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**Article — Published Version**

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Journal of Forensic Accounting Profession

*Suggested Citation:* Veledar, Benina; Gadžo, Amra; Bajrić, Nejra (2024) : The Impact of Various Factors on the Effectiveness of Internal Audit in the Public Sector: The Case of Bosnia and Herzegovina, Journal of Forensic Accounting Profession, ISSN 2744-1687, Sciendo, Warsaw, Vol. 4, Iss. 2, pp. 1-19, <https://doi.org/10.2478/jfap-2024-0006> , <https://sciendo.com/article/10.2478/jfap-2024-0006>

This Version is available at:

<https://hdl.handle.net/10419/323977>

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## The Impact of Various Factors on the Effectiveness of Internal Audit in the Public Sector: The Case of Bosnia and Herzegovina

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### Abstract

*The paper focuses on analyzing key factors influencing the effectiveness of internal audit in the public sector of Bosnia and Herzegovina (BiH). Through multiple regression analysis (Ordinary Least Squares-OLS), the impact of five independent variables (competence of internal auditors, size of internal audit department, relationship between internal and external auditors, management support for internal audit, and independence of internal auditors), two control variables (organization's sector and total number of employees in the organization), on the dependent variable (effectiveness of internal audit) was measured.*

**Paper type:** Research article

**Received:** September 16, 2024

**Accepted:** October 31, 2024

**Citation:** Veledar, B., Gadžo, A. & Bajrić, N. (2024). The Impact of Various Factors on the Effectiveness of Internal Audit in the Public Sector: The Case of Bosnia and Herzegovina. *Journal of Forensic Accounting Profession*, 4(2), pp. 1 - 19

**DOI:** <https://doi.org/10.2478/jfap-2024-0006>

*Research results indicate that a significant portion ( $R^2 = 45.00\%$ ,  $Adj\ R^2 = 40.90\%$ ) of the variability in the effectiveness of internal audit can be explained by the variability of the five independent variables in the model. The largest positive impact on the effectiveness of internal audit is attributed to the size of the internal audit department and the independence of internal auditors. Conversely, management support for internal audit had the least impact, which contradicts our predictions and the results of previous research. The limited impact of management support on the effectiveness of internal audit in the public sector of BiH may stem from a lack of understanding regarding the role and importance of internal audit, as well as from perceiving it as merely a formal legal requirement without substantial value.*

**Keywords:** *public sector, internal audit, effectiveness of internal audit.*

## **1. Introduction**

According to The Institution of Internal Auditors definition, internal auditing is an independent, objective assurance and consulting activity aimed at adding value and enhancing the operations of an organization. It assists organizations in achieving their objectives by applying a systematic, disciplined approach to assess and enhance the effectiveness of risk management, control, and governance processes. According to the definition by the Chartered Institute of Internal Auditors, the role of internal audit is to provide independent assurance that an organization's risk management, governance, and internal control processes are functioning effectively. In the government sector, internal auditing serves various purposes, including improving financial performance (Kiabel, 2012), ensuring the reliability of financial statements and compliance with laws (Romaniuk, 2018), and enhancing public sector management (Hamisi, 2013). Internal auditing in the public sector is a crucial function that ensures compliance with constitutional principles, accountability, and transparency (Tamay-García, 2020). It involves developing strategic and annual plans based on risk assessment, evaluating financial management systems, and providing expert opinions and recommendations (Romić, 2015). Semantically, audit, control, and inspection are integral parts of accounting supervision.

Given the significant importance of internal controls for the efficiency, effectiveness, and economy of operation in the public sector, the European Union has imposed an obligation on all candidate countries (for EU accession) to ensure that their public sector meets the

conditions/benchmarks of the negotiation chapter "Financial control" of the EU Accession Negotiations, introduced since 1998-2000. The signing of the "Stabilization and Association Agreement" has led to the obligation for Bosnia and Herzegovina to develop internal control in the public sector. This implies the development of financial management and control, a functionally independent internal audit, and an independent external audit system by European Union methodologies. Considering the standards, the challenge of establishing an efficient Public Internal Financial Control system in transition countries and those seeking EU accession is a complex one, as highlighted in the case of Bosnia and Herzegovina (Veledar & Letica, 2020). This challenge is further complicated by the need to harmonize and improve management control and internal audit, as seen in the experiences of Poland (Durbajło-Mrowiec & Długozima, 2020).

