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Factors associated with Internal Audit Effectiveness: Evidence from Greece

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The current study investigates the specific factors associated with internal audit effectiveness in the Greek business environment. Empirical evidence was collected by means of a mailed survey. Factor Analysis and regression analysis are used in order to illustrate the gathered information. The findings indicate that the main factors affecting internal audit effectiveness are: (1) quality of internal audit, (2) competence of internal audit team, (3) independence of internal audit and (4) management support. The results also reveal that independence of internal audit is the foundation of internal audit effectiveness, as it is the most crucial factor in our model. Finally, the paper concludes that internal audit is of major importance for Greek business.

Key words: Internal audit, Auditing, effectiveness of internal audit, Accounting, Greece.

INTRODUCTION

Technological, political, regulatory, and economic changes that have occurred during the last decades, have significantly affected basic functions and operations of companies (Burnaby and Hass, 2011). In this respect, the rise of business risks, the economic instability and the important increase of financial fraud scandals have necessitated the use of internal audit for companies (Bekiaris et al., 2013; Vinary and Skaerbaek; 2014; Tsipouridou and Spathis, 2014; Gbadago, 2015).

Therefore, it is of great importance to identify the factors affecting internal audit in order to be effective. Previous studies have used different approaches to investigate internal audit effectiveness, as effective internal audit is influenced by series of factors. Moreover, factors and measurement of internal audit's effectiveness have been used differently by the researchers (Arena and

Azzone, 2009) and until now, there is no consensus regarding the most appropriate framework for internal audit's effectiveness (Endaya and Hanefah, 2013). Thus, effectiveness of internal audit is a dynamic process and a matter of considerable debate. Despite its importance, effectiveness of internal audit regarding Greek business environment, has received little attention so far. Also, to the best of our knowledge, until now, no empirical research on the internal audit's effectiveness has been conducted within a Greek context. This article is an attempt to fill this literature gap.

The main purpose of the present paper is to identify the factors affecting internal audit effectiveness concerning Greek companies. Two research questions are addressed. First, it is examined the extent that these factors affect internal audit effectiveness and which of

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them is the most important for internal audit effectiveness. Secondly, this study provides insight into how these factors were interrelated together.

Our results suggest that there are four important factors affecting internal audit effectiveness. These findings contribute to existing literature by providing evidence on the most significant factors for effective internal auditing in Greek companies. Accordingly, our findings may help stakeholders, managers and internal auditors in Greece to focus on these specific factors in order to generally improve internal audit function.

LITERATURE REVIEW

Internal audit effectiveness

The Institute of Internal Auditors (IIA, 1999) defined internal audit as: "an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization to accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes". According to the literature, it is argued that internal audit contributes to organization's compliance with applicable laws and regulations, facilitates the work of external auditors (Simunic, 1984; Wallace, 1984; Xiangdong, 1997), detects the weaknesses in business procedures (Sawyer, 1995) and provides independent assessment to business operations and procedures (Kinney, 2000; 2001). Along with the above, internal audit enhances corporate governance structure (Roth and Espersen, 2002; Hay et al., 2008), helps in strategic management planning (Melville, 2003), assesses business risk (Spira and Page, 2003; Sarens and De Beelde, 2006; Karagiorgos et al., 2009; Mohamud and Salad 2013) and adds value to the organization (Drogalas et al., 2014).

Consequently, effectiveness of internal audit is of major importance for business success. Undoubtedly, International Standards for the Professional Practice of Internal Auditing (ISPPA) is essential in meeting internal audit's effectiveness. In this context, Al-Twajry et al. (2003) adopted ISPPA as a guideline to determine internal audit effectiveness. Quite similarly, International Professional Practice Framework (IPPF) is the conceptual framework that organizes authoritative guidance promulgated by the Institute of Internal Auditors. Kasim and Hanafi (2012) have used in their study the allocation of variables into the Attribute Standards and Performance Standards based on the IPPF. The researchers concluded in a new model for the assessment of internal audit quality which is based on the framework of IPPF.

The examined variables in our study are in line with either the Attribute Standards or the Performance Standards provided by IPPF (IIA, 2012). More specifically,

the Attribute Standards of IPPF include the internal audit quality (Standard 1300), the competence of the audit team (Standard 1200), and the independence of internal audit (Standard 1100) which are examined in this study, while the other two variables examined, internal audit effectiveness and support by top management (Standard 2060) are included in the Performance Standards of IPPF.

