0.359	0.701
	Within groups	21.962	31	0.708		
	Total	22.471	33			
Member of AC	Between groups	0.975	2	0.488	0.739	0.487
	Within groups	17.825	27	0.660		
	Total	18.800	29			

Source: Author's calculations.

With the purpose of testing the research hypothesis, the participants of the survey were asked how often the internal audit function uses information obtained from the audit committee for developing the internal audit plan. From the total number, 39 (or 62.9%) of examinees answered that the internal audit function *always* uses information, 17 examinees, or 27.4%, answered that the internal audit function *sometimes* uses information, while six examinees, or 9.7%, answered that the internal audit function *never* uses information obtained from the audit committee when developing the internal audit plan.

Table 14 shows the descriptive statistics of viewpoints of internal auditors and members of the audit committee about the influence of cooperation. In the following research phase, it is necessary to test if the use of information obtained from the audit committee during the risk assessment and related internal audit plan influences the improvement of the quality of the internal audit operations.

According to results of the analysis of variance, the empirical significance level of the F-test is greater than 0.05, which confirms that there is no statistically significant difference between the group of means, or it confirms the conclusion that using information obtained by the audit committee during the risk assessment and related internal audit plan influences the improvement of the quality the internal audit operations.

Table 14. The opinion of examinees on the influence of cooperation between the internal audit function and the audit committee on the increase in the quality of the internal audit operations regarding the use of information obtained from the audit committee.

		INFLUENCE_ON_QUALITY_IA				
		Count	Mean			
INFORMATION_AC	Always	39	3.69			
	Sometimes	17	3.47			
	Never	6	3.50			
Analysis of variance (ANOVA)	Sum of squares	df	Mean square	F	Sig.	
	Between groups	.667	2	.333	.491	.614
	Within groups	40.043	59	.679		
	Total	40.710	61			

Source: Author's calculations.

The influence of using information obtained from the audit committee during the risk assessment and related internal audit plan in improving the quality of the internal audit operations can be observed by examinees category, on the one side for internal auditors and on the other for members of the audit committee. Such an analysis confirms the previously obtained results. Namely, if only answers from internal auditors are taken into account, the average level of influence is the greatest (3.71) for those internal auditors who *always* use information obtained from the audit committee during the risk assessment and related internal audit plan. Given the above, it is possible to conclude that using information provided by the audit committee during the development of the internal audit plan has an influence on the quality of the internal audit operations.

Participants of the survey were asked is it usual for the internal audit function of a company to maintain continuous communication and a dialogue with the audit committee related to the adequacy and sufficiency of auditing resources (human, financial and material) necessary to achieve the functions and tasks of the internal audit activities in a company. The structure of answers is as follows: 22 examinees or 35.5% answered that the internal audit function of a company *always* maintains continuous communication and dialogue and 26 of them or 41.9% answered that the internal audit function *sometimes* maintains continuous communication and dialogue. A total of 14 examinees or 22.6% answered that there is *never* communication and dialogue between the internal audit function and the audit committee regarding the adequacy and sufficiency of auditing resources necessary to achieve the functions and tasks of the internal audit activities in a company. Realisation of the internal audit plan is not possible without adequate allocation of the internal audit resources. The audit committee has, by communicating with the chief audit executive, to obtain assurance that the internal audit function has at its disposal the required budget and resources needed for efficient task accomplishment and internal auditing responsibilities. In fact, a lack of financial and material conditions, and especially a lack of auditor staff, i.e. essential knowledge and skills, will certainly not contribute to the internal audit plan realisation and achievement of the outlined results. Table 15 shows descriptive statistics on the opinions of examinees, separately for internal auditors and members of the audit committee, about the influence of cooperation between the internal audit function and the audit committee on the quality of the internal audit operations regarding communication and dialogue of the

Table 15. Opinion of examinees on the influence of cooperation between the internal audit function and the audit committee in increasing the quality of the internal audit operations regarding communication on auditing resources.

RESOURCES_IA		INFLUENCE_ON_QUALITY_IA	
		Count	Mean
Total	Always	22	3.95
	Sometimes	26	3.69
	Never	14	3.07
Internal auditor	Always	12	3.58
	Sometimes	15	3.67
	Never	5	3.00
Member of RO	Always	10	4.40
	Sometimes	11	3.73
	Never	9	3.11

Source: Author's calculations.

Table 16. Analysis of variance (ANOVA).

INFLUENCE ON QUALITY_IA		Sum of squares	df	Mean square	F	Sig.
Internal auditor	Between groups	1.719	2	0.859	1.231	0.307
	Within groups	20.250	29	0.698		
	Total	21.969	31			
Member of AC	Between groups	7.896	2	3.948	9.293	0.001
	Within groups	11.471	27	0.425		
	Total	19.367	29			

Source: Author's calculations.

internal audit function and the audit committee in a company about the adequacy and sufficiency of auditing resources.