In line with the recommendations of the relevant bodies of the European Commission, Bosnia and Herzegovina has been tasked with establishing and developing an adequate system of Public Internal Financial Control (PIFC) in public institutions. The establishment of PIFC in Bosnia and Herzegovina occurred in 2009 when the Central Harmonization Unit was founded, and the first strategic document related to internal financial controls in the public sector was adopted. The PIFC system<sup>1</sup> consists of three pillars: (1) financial management and control (FMC), (2) internal audit (IR), and (3) the Central Harmonization Unit (CHU). The challenge of establishing an efficient Public Internal Financial Control system in transition countries and those seeking EU accession is a complex one, as highlighted in the case of Bosnia and Herzegovina (Veledar & Letica, 2020). This challenge is further complicated by the need to harmonize and improve management control and internal audit, as seen in the experiences of Poland (Cwiakala-Malys, Durbajło-Mrowiec & Marek Długozima, 2020). In many countries on the path to EU accession, the PIFC system is still not sufficiently developed: Ukraine (Novikova, Deshko & Gurzhii, 2018), Albania (Halili, 2015), Bosnia and Herzegovina (Vukoja & Vukoja, 2021; Jurić & Letica, 2019), Republic of Serbia (Romić et al., 2017). There are significant differences in the implementation of internal audit practices in public institutions across different countries, with some adopting a centralized management approach and others a decentralized one (Yılmaz & Yildiz, 2019).

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<sup>1</sup>European Commision (2006), Welcome to the world of PIFC. Available at:[http://ec.europa.eu/budget/library/biblio/documents/control/brochure\\_pifc\\_en.pdf](http://ec.europa.eu/budget/library/biblio/documents/control/brochure_pifc_en.pdf)

## **2. Literature review**

The effectiveness of internal audit in the public sector is influenced by a variety of factors. Nedyalkova (2019) stresses the significance of public attitudes and legal compliance, while Gofe (2019) underscores the necessity of competent auditors, an ethical environment, and support from top management. Sumbaymider (2017) further highlights the impact of competence, independence, and time budget pressure on audit quality. Iskandar, Lasa & Hassan (2014) add that auditor competency, audit unit size, and cooperation with audit committees are crucial for improving financial management performance. Competence plays a pivotal role in the effectiveness of internal audit in the public sector (Masengesho, 2015; Hammayo, Shittu & Abdullahi, 2020; Gofe, 2020; Gofe, 2019). It significantly and positively influences internal audit effectiveness, alongside internal audit quality (Hammayo, Shittu & Abdullahi, 2020). Professionalizing internal audit, including fostering an ethical climate, is essential for its effectiveness (Gofe, 2020). Nevertheless, challenges such as insufficiently trained and skilled personnel, inadequate organizational status, and a lack of professional independence hinder the strengthening of internal auditing (Gofe, 2019). Hence, addressing these challenges and ensuring the competence of internal auditors is crucial for effective internal audit in the public sector. Moreover, research suggests that the size of the internal audit department is a critical factor in its efficiency in the public sector. Factors positively correlated with larger internal audit function (IAF) size include mandated IAFs, utilization of advanced audit technologies, and organization size (Garven & Scarlata, 2020). However, the number of internal auditors should at least meet the minimum required activities, with a recommended minimum of three internal auditors (Emil, 2008). The effectiveness of the internal audit unit in the public sector is also influenced by its focus on compliance, risk management, and project evaluation, as well as its level of independence (Ofori, 2018). Despite these factors, the impact of internal audit efficiency metrics on public service tasks varies across different areas (Postuła, Irodenko & Dubel, 2020).

The independence of internal auditors is a crucial factor in the effectiveness of internal audit in the public sector (Dawuda, Aninanya & Alnaa, 2015; Ofori, 2018; Yao, Yusheng & Bah, 2017). However, this independence is often compromised due to factors such as inadequate budget allocation, low status, and management influence (Dawuda et al., 2015). The emphasis on internal audit activities focusing on compliance and error and fraud detection, rather than risk management and project evaluation, further underscores the need for increased independence (Ofori, 2018). Strengthening the legal framework of internal audit, ensuring

auditors' independence, and enhancing their professional capabilities are suggested to improve this independence (Qi-yin, 2009). The relationship between internal and external auditors is a critical factor in the effectiveness of internal audit in the public sector (Ratmono & Darsono, 2022; Iskandar, Lasa & Hassan, 2014). This relationship is influenced by factors such as independence, competence, and management support (Ratmono & Darsono, 2022). The effectiveness of internal audits in improving financial management performance is significantly associated with the competence of internal auditors, the size of internal audit units, and collaboration between internal auditors and audit committees (Iskandar et al., 2014). However, cooperation between internal and external auditors can be challenging, especially in the public sector where external auditors may face suspicion and prejudice (Haladu & Haliru Beri, 2018). Management support is another crucial factor in the effectiveness of internal audit in the public sector (Dawuda et al., 2017; Ratmono & Darsono, 2022). This support involves commitment to developing internal audit charters and providing adequate resources (Dawuda et al. 2017). The lack of support often results in understaffing, insufficient resources, and a negative perception of the internal audit function, impeding the audit process's effectiveness (Othman, Othman & Jusofft, 2009; Gofe, 2020). The significance of management support is further underscored by the positive correlation between management support services and internal audit performance (Dawuda et al., 2017). To address this issue, it is recommended that management allocate necessary resources and training, ensure the independence of the internal audit function, and consider the internal audit unit as a strategic business unit (Mwanza & Kaira, 2022; Dawuda et al., 2017). Several factors have been identified to positively influence the effectiveness of internal audit. Joshi (2021) and Mensah, Ngwenya & Pelsner (2020) both stress the importance of regular meetings between the internal audit function and the audit committee, as well as the utilization of Big Data and Analytics (BDA), independence, competence, and management support. Kusuma (2021) further highlights the positive impact of internal auditor characteristics and senior management support. However, Gökoğlu (2022) found no significant correlation between senior management support and internal audit effectiveness. In the context of the public sector in Zambia, both management support and organizational independence were reported to be low, indicating a need for enhanced resources and training (Mwanza & Kaira, 2022). These findings collectively suggest that a combination of factors, including technological tools, staff competence, and management support, can enhance the effectiveness of internal audit.