Internal audit quality

Internal audit quality is examined as one of the variables associated with internal audit effectiveness by Mihret and Yismaw (2007). Based on the public sector of Ethiopia, the findings indicate that internal audit effectiveness is affected by the internal audit quality, along with the support of management, the organization environment and the characteristics of the organization. In another research Barac and VanStaden (2009) studied the relation between the perceived quality of internal audit and the safety of corporate governance structure in South Africa. In contrast to the above, the results indicate that there is no correlation between the corporate governance structures and the perceived quality of internal audit. More recently, examining one hundred and eight Israeli organizations, Cohen and Sayag (2010) also considered the quality of internal audit work as a factor of internal audit effectiveness. Along with the above Alzeban and Gwilliam (2014) emphasize the impact of internal audit quality to internal audit effectiveness. According to the above the first research hypothesis is developed as follows:

H1: The Effectiveness of Internal Audit is positively associated with Internal Audit Quality (at 0.05 significant level).

Audit committee

Audit committee is also examined in some studies as a variable associated with internal audit effectiveness. More specifically, Zhang et al. (2007) examined the relationship between the quality of audit committee, the independence of the auditor and the disclosure of the internal audit issues after the implementation of Sarbanes-Oxley. Analyzing 208 companies, the results showed that there is significant relationship between the quality of the audit committee's work, the independence of the auditor and the internal audit weaknesses. In line with the above study, focus on three hundred and sixty four Italian companies, Arena and Azzone (2009) point out that internal audit's structural characteristics may influence its effectiveness. The results also imply that internal audit effectiveness increases when audit committee is involved in the internal auditor's activities.

Competence of internal audit team

Competence of internal audit team is also considered as an important factor for effective internal audit. In line with ISPPA, Mousa (2005) considered proficiency and due professional care (competence) as a significant element of internal auditing. Turley and Zaman (2007) examining the factors that affect effectiveness of internal audit teams, argue that communication between the members of the audit team has a positive impact on the outcome of the audit. Internal audit team is also mentioned by Arena and Azzone (2009) as a factor affecting internal audit effectiveness. Along with this, Mihret et al. (2010) indicate that both the technical competence and continuous training of internal audit team are essential requirements for internal audit effectiveness. Moreover, Cohen and Sayag (2010) argue that professional proficiency of internal auditors is of major importance for effective internal auditing. Finally, Alzeban and Gwilliam (2014) argue that higher internal audit effectiveness is associated with greater competence of internal audit staff. According to the above the second research hypothesis is developed as follows:

H2: The Effectiveness of Internal Audit is positively associated with Competence of Internal audit team (at 0.05 significant level).

Independence of internal audit

Without independence, internal audit simply becomes a part of the management team, losing its ability to offer a fresh perspective (Yee et al., 2008). Independence of internal audit is considered by Zhang et al. (2007) as a determinant of internal audit effectiveness. Cohen and Sayag (2010) also argue that organizational independence of internal audit affects internal audit effectiveness. Examining effectiveness of internal audit in Saudi Arabia Alzeban and Gwilliam (2014) argue that independence of internal audit (along with "competence of internal audit department", "size of internal audit department", "relationship between internal and external auditors", "management support") is positively associated with internal audit effectiveness. However it is worth to mention that in the above study, independence of internal audit is positively related with internal audit effectiveness in lower significance than the other four factors. By taking into consideration the above the third research question is developed as follows:

H3: The Effectiveness of Internal Audit is positively associated with Independence of Internal Audit (at 0.01 significant level).

Management support

Finally, one of the most important factors affecting

internal audit effectiveness according to the literature is the support by the top management. As it is analyzed above, Mihret and Yismaw (2007) argued that there is a positive relationship between top management support and internal audit effectiveness. In line with the above study, management support is also considered as the main determinant of internal audit effectiveness according to Cohen and Sayag (2010). Similarly, Alzeban and Gwilliam (2014) indicated that management support is positively and significantly associated with internal audit effectiveness and is also positively associated with all the other variables affecting internal audit effectiveness. Therefore, according to the above the fourth research question is developed as follows:

H4: The Effectiveness of Internal Audit is positively associated with the support of internal audit by senior management (at 0.05 significant level).