The average level of influence of the continued communication and dialogue of the internal audit function in a company with the audit committee is the highest (3.95 or normalised 73.75%) with those companies where the internal audit function *always* reflects continued communication and dialogue with the audit. Observing the results of the analysis of variances (ANOVA) in Table 16, it can be concluded that the group of means are not the same for each category. Namely, members of the audit committee believe that continued communication and dialogue of the internal audit function with the audit committee on the adequacy and sufficiency of auditing resources necessary for achieving the functions and tasks of internal auditing, significantly influence the increase in the quality of the internal audit operations. In the case of internal auditors, the stated influence on the quality of their work is not significant, or it can be concluded that influence exists, but it is not statistically significant.

Based on comprehensive research results, including testing the influence of cooperation between the internal audit function and the audit committee on the increase of quality of the internal audit operations, the importance of the delivery of the risk assessment and related internal audit plan, the use of information obtained from the audit committee and the communication on auditing resources, and additionally testing their quality of communication and interaction, the initial research hypothesis can be accepted.

#### 4. Conclusion

With the conducted empirical research on a sample of 65 examinees, including internal auditors and members of the audit committee in Croatian companies, the initial hypothesis, that the efficiency of the internal audit function increases through its inclusion in the activities of the audit committee, was tested. The performed analysis and tests show that the inclusion of the internal audit operations in the activities of the audit committee influences the increase of the quality of the internal audit function in a company.

On the basis of the performed tests, it can be concluded that the average opinion of internal auditors and members of the audit committee is that cooperation between the internal audit function and the audit committee has a high influence on the increase of the quality of the internal audit operations. Internal auditors and members of the audit committee, on average, believe communication between the internal audit function and the audit committee in a company is *very good*. In addition, it was confirmed that there are no statistically significant differences in the quality of communication between the internal audit function and the audit committee as graded by internal auditors and members of the audit committee, separately.



In the context of testing the initial research hypothesis, that the efficiency of the internal audit function is increased through its inclusion in activities of the audit committee, it was necessary to confirm whether there is a statistically significant correlation between the quality of communication and interaction between the internal audit function and the audit committee, and the influence of the cooperation of the internal audit function and the audit committee on the increase in the quality of the internal audit operations. By taking into account the results of the performed tests, it can be concluded that a greater quality of communication and interaction between the internal audit function and the audit committee in a company also means a greater influence of cooperation of the internal audit function and the audit committee resulting in an increase in efficiency of the internal audit operations. The stated correlation is of the same intensity from viewpoint of internal auditors on the one hand and members of the audit committee on the other.

The objective of the research was to confirm that the delivery of the risk assessment and related internal audit plan directly to the audit committee has an influence on the improvement of the activities of internal auditing in a company. On average, all examinees believe that the cooperation between the internal audit function and the audit committee has relatively equal influence on the quality of the internal audit operations regardless of whether the internal audit function directly delivers or does not deliver the risk assessment and related internal audit plan to the audit committee.

The research has the objective of confirming that the use of information obtained from the audit committee during risk assessment and developing the internal audit plan improves the quality of the internal audit operations. It is concluded that the use of information obtained from the audit committee during the risk assessment and developing the internal audit plan, for which the internal audit function is responsible, has an influence on the improvement of the internal audit operations' quality.

With the objective of confirming the initial research hypothesis, both internal auditors and members of the audit committee were tested regarding the influence of cooperation between the internal audit function and the audit committee on the quality of the internal audit operations regarding communications and dialogue between the internal audit function and the audit committee in a company, including about the adequacy and sufficiency of the auditing resources. The members of the audit committee believe that continued communication and dialogue between the internal audit function and the audit committee, regarding the adequacy and sufficiency of auditing resources required for achieving the functions and tasks of internal auditing, has a significant influence on increasing the quality of the internal audit operations. From point of view of internal auditors, communication and dialogue of the internal audit function with the audit committee regarding adequacy and sufficiency of auditing resources, does not have significant influence on the quality of their work, or it depends on it but not significantly.

Based on comprehensive conclusions, the research hypothesis can be completely accepted, according to which the efficiency of the internal audit operations is increased through an active inclusion of the internal audit function in the activities of the audit committee.

### **Disclosure statement**

No potential conflict of interest was reported by the author.

**Note**

1. These data can be normalised using the following formula:

$$\frac{X_i - X_{\min}}{X_{\max} - X_{\min}} 100 = \frac{X_i - 1}{5 - 1} 100 = \frac{3,65 - 1}{4} 100 = 66,25\%$$

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