### **3. Research objectives and methodology**

This study aims to investigate the collective impact of independent variables on the dependent variable (effectiveness of internal audit) to improve the functioning of internal audit in the public sector of Bosnia and Herzegovina. The following hypotheses are proposed:

H1: There is a significant and positive relationship between the internal audit's effectiveness and the internal audit staff's competence.

H2: There is a significant and positive relationship between the effectiveness of internal audit and the size of the internal audit department.

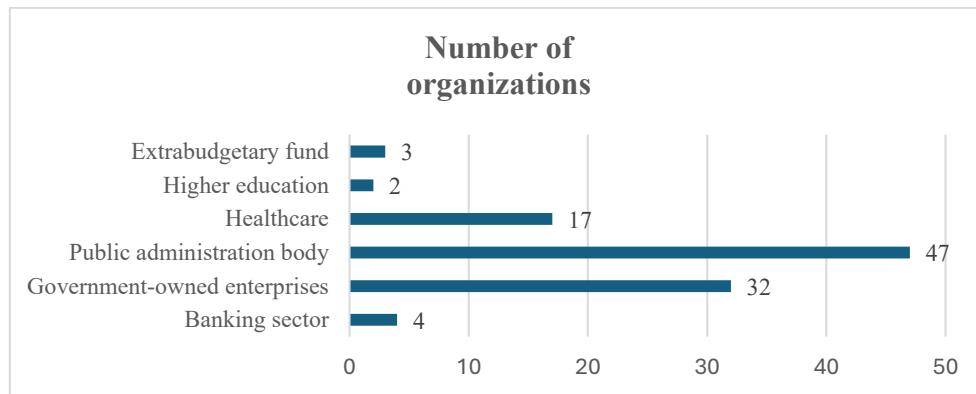
H3: There is a significant and positive relationship between the effectiveness of internal audit and the collaboration between internal and external auditors.

H4: There is a significant and positive relationship between the effectiveness of internal audit and management support for internal audit.

H5: There is a significant and positive relationship between the effectiveness of internal audit and the independence of internal audit.

The methodology of this study is based on multiple regression analysis to explore the relationship between independent variables (competence of internal auditors, size of the internal audit department, relationship between internal and external auditors, management support for internal audit, independence of internal audit) and the dependent variable (effectiveness of internal audit) in the public sector of Bosnia and Herzegovina. The research population consists of internal auditors in public institutions that are required by law to have organized internal audit departments. Data collection was conducted through online surveys of internal auditors, and the research sample consists of 105 collected responses (Figure 1). Data were gathered using standardized questionnaires that assess the factors of the independent variables as well as the effectiveness of internal audit.

Figure 1. - Structure of surveyed internal auditors by type of organization



Source: Author's research

The method of Ordinary Least Squares (OLS) was applied to estimate the parameters of the regression model. This model specifies a linear relationship between the independent variables and the dependent variable, aiming to minimize the squared differences between the actual and predicted values of the dependent variable. In this research, the dependent variable is the effectiveness of internal audit (IAE), while the independent variables are: Comp - competence of internal auditors; Size - size of the internal audit department; Relex - relationship between internal and external auditors; Msup - management support for internal audit; Ind - independence of internal audit. The control variables are: the organization's activity and the total number of employees in the organization. The analysis also involved checking the assumptions of the OLS method. Diagnostic tests were conducted to assess the impact of independent variables on the dependent variable, including: checking the functional form (Ramsey Reset test,  $p = 0.5683$ ), normality of residuals (residuals follow a normal distribution,  $p = 0.3308$ ), homoscedasticity (Breusch-Pagan test,  $p = 0.3016$ ), and multicollinearity of independent variables (Variance Inflation Factor, all values less than 5, mean VIF=1.53).