METHODOLOGY

Sample

Survey is one of the most appropriate methods used in collection of primary data (Said and Khasharmeh, 2014). Therefore, our data source is coming from a questionnaire that was used for the needs of our study and depicts internal audit's effectiveness. The population was 240 firms listed on the Athens Stock Exchange. This population was divided into market segments. Companies that are under surveillance, companies under suspension, companies under deletion and low dispersion companies were excluded. Following exclusions, questionnaires were distributed to 140 companies that are located in the main market, constituting the sample of the survey. After excluding incomplete and invalid questionnaires, the research ended with 40 valid and usable questionnaires representing a 29 percent response rate.

Questionnaire

The questionnaire was structured in regard with the research hypotheses and the relevant literature review. Firstly, questions are selected mainly by three surveys that examined similar research fields: Bota-Avram and Palfi (2009), Cohen and Sayag (2010) and Alzeban and Gwilliam (2014). The questions finally included in the questionnaire are considered as more relevant with the present study as well as more significant with regard to their content. However, the present paper consists of additional questions to best describe internal audit's effectiveness. The questionnaire comprises twenty-six questions, which are divided into six groups. The first group is composed of questions referring to the demographic characteristics of the participants. The other groups consist of Likert scale questions, concerning internal audit effectiveness, internal audit quality, competence of internal audit team, independence of internal audit and support of internal audit by the top management.

Measurement of variables

Significant number of factors is considered to be associated with internal audit effectiveness. At first, according to the literature review, we suppose that five variables are the most appropriate to

best assess internal audit effectiveness (internal audit quality, audit committee, competence of internal audit team, independence of internal audit and finally management support for internal audit). Then, three experts have correctly judged these factors and agreed that four (4) variables are identified to be common in all the previous studies concerning internal audit effectiveness. More specifically, the variable "audit committee" is decided to be excluded from the examined variables of the model for two reasons: first it is mentioned only in a few studies as a factor that affects internal audit effectiveness and second it cannot be directly linked with a Standard of IPPF in which the model of the study is based. Therefore, taken into consideration the IPPF (IIA, 2012), four variables are selected to be measured in the present study and four research hypotheses were developed for each one of the independent variables.

Dependent variable

Effectiveness of internal audit forms our dependent variable. Though several parties emphasize the need to measure internal audit effectiveness, there is no generally acknowledged measure for this purpose (Arena and Azzone, 2009). Based on the above consideration and according to the literature review, the dependent variable is examined by three items that refer to internal audit's added value, improvement of department's performance and positive effect on organizational performance. The items used were derived through a review of prior literature including: IPPF (IIA, 2012), Bota-Avram and Palfi (2009) and Alzeban and Gwilliam (2014).

Independent variables

Quality of internal audit, competence of internal audit team, independence of internal audit and finally management support are examined as independent variables. In this respect, the quality of internal audit (first independent variable) is assessed by six items. Four items are derived from Bota-Avram and Palfi (2009) and two items from Cohen and Sayag (2010). These items are: the accomplishment of internal audit objectives, communication between internal and external audit, the efficiency of internal audit's work, appropriate justification of internal audit's findings, significance of internal audit's recommendations and rationality of internal audit's report.

The second independent variable is the competence of internal audit team which is measured by six items. These items are derived from the studies of Al-Twajry (2003), Mousa (2005), Bota-Avram and Palfi (2009), Mihret et al. (2010) and Alzeban and Gwilliam (2014). These items are: the level of professional qualifications of internal auditors, the fact that internal auditors is considered as professionals, the fact that internal auditors are proactive, the communication between internal auditors and auditees, the participation of internal auditors in educational seminars, the level of education of internal auditors. The above statements are also in line with the Standard 1200 of IPPF Proficiency and Due Professional Care.

The third independent variable (independence of internal audit) is assessed by three items according to Cohen and Sayag (2010) and Alzeban and Gwilliam (2014). More specifically, the independence is assessed regarding the internal audit's report to the highest level, the unrestricted access of internal auditors and the participation of internal audit in the development of company's processes. As above mentioned, these items are also in line with the Standard 1100 of IPPF named Independence and Objectivity.

Finally, the support of internal audit from the top management (fourth independent variable) is examined by three items derived again from the studies of Cohen and Sayag (2010) and Alzeban

and Gwilliam (2014). These indicators are: the support of senior management to internal audit's personnel, the appropriate size of internal audit department and the awareness of top management about internal audit's needs.

Model

At first, factor analysis using principal component analysis was conducted for all questions except for these questions which refer to demographic characteristics. Varimax orthogonal rotation was used as it facilitates the interpretation of the results. Bartlett's test of Sphericity was significant at the 0.01 level indicating sufficient correlations between the variables whereas the Kaiser-Meyer-Olkin measure of sampling adequacy was also considered adequate (Bryman and Cramer, 2005). Finally, regression analysis was conducted. Ordinary least squares (OLS) regression model was:

$$IAE = a + b_1QIA + b_2CIAT + b_3IIA + b_4MS + e_i$$

The variables are defined below:

IAE	= Internal audit effectiveness
QIA	= Quality of internal audit
CIAT	= Competence of internal audit team
IIA	= Independence of internal audit
MS	= Management support

RESULTS AND DISCUSSION

Demographic characteristics

Demographic characteristics of the respondents regarding gender, age, educational level, work experience and sector of the participants are presented in Table 1.

According to the table, the study respondents were made of 67.5% males and 30% females, indicating dominance of males in the sample used. Concerning the age of the participants, the highest percentage is between 31 and 40 years old (47.5%), while 25% is older than 50. As regards the educational level 37.5% obtain a bachelor degree and also 45% obtain a postgraduate degree. Respondents have remarkable work experience in view of the fact that 75% have more than 10 years work experience. Finally, the highest percentage of the sample work for the private sector (70%), while only 12.5% work for the public sector.

Descriptive statistics

Regarding internal audit effectiveness, it can be concluded that the vast majority of the respondents consider that internal audit ensures that it adds value to the business. Also, it is argued that internal audit affects positively not only department's performance but also entire business performance. To better highlight the results, we shall have a closer look at Table 2.

The results regarding the quality of internal audit are also encouraging. An analysis of the results reveals that internal audit's recommendations are easily implemented. Also, the participants' responses indicate that internal

Table 1. Professional demographics of the participants.

		<i>Frequency</i>	<i>Per cent</i>
Gender	Female	27	67.5
	Male	12	30.0
	Not answered	1	2.5
Age	<30	2	5.0
	31 – 40	19	47.5
	41 – 50	8	20.0
	> 50	10	25.0
	Not answered	1	2.5
Level of education	High School	3	7.5
	Technological Education	1	2.5
	Universtity Education	15	37.5
	Postgraduate	18	45.0
	Ph.D	3	7.5
Work Experience	<5	2	5.0
	5 – 10	8	20.0
	10 – 20	15	37.5
	> 20	15	37.5
Sector	Private	28	70.0
	Public	5	12.5
	Private and Public	7	17.5

Source: Field Survey, 2015.

Table 2. Statements regarding internal audit effectiveness.

	<i>Frequency Percent</i>				
	1	2	3	4	5
Internal audit ensure that it adds value to the business	00	2 5	5 12.5	17 42.5	16 40
Internal audit improve department's performance	00	3 7.5	6 15	20 50	11 27.5
Internal audit improves organizational performance	00	3 7.5	7 17.5	16 40	14 35

Source: Field Survey, 2015.

audit's report is accurate. However, from the results, it is suggested that accomplishment of internal audit's objectives is the least rated item. To better highlight the results, we shall have a closer look at Table 3.

Competence of internal audit team is also highly rated. The vast majority argue that internal auditors are proactive and are considered as professionals. Also the communication between internal auditors and auditees is effective. However, the analysis indicates that internal auditors ought to attend educational seminars to a greater

extent (Table 4). Respondents also express their opinion on internal audit's independence. The analysis of the results reveals that internal auditors have unrestricted access to all departments and employees in the organization. However, internal audit ought to participate more in the development of the company processes. To better highlight the results, we shall have a closer look at Table 5. Finally, management support is examined. The results indicate that management ought to support more internal audit. The analysis of the results also reveals that

Table 3. Statements regarding quality of internal audit.