Below are explanations of the indicators of the dependent variable. The effectiveness of internal audit (Iae) - This is the dependent variable measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The effectiveness of internal audit is measured through six statements, namely:

- Internal audit improves organizational performance;
- Internal audit checks compliance with policies, plans, procedures, and regulations;
- Internal audit enhances organizational productivity;
- Internal audit provides recommendations for improving internal control;

- Recommendations stated in internal audit reports are timely implemented;
- Internal audit develops appropriate annual audit plans.

Below are explanations of the indicators of the independent variables. *The competence of internal audit (Comp)* is an independent variable measured by five indicators: level of education, average annual hours of training, work experience, length of existence of internal audit in the organization, and position in the workplace. Staff competence is a key element of internal audit effectiveness. Standards emphasize that possessing knowledge and other skills is necessary for assuming responsibilities. *The size of internal audit (Size)* is an independent variable measured by the number of internal auditors employed in the observed organization. *The relationship between internal and external auditors (Relex)* is an independent variable measured using a Likert scale (1 = strongly disagree, 5 = strongly agree). It consists of six statements, namely:

- Internal and external auditors meet regularly;
- External auditors discuss their plans with internal auditors;
- External auditors rely on the work and reports of internal audit;
- External auditors have a positive attitude towards internal auditors;
- Internal and external auditors share their working papers;
- Internal and external auditors consult on engagement timelines of mutual interest;

Coordination and collaboration between internal and external auditors are considered important for the benefit of organizations. Examples of such coordination and collaboration include joint planning, exchange of information and opinions, and prevention of unnecessary duplication of work. Standards require the establishment of a professional relationship between relevant auditing parties, which consequently helps internal auditors in achieving their objectives and providing better services to the enterprise. Academic studies show that appropriate collaboration increases efficiency and effectiveness, and assists management in delivering high-quality public services.

*The independence of internal audit (Ind)* is an independent variable measured using a Likert scale (1 = strongly disagree, 5 = strongly agree). It consists of six statements, namely:

- Internal audit staff is independent in performing their professional duties;
- There is no conflict of interest in the work of internal auditors;

- Internal auditors do not face management interference when conducting audit engagements;
- Internal audit staff is not required to perform duties beyond their jurisdiction;
- Internal audit staff has unrestricted access to documentation, physical assets, and personnel of the organization;
- Internal audit staff is appointed and dismissed according to prescribed procedures.

*Management support for the organization (Msup)* is an independent variable measured using a Likert scale (1 = strongly disagree, 5 = strongly agree). It consists of six statements, namely:

- Management actively participates in the planning of internal audit work;
- Management supports internal audit in executing its tasks;
- Management supports the implementation of internal audit recommendations;
- The internal audit department has a sufficient budget to successfully perform its tasks;
- The internal audit department is large enough to carry out its tasks effectively;
- Management considers internal audit essential and important for the organization.

The way in which management demonstrates its support likely sends an important signal about the role and importance of internal audit throughout the organization. Internal audit is required to provide management with sufficient, reliable, and relevant reports on work performed, conclusions reached, and recommendations made. Previous studies indicate that support from management is key to the success of the internal audit function.

## **4. Research results**

### **4.1. Descriptive Statistical Analysis**

Based on the analysis of empirical data from the sample, we conclude that 68% of internal auditors employed in the public sector are female (71 out of 105), while 32% are male (34 out of 105). The majority of respondents, specifically 54% (57 out of 105), have a university degree, 29% (30 out of 105) have a master's degree, 10% have a bachelor's degree (11 out of 105), 3% (3 out of 105) have a doctoral degree, while 4% (4 out of 105) of respondents have some other level of education. Considering the total revenues of the surveyed organizations, 83% (87 out of 105) have generated revenues exceeding 8,000,000.00 KM, 12% (13 out of 105) have generated revenues between 2,000,000.00 KM and 8,000,000.00 KM, and only 5% of

organizations (5 out of 105) have generated less than 2,000,000.00 KM. In the sample, 46% (48 out of 105) of surveyed organizations had more than 250 employees, 43% (45 out of 105) had between 50 and 250 employees, and 11% (12 out of 105) had up to 50 employees. Descriptive statistical analysis of the mean values, standard deviations, minimums, and maximums for five independent variables and one dependent variable are provided in Table 1.

Table 1. Descriptive statistical analysis of the mean values of responses to the indicators of the dependent and five independent variables

| Variables | n (obs) | AVERAGE | STDEV | Minimum | Maximum |
|-----------|---------|---------|-------|---------|---------|
| Iae       | 105     | 3.66    | 0.49  | 2.67    | 5.00    |
| Relex     | 105     | 2.94    | 0.82  | 1.00    | 4.83    |
| Ind       | 105     | 3.93    | 0.78  | 1.67    | 5.00    |
| Msup      | 105     | 3.53    | 0.77  | 1.33    | 5.00    |
| Comp      | 105     | 2.66    | 0.53  | 1.40    | 4.00    |

Source: Author's research

#### 4.2. Multiple regression analysis

The OLS regression model between the observed five independent variables and one dependent variable is provided in Table 2.