	<i>Frequency Percent</i>				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Established internal audit's objectives were accomplished	0	10	13	1	16
	0	25	32.5	2.5	40
There is communication between internal and external audit	1	3	19	2	15
	2.5	7.5	47.5	5	37.5
Internal audit's work was efficiently performed	0	3	19	6	12
	0	7.5	47.5	15	30
Internal audit's findings are correctly justified	1	4	15	4	16
	2.5	10	37.5	10	40
Internal audit's recommendations can be easily implemented	0	1	9	15	15
	0	2.5	22.5	37.5	37.5
Internal audit's report is accurate	1	2	13	7	17
	2.5	5	32.5	17.5	42.5

Source: Field Survey, 2015.

Table 4. Statements regarding competence of internal audit team.

	<i>Frequency Percent</i>				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
The professional knowledge of internal auditors is high	0	3	10	11	16
	0	7.5	25	27.5	40
Internal auditors is considered as professionals	0	3	9	11	17
	0	7.5	22.5	27.5	42.5
Internal auditors are proactive	0	3	6	17	14
	0	7.5	15	42.5	35
There is communication between internal auditors and auditees	1	2	12	9	16
	2.5	5	30	22.5	40
Internal auditors attend educational seminars for continuous training	4	5	5	12	14
	10	12.5	12.5	30	35
Internal auditors has adequate education	0	3	10	11	16
	0	7.5	25	27.5	40

Source: Field Survey, 2015.

internal audit is not large enough to efficiently carry out its duties. In this respect, senior management ought to be more aware of internal audit's needs (Table 6).

Factor analysis

Factor analysis using the principal components approach was utilized as it is one of the most well-known methods of classical multivariate analysis (Tabachnick and Fidell, 2001). Table 7 presents the results of the factor analysis.

From the Table, it is argued that Kaiser-Meyer-Olkin (KMO) measure is higher than 0.5. Results also confirmed that each of five variables can be treated as single measures, ended up with just one component. Moreover, reliability of the measures was assessed with the use of Cronbach's α . Cronbach's α of 0.70 or more is considered significant and highly reliable, thus the results depict a great internal consistency for the five variables (Nunnally, 1978). In this respect, Table 7 shows that Cronbach's α for "Internal audit effectiveness" is 0.858, for "Internal audit quality" is 0.946, for "Competence

Table 5. Statements regarding independence of internal audit.

	<i>Frequency Percent</i>				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Internal audit report to the highest level within the business	0 0	3 7.5	14 35	6 15	17 42.5
Internal auditors have unrestricted access to all departments and employees in the organization	0 0	2 5	10 25	15 37.5	13 32.5
Internal audit participate in the development of the company processes	0 0	2 5	13 32.5	11 27.5	14 35

Source: Field Survey, 2015.

Table 6. Statements regarding management support.

	<i>Frequency Percent</i>				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Senior management supports internal audit's personnel	3 7.5	1 2.5	37.5	17 42.5	16 40
Internal audit department is large enough to efficiently carry out its duties	3 7.5	2 0	25	18 45	17 42.5
Senior management is aware of internal audit's needs	3 7.5	1 2.5	4 10	17 42.5	15 37.5

Source: Field Survey, 2015.

of internal audit team” is 0.881, for “Independence of internal audit” is 0.810 and for “Management support” is 0.928.

Regression analysis

A Pearson correlation matrix is provided for dependent and independents variables in Table 8. From the table, it is observed that there is a significant and positive correlation ($r=-0.929$) between “Internal audit effectiveness” and “Internal audit quality” at $p<0.01$, a significant and positive correlation ($r=0.878$) between “Internal audit effectiveness” and “Competence of internal audit team” at $p<0.01$, a significant and positive correlation ($r=0.813$) between “Internal audit effectiveness” and “Independence of internal audit” at $p<0.01$ and a significant and positive correlation ($r=0.919$) between “Internal audit effectiveness” and “management support”.

Then, Table 9 reports the results of the regression analysis. From the table, it is argued that the overall model is significant ($F=127.039$, sig. $F=0.000$, $p<0.05$). As far as the first hypotheses, the results indicate that there is a positive and significant association between “internal audit effectiveness” and “internal audit quality” ($b1=0.140$, $p=0.005<.05$). Thus H1 is strongly supported.

Similar but even more intensive, there is a positive and significant relationship between “internal audit effectiveness” and “independence of internal audit” ($b3=0.239$, $p=0.004$), suggesting support for H3.

The fourth hypothesis relates to management support. In this case, the regression analysis highlighted a positive and significant association between “management support” and “internal audit effectiveness” ($b4=0.164$, $p=0.002$). Thus, H4 is strongly supported.