Table 2. Regression of the Selected Model

| Source   | SS         | df  | MS          |
|----------|------------|-----|-------------|
| Model    | 11.2827096 | 7   | 1.61181565  |
| Residual | 13.7914198 | 94  | 0.146717232 |
| Total    | 25.0741294 | 101 | 0.248258707 |

|               |         |
|---------------|---------|
| No. Observ.   | 102     |
| F (5,99)      | 10.99   |
| Prob>F        | 0.0000  |
| R-squared     | 0.4500  |
| Adj R-squared | 0.4090  |
| Root MSE      | 0.38304 |

| Iae                     | Coefficient | Standard error | T     | P>t      | Confidence interval (95%) |            |
|-------------------------|-------------|----------------|-------|----------|---------------------------|------------|
| Organizational activity | -0.3109306  | 0.1312265      | -2.37 | 0.020**  | -0.5714839                | -0.0503772 |
| Number of employees     | 0.1390333   | 0.0808427      | 1.72  | 0.089*** | -0.0214818                | 0.2995484  |
| Size                    | 0.6673687   | 0.1492541      | 4.47  | 0.000*   | 0.3710212                 | 0.9637162  |
| Relex                   | 0.0855918   | 0.0515357      | 1.66  | 0.100*** | -0.0167337                | 0.1879172  |
| Ind                     | 0.3414239   | 0.076361       | 4.47  | 0.000*   | 0.1898072                 | 0.4930405  |
| Msup                    | -0.4170474  | 0.079284       | -5.26 | 0.000*   | -0.5744676                | -0.2596272 |

|              |           |           |       |        |           |           |
|--------------|-----------|-----------|-------|--------|-----------|-----------|
| <b>Comp</b>  | 0.2530863 | 0.077458  | 3.27  | 0.002* | 0.0992916 | 0.4068811 |
| <b>_cons</b> | 3.002352  | 0.2815784 | 10.66 | 0.000* | 2.443272  | 3.561433  |

*Level of statistical significance:*

$0 > P < 0.01 = *$  Statistical significance at the 1% level

$0.011 > P < 0.050 = **$  Statistical significance at the 5% level

$0.051 > P < 0.10 = ***$  Statistical significance at the 10% level

*Source: Author's research*

Based on the table, we see that  $R^2 = 45.00\%$ , which means that 45.00% of the variability of expected effectiveness of internal audit in the public sector is explained by the variability of the independent variables in the model.  $\text{Adj } R^2 = 40.90\%$  represents a better indicator compared to the ordinary coefficient of determination because a transformed model was used instead of the original model. The advantage of this coefficient is that it considers only those independent variables that truly explain the dependent variable. Also, according to the F-statistic results, we can conclude that the model is statistically significant overall, considering all conventional levels of error ( $p=0.0000$ ). Observing the values of t-statistics, we conclude the following:

- Significant at the 1% level of error: Size, Ind, Msup, Comp
- Significant at the 5% level of error: Organizational\_activity
- Significant at the 10% level of error: Relex, Number\_of\_employees

The model specification we suggest is as follows:

$$\text{Iae} = 3.00 - 0.31 \text{ Organizational\_activity} + 0.14 \text{ Number\_of\_employees} + 0.68 \text{ Size} + 0.09 \text{ Relex} + 0.34 \text{ Ind} - 0.42 \text{ Msup} + 0.25 \text{ Comp}$$

#### 4.3. Discussion of research results

The data in the tables above show the parameter values of our estimated model. For variables we have identified as statistically significant, it should be noted that a positive sign is obtained alongside the estimated coefficient, except for the variables organizational activity and management support for internal audit, which is contrary to theoretical expectations and our predictions.

*The relationship between internal and external auditors (Relex)* - Based on the conducted empirical analysis and in accordance with theoretical expectations, we conclude that an increase in satisfaction with the relationship between internal and external auditors by 1 point on the Likert scale results in an increase in the effectiveness of internal audit by 0.085 (*ceteris paribus*).

The effect is statistically significant at the 10% level of significance ( $p=0.100$ ). Therefore, we conclude that the hypothesis stating "The effectiveness of internal audit will be greater if there is cooperation between internal and external auditors" is confirmed.

*Independence of internal audit (Ind)* - Based on the conducted research, the independence of internal audit has been shown to be a statistically significant indicator in assessing the effectiveness of internal audit in the public sector. If the independence of internal audit increases by 1 point on the Likert scale, the effectiveness of internal audit will increase by 0.341 (*ceteris paribus*). The effect is statistically significant at the 1% level of significance ( $p=0.000$ ). The hypothesis stating "Greater effectiveness of internal audit will be associated with greater independence of internal audit" is confirmed based on the results of the analysis.

*Management support for internal audit (Msup)* - Based on the conducted empirical analysis, management support for internal audit had a statistically significant negative impact on the effectiveness of internal audit in the public sector, at the 1% level of error. The obtained results were not in line with our predictions or previous research findings. The results indicate that if management support for internal audit increases by 1 point on the Likert scale, the effectiveness of internal audit will decrease by 0.41 (*ceteris paribus*). We conclude that the hypothesis stating "The effectiveness of internal audit will be greater if there is management support for internal audit" is not confirmed.

The reasons for the unexpected results of our model can be seen from the responses of surveyed internal auditors. When asked if management is actively involved in planning the work of internal audit, the average weighted response on the Likert scale (ranging from 1 - strongly disagree to 5 - strongly agree) is 3.26. When asked if management supports internal audit in the execution of its tasks, the average weighted response is 3.88. When asked if management supports the implementation of internal audit recommendations, the weighted average response is 3.95. When asked if the internal audit department has a sufficient budget to successfully perform its tasks, the average weighted response is 3.47. When asked if the internal audit department is large enough to carry out its tasks, the average weighted response is 3.00. Regarding the statement that management considers the internal audit department necessary and important in the organization, the weighted average response is 3.55.

Although the Likert scale results indicate that management generally supports internal audit (with average scores ranging from 3.26 to 3.95), the regression model reveals a negative impact of this support on the effectiveness of internal audit. This discrepancy may suggest that management believes it is providing significant support, but in practice, that support is not effective enough or is not being implemented in a way that positively influences the internal

audit's operations. For example, management may support internal audit at a nominal level, but that support might not be concrete or directed toward key areas that would enhance effectiveness. Additionally, the negative impact of management on the development of the internal audit system may be due to specific contextual factors in the public sector of BiH. For instance, management's support may be inadequate or hindered by other organizational or external factors that are not sufficiently captured by the Likert scale questions.

The results indicate the need for a deeper analysis of both quantitative data and qualitative aspects to better understand the reasons for this discrepancy between management's perception and the actual impact of their support on internal audit effectiveness. Conducting additional research through interviews or focus groups could help identify specific challenges and factors that hinder internal audit effectiveness despite the nominal support from management.

*Competence of internal audit (Comp)* - The variable competence of internal audit has been shown to be a statistically significant indicator of the effectiveness of internal audit in the public sector. If the competence of internal audit increases by 1 point on the Likert scale, the effectiveness of internal audit will increase by 0.2530 (*ceteris paribus*). The effect is statistically significant at the 1% level of significance ( $p=0.002$ ). The hypothesis stating "Greater effectiveness of internal audit will be associated with greater competence of internal audit staff" is confirmed based on the research results.

*Number of employees* - Based on the conducted research, the variable number of employees has been shown to be a statistically significant indicator of the effectiveness of internal audit in the public sector. Accordingly, if an organization has a higher number of employees, the effectiveness of internal audit is expected to be higher by 0.139, compared to organizations with fewer employees (*ceteris paribus*). The effect is statistically significant at the 10% level of significance ( $p=0.089$ ).

*Organizational activity* - Based on the empirical analysis of data, organizational activity has been identified as a statistically significant variable. However, according to the research, organizational activity reduces the effectiveness of internal audit. The effect is statistically significant at the 5% level of significance ( $p=0.020$ ).

*Size of internal audit (Size)* - In a study conducted by Ahmad, Otoman, and Jusoff (2009)<sup>2</sup> on the effectiveness of internal audit in the public sector, it was found that a lack of audit staff is one of the main obstacles to the effectiveness of internal audit. Accordingly, if an organization employs a larger number of internal auditors, the effectiveness of internal audit is

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<sup>2</sup>Halimah, A., Radiah, O., Rohana, O. (2009). The effectiveness of internal audit in Malaysian public sector, Journal of modern accounting and auditing.

expected to be higher by 0.667, compared to organizations with fewer internal auditors (*ceteris paribus*). The effect is statistically significant at the 1% level of significance ( $p=0.000$ ). Based on the research results, the hypothesis stating "The effectiveness of internal audit will be greater if the internal audit department is larger" is confirmed.

## **5. Conclusion**

Based on the analysis conducted, the study investigates the influential factors affecting the effectiveness of internal audit within the public sector of Bosnia and Herzegovina. Utilizing multiple regression analysis (Ordinary Least Squares-OLS), the study assesses the impact of various independent variables such as the competence of internal auditors, the size of the internal audit department, the relationship between internal and external auditors, management support for internal audit, and the independence of internal auditors. Additionally, two control variables, namely the organization's sector and the total number of employees, are considered in relation to the dependent variable, the effectiveness of internal audit.