Finally, the results reveal that “competence of internal audit team” influence positively “internal audit effectiveness” ($b3=0.104$, $p=0.058$), suggesting support for H2, but not at the same level as for the other hypotheses.

CONCLUSION AND RECOMMENDATIONS

The economic structural reform provides good opportunities for effective internal audit (Karagiorgos et al., 2011; Lenz and Hahn, 2015). Against this background, we document and provide empirical evidence on the effectiveness of internal audit which in the past has largely been ignored.

Overall from the results, respondents in general appear to be positive about the set of parameters which are

Table 7. Factor analysis.

Factor	Variables	Cronbach's Alpha	KMO	Factor Loadings
Internal audit effectiveness	Internal audit ensure that it adds value to the business	0.858	0.720	0.848
	Internal audit improve department's performance			0.904
	Internal audit improves organizational performance			0.896
Internal audit quality	Established internal audit's objectives were accomplished	0.946	0.892	0.929
	There is communication between internal and external audit			0.949
	Internal audit's work was efficiently performed			0.935
	Internal audit's findings are correctly justified			0.878
	Internal audit's recommendations can be easily implemented			0.932
	Internal audit's report is accurate			0.748
Internal audit team	The professional knowledge of internal auditors is high	0.881	0.787	0.970
	Internal auditors is considered as professionals			0.948
	Internal auditors are proactive			0.832
	There is communication between internal auditors and auditees			0.849
	Internal auditors attend educational seminars for continuous training			0.317
Independence of internal audit	Internal auditors has adequate education	0.810	0.777	0.970
	Internal audit report to the highest level within the business			0.835
	Internal auditors have unrestricted access to all departments and employees in the organization			0.902
Management support	Internal audit participate in the development of the company processes	0.928	0.743	0.824
	Senior management supports internal audit's personnel			0.933
	Internal audit department is large enough to efficiently carry out its duties			0.956
	Senior management is aware of internal audit's needs			0.918

Source: Field Survey, 2015

examined in relation to the internal audit quality, the competence of internal audit team, the independence of internal audit and the management support. However, there are some exceptions such as the neutral position against the parameter of the participation of internal audit department in planning and developing procedures, which is incorporated in the independence of internal audit. There is also a neutral position against the parameters of the number of members in the internal audit department and the information provided in the management about the needs of audit department which are incorporated in the support of top management to the audit department.

Comparing the results of the study with previous literature, it can be generally argued that all of the four examined factors (internal audit quality, competence of internal audit team, independence of internal audit and management support) proved to be associated with internal audit effectiveness. This result is in line with the general standards of IPPF (IIA, 2012) which consider

these four factors as important indicators of internal audit and also in line with Kasim and Hanafi (2012) who developed their model for assessing internal audit effectiveness based on the same factors.

Concerning the relationship between internal audit quality and internal audit effectiveness, the results of this study enhance the previous related studies such as Mihret and Yismaw (2007), Cohen and Sayag (2010) and Alzeban and Gwilliam (2014) which showed that internal audit quality is also positively associated with internal audit effectiveness at almost the same values. It is important to mention that internal audit quality also seems to be significantly associated with the other three factors which is a fact that enhances its position in the organization. This finding is differentiated from the study of Alzeban and Gwilliam (2014) who showed that management support is the factor which is positively associated with all other factors.

Considering the competence of internal audit team, the results showed positive relationship with internal audit

Table 8.Correlation matrix.

	IAE	QIA	CIAT	IIA	MS
IAE	1				
QIA	0.929**	1			
CIAT	0.878**	0.840**	1		
IIA	0.813**	0.719**	0.666**	1	
MS	0.919**	0.916**	0.808**	0.757**	1

** . Correlation is significant at the 0.01 level. Source: Field Survey, 2015.

Table 9.Regression analysis.

Variables	Coeff.	Value	S.E.	T	p-value
Constant	b_0	1.705	0.545	3.130	0.004*
QIA	b_1	0.140	0.047	2.967	0.005*
CIAT	b_2	0.104	0.053	1.959	0.058**
IIA	b_3	0.239	0.076	3.130	0.004*
MS	b_4	0.164	0.049	3.338	0.002*

* = Significant at the .05 level; ** = Significant at the .01 level; Source: Field Survey, 2015. $R^2=0.936$; Adjusted $R^2=0.928$; $F=127.039$; $p=0.000$.

effectiveness but with the lower value of all factors. This finding is in line with prior studies such as Turley and Zaman (2007), Arena and Azzone (2009), Cohen and Sayag (2010) and Alzeban and Gwilliam (2014) who concluded that internal audit team and effectiveness of internal audit are positively associated at almost the same significance.

Regarding the independence, it can be argued that independence of internal audit is the most important factor affecting internal audit effectiveness according to the present research. Quite similar were the findings of Alzeban and Gwilliam (2014) who argue that independence is one of the most important factors in their research.

Finally, similar with the Yee et al. (2008), management support is also positively associated with internal audit effectiveness. Contrary to the findings of the present study, Cohen and Sayag (2010) and Alzeban and Gwilliam (2014) found that management support was the most important factor affecting internal audit effectiveness. However, similarly to the study of Alzeban and Gwilliam (2014), management support seems to be positively and significantly associated with all other factors.

Overall, this study adds to the extant literature on internal audit by examining the factors of internal audit's effectiveness. The study also provides practical insights for regulators and internal audit practitioners, suggesting that internal audit effectiveness is of major importance for Greek businesses. Despite findings' importance, the

results should be considered in light of a number of limitations. The data collected by survey was necessarily limited in order to restrict the length of the questionnaire and to maximize response rates. Further the data are limited to the perceptions of internal auditors, and are not as comprehensive as they would have otherwise been if we had included other stakeholders, such as external auditors. For this reason perhaps, a future study could be undertaken to explore the perception of other parties such as external auditors on the internal audit's effectiveness. Also other independent variables could be modelled. Finally, further alternative methods such as interviews may help to further explain factors affecting internal audit effectiveness.

Conflict of Interests

The authors have not declared any conflict of interests.

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REFERENCES

- Al-Twaijry AAM, Brierley JA, Gwilliam DR (2003). The Development of Internal Audit in Saudi Arabia: An Institutional Theory Perspective, *Crit. Perspect. Account.* 14(5):507-531.
- Alzeban A, Gwilliam D. (2014). Factors affecting the internal audit effectiveness: A survey of the Saudi public sector, *J. Int. Account. Audit. Taxat.* 23:74-86.
- Arena M, Azzone G (2009). Identifying Organizational Drivers of Internal Audit Effectiveness. *Int. J. Audit.* 13:43-60.
- Barac K, Van Staden M (2009). The correlation between perceived internal audit quality and defined corporate governance soundness, *African Journal of Business Management*, 3(13): 946-958.
- Bekiaris M, Efthymiou T, Koutoupis A (2013). Economic crisis impact on corporate governance & Internal Audit. The case of Greece, *Corporate Ownership, Control* 11(1):55-64.
- Bota-Avram C, Palfi C (2009). Measuring and Assessment of Internal Audit's Effectiveness, *Ann. Faculty Econ.* 3(1):784-790.
- Bryman A, Cramer D (2005). *Quantitative Data Analysis with SPSS 12 and 13: A Guide for Social Scientists*, Sussex: Psychology Press.
- Burnaby P, Hass S (2011). "Internal auditing in the Americas", *Manag. Audit. J.* 26(8):734-756.
- Cohen A., Sayag G. (2010). The Effectiveness of Internal Auditing: An Empirical Examination of its Determinants in Israeli Organizations, *Austr. Account. Rev.* 20(3):296-307.
- Drogalas G, Alampourtsidis S, Koutoupis A (2014). Value-added approach of Internal Audit in the Hellenic Police, *Corporate Ownership Control* 11(4):692-698.
- Endaya AK, Hanefah MM (2013). Internal audit effectiveness: an approach proposition to develop the theoretical framework, *Res. J. Financ. Account.* 4(10):92-103.