The research findings reveal that a significant portion of the variability in the effectiveness of internal audit ( $R^2 = 45.00\%$ ,  $AdjR^2 = 40.90\%$ ) can be elucidated by the variability of the five independent variables incorporated into the model. Notably, the size of the internal audit department and the independence of internal auditors exhibit the most substantial positive impacts on the effectiveness of internal audit. In contrast, management support for internal audit is found to have the least impact, contrary to both our predictions and previous research outcomes. Conducting multiple regression analysis, we have concluded that the relationship between internal and external auditors (Relex) has a statistically significant positive impact, albeit at a 10% error level. Additionally, we find a statistically significant positive correlation between the independence of internal audit (Ind), competence of internal audit (Comp), size of internal audit (Size), total number of employees, and the effectiveness of internal audit (Iae), consistent with previous research findings. These findings underscore the importance of fostering a supportive organizational culture that recognizes the critical role of internal audit in enhancing governance, risk management, and control processes within the public sector of BiH.

The adverse effect of management support on the effectiveness of internal audit within the public sector of BiH suggests potential issues such as a lack of understanding regarding the role and significance of internal audit, as well as the perception of internal audit merely as a formal legal obligation devoid of substantive value. Likert scale indicate that management generally supports internal audit (with average scores ranging from 3.26 to 3.95), but the regression model

reveals a negative impact of this support on the effectiveness of internal audit. This inconsistency might indicate that while management perceives its support as significant, in reality, this support may lack effectiveness or fail to be implemented in a way that positively impacts internal audit operations. For instance, management's support could be superficial or not sufficiently targeted at the critical areas that would improve effectiveness. Moreover, the negative influence of management on the development of the internal audit system might be attributed to specific contextual factors within the public sector of BiH. For example, the support provided by management could be inadequate or obstructed by other organizational or external factors that are not fully captured by the Likert scale questions. These findings highlight the need for a more in-depth analysis, considering both quantitative data and qualitative insights, to better understand the causes of this gap between management's perception and the actual impact of their support on internal audit effectiveness. Further research through interviews or focus groups could help uncover specific challenges and obstacles that limit internal audit effectiveness, despite the nominal support from management.

Recommendations for enhancing internal audit in Bosnia and Herzegovina (BiH) are as follows:

- Implement legal regulations related to internal audit in public sector institutions in Bosnia and Herzegovina,
- Provide continuous education for internal auditors employed in public sector organizations,
- Strive for independence of the internal audit function as well as internal auditors,
- Strengthen the relationship between external and internal auditors,
- Establish effective communication between internal auditors and organizational management.

Recommendations for future research include:

- Conduct qualitative research to delve deeper into the perceptions and attitudes of management towards internal audit within the public sector of Bosnia and Herzegovina. This can include interviews or focus groups with organizational leaders to understand their perspectives on internal audit and the factors influencing their level of support.
- Explore organizational culture and its impact on the effectiveness of internal audit. Investigate factors such as organizational structure, leadership styles, and

communication practices to determine how they influence management support for internal audit.

- Compare the findings from BiH with those from other countries or regions to identify potential cultural or contextual factors that may contribute to the observed negative correlation. This comparative analysis can provide insights into whether the challenges faced by internal auditors in BiH are unique or shared by public sector organizations elsewhere.

## References:

- Cwiakala-Malys, A., Durbajlo-Mrowiec, M., & Dlugozima, M. (2020). Harmonisation and improvement of management control and internal audit of public finances' sector in Poland. *European Research Studies Journal* 23(3), pp. 545-555.
- Dawuda, A., Aninanya, G. O., & Alnaa, S.E. (2015). The organizational independence of internal auditors in Ghana: Empirical evidence from local government. *Asian Journal of Economic Modelling*, 3(2), pp. 33–45.
- Emil, G. (2008). Remarks on the importance and necessity for public entities to associate in order to perform efficient activities of internal audit. *Annals of Faculty of Economics*, 4(1), pp. 265-268.
- Garven, S. A., & Scarlata, A. N. (2020). An examination of internal audit function size: Evidence from U.S. government and nonprofit sectors. *Current Issues in Auditing* 15(1), pp. A38–A56.
- Gofe, T.E. (2019). A study on the role and effectiveness of internal audit in public enterprises of Nekemte City Administration. *European Journal of Business and Management* 10(10), pp.25-37.
- Gökoğlan, K. (2022). Research on the determinants of internal audit effectiveness in business. *ODÜ Sosyal Bilimler Araştırmaları Dergisi (ODÜSOBİAD)* 12(2), pp. 949-966.
- Haladu, D.A., & Haliru Beri, M. (2018). An applied valuation of the association among internal and external auditors. *International Journal of Science and Management Studies (IJSMS)* 1(4), pp. 122-129
- Hamisi, Z. (2013). Effectiveness of internal audit as an instrument for improving public sector management: A case of Pangani District, Local Government Authority (LGA). [Doctoral dissertation, Mzumbe University]
- Hammayo, A., Shittu, I., & Abdullahi, A. A. (2020). Effect of auditor proficiency and audit quality on internal audit effectiveness in Nigeria's Federal Public Service. *Research Journal of Finance and Accounting* 11(6), pp. 1-10