- Gbadago FY (2015). Audit expectation gap and MBA accounting students' knowledger on auditor(s)'s responsibilities: Evidence from a public university in Kumasi Ashanti Region of Ghana, *J. Account. Taxat.* 7(4):53-61
- Hay D, Knechel RW, Ling H (2008). Evidence on the impact of internal control and corporate governance on audit fees, *Int. J. Audit.* 12:9-24.
- Institute of Internal Auditors (1999). "Definition of Internal Auditing", The Institute of Internal Auditors, Altamonte Springs, FL.
- Institute of Internal Auditors (2012). "International Standards for the professional practice of internal auditing", The Institute of Internal Auditors, Altamonte Springs, FL.
- Karagiorgos T, Drogalas G, Eleftheriadis I, Christodoulou P (2009). Efficient Risk Management and Internal Audit, *Int. J. Manage. Res. Technol.* 3(2):429-436.
- Karagiorgos T, Drogalas G, Giovanis N (2011). Evaluation of the effectiveness of internal audit in Greek hotel business, *Int. J. Econ. Sci. Appl. Res.* 4(1):19-34.
- Kasim AB, Hanafi SR (2012). Assessment of quality for internal audit functions: A quest for a valid and reliable instrument, *Afr. J. Bus. Manage.* 6(9):3402-3412.
- Kinney W (2000). Research opportunities in internal control quality and quality assurance, *Auditing* 19:83-90.
- Kinney W (2001). Accounting scholarship: what is uniquely ours?, *Account. Rev.* 76:275-284.
- Lenz R, Hahn U (2015). A synthesis of empirical internal audit effectiveness literature pointing to new research opportunities, *Manag. Audit. J.* 30(1):5-33.
- Melville R (2003). The contribution internal auditors make to strategic management, *Inter. J. Audit.* 7(3):209-22.
- Mihret DG, Kieran J, Mula JM (2010). Antecedents and organizational performance implications of internal audit effectiveness: some propositions and research agenda, *Pacific Account. Rev.* 22(3):224-252.
- Mihret DG, Yismaw AW (2007). Internal audit effectiveness: an Ethiopian public sector case, *Manag. Audit. J.* 22(5):470-484.
- Mohamud AI, Salad DM (2013). Internal auditing and operational risk management for some selected remittance companies in Mogadishu-Somalia, *Afr. J. Bus. Manage.* 7(35):3374-3380.
- Mousa FR (2005). "Developing a Model for Evaluating the Effectiveness of the Internal Audit Function in Libyan Organizations: Case Study with Special Reference to Oil Companies", Ph.D. Thesis.
- Nunnally JC (1978). "Psychometric Theory", Second Edition. New York: McGraw-Hill. 13. Parasurama.
- Roth J, Espersen D (2002). "Internal Auditors' Role in Corporate Governance", Institute of Internal Auditors Research Foundation, Altamonte Springs, Florida.
- Said K, Khasharmeh H (2014). Auditors' perceptions on impact of mandatory audit firm rotation on auditor independence – Evidence from Bahrain, *J. Account. Taxat.* 6(1):1-18
- Sarens G, De Beelde I (2006). Internal auditors' perception about their role in risk management: a comparison between US and Belgian companies, *Manag. Audit. J.* 21(1):63-80.
- Sawyer LB (1995). An internal audit philosophy, *Internal Auditor*: 46-55.
- Simunic DA (1984). Auditing, consulting and auditor interdependence, *Journal of Accounting Research*, 22: 679-702.
- Spira LF, Page M (2003). Risk management: The reinvention of internal control and the changing role of internal audit, *Account. Audit. Accountability J.* 16(4):640-661.
- Tabachnick BG, Fidell, LS (2001). "Using Multivariate Statistics", 4th ed., Allyn and Bacon, Boston, MA.
- Tsipouridou M., Spathis C. (2014). Audit opinion and earnings management: Evidence from Greece, *Account. Forum* 38(1):38-54.
- Turley S, Zaman M (2007). Audit Committee effectiveness: Informal processes and behavioral aspects, *Accounting, Audit. Accountability J.* 20(5):1-30.
- Vinary E, Skaerbaek P (2014). The uncertainties of risk management, *Accounting, Audit. Accountability J.* 27(3):489-526.
- Wallace WA (1984). Internal auditors can cut outside CPA costs, *Harvard Bus. Rev.* 62:16-20.
- Xiandong W (1997). Development trends and future prospects of internal auditing, *Manag. Audit. J.* 12(4):200-204.
- Yee CSL, Sujan A, James K, Leung JKS (2008). "Perceptions of Singaporean Internal Audit Customers Regarding the Role and Effectiveness of Internal Audit", *Asian J. Bus. Account.* 1(2):147-174.
- Zhang Y, Zhou J, Zhou N (2007). Audit committee quality, auditor independence and internal control weaknesses, *J. Account. Pub. Policy* 26(3):300-327.