- Iskandar, T. M., Lasa, Y. M., & Hassan, N. S. (2014). Financial management performance of public sector: quality of internal auditor. *International Journal of Accounting, Auditing and Performance Evaluation* 10(3), pp. 229-254.
- Joshi, P.L. (2021). Which factors affect the internal audit effectiveness in India? *Indian Journal of Commerce & Management Studies* 12(2), pp. 1–13.
- Jurić, J., Letica, M. (2019). Public Sector Accounting, Auditing and Control in the Federation of Bosnia and Herzegovina. In: Vašiček, V., Roje, G. (Eds) Public Sector Accounting, Auditing and Control in South Eastern Europe. Public Sector Financial Management. Palgrave Macmillan, Cham. [https://doi.org/10.1007/978-3-030-03353-8\\_6](https://doi.org/10.1007/978-3-030-03353-8_6)
- Kiabel, B.D. (2012). Internal auditing and performance of government enterprises: a nigerian study. *Global Journal of Management and Business Research*, 12., pp. 5-20.
- Kusuma, G.S. (2021). Pengaruh karakteristik internal auditor, dukungan manajemen senior dan budaya organisasi terhadap efektivitas internal audit. *Jurnal Keuangan Dan Bisnis*, 19(2), pp. 160–175.
- Mensah, O. A., Ngwenya, B., & Pelsner, T. G. (2020). Investigating the impact of antecedents of internal audit function effectiveness at a private university in Ghana. *Acta Commercii* 20(1), pp. 1-10.
- Mwanza, O., & Kaira, B. (2022). The effectiveness of internal auditing in the public sector in zambia. *Journal of Accounting* 5(1), pp 13 – 33.
- Novikova, N., Deshko, L., & Gurzhii, A. (2018). Leading approaches to modernization of state financial control: a case of Ukraine. In Proceedings of the 2nd International Conference on Social, Economic and Academic Leadership (Prague, June 2018) (pp.149-156). Prague: Prague Institute for Qualification Enhancement. <https://doi.org/10.2991/icseal-18.2018.22>
- Nedyalkova, P. (2020). Problems in internal audit quality assessment. In: Quality of Internal Auditing in the Public Sector. Contributions to Management Science. Springer, Cham. [https://doi.org/10.1007/978-3-030-29329-1\\_15](https://doi.org/10.1007/978-3-030-29329-1_15)
- Ofori, C.F., & Lu, L. (2018). The evaluation of internal audit functions for effective public sector administration. A survey of Accra Metropolitan Assembly, Ghana. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 8(2), pp. 19-27.
- Othman, R., Othman, R., & Jusoff, K. (2009). The effectiveness of internal audit in Malaysian public sector. *Journal of modern accounting and auditing*, 5(9), pp. 53-62.
- Postuła, M., Irodenko, O., & Dubel, P. (2020). Internal audit as a tool to improve the efficiency of public service. *European Research Studies Journal* 23(3), pp. 699-715.
- Qi-yin, T. (2009). Discussion on the independence of internal audit. *Journal of Guizhou Normal University (Social Science Edition)* 2, pp. 27-33.
- Ratmono, D., & Darsono, D. (2022). Effectiveness of internal audit in local governments: The moderating role of internal and external auditors' relations. *Accounting*. 8(2), pp. 177-186.

Romaniuk, P. (2018). Management of internal audit in the process of efficient and effective functioning of modern public administration. *Journal of modern science*, 35(4), pp. 301-316.

Romić, L., Gravorac, S., Šijan, G., & Veselinović, B.S. (2017). Implementation of financial management and control in public sector entities: The way to a new paradigm for fiscal responsibility. *Economic Challenges* 6(11), pp. 77-91.

Tamay, M., Narváez, C., Erazo, J., & Torres, M. (2020). La auditoría interna y su importancia en los procesos contables en el sector público no financiero. 593 Digital Publisher CEIT, 5(4-1), pp. 87-101.

Veledar, B., & Letica, M. (2020). Challenges in implementing the concept of public internal financial controls in the public sector of Bosnia and Herzegovina. *ENTRENOVA - ENTERprise REsearch InNOVAtion*, 6(1), pp. 187–194.

Vukoja, A., & Vukoja, A. (2021). Financial management and control and internal audit system in the public sector in BiH. *Chinese Business Review*, 20(1), pp. 22-31.

Yao, P. L., Yusheng, K., & Bah, F. B. (2017). An empirical study of external auditor's independence and contribution to assurance, transparency of public sector accounting systems and controls: A case of the Ministry of Finance, Ghana. *European Journal of Business and Management*, 9(3), pp. 1-14.

Yilmaz, T., & Yildiz, A. (2019). Avrupa birliği ve türkiye'deki kamu kurumlarında iç denetim uygulamalarının karşılaştırma ve analizi. *Yönetim ve Ekonomi Araştırmaları Dergisi / Journal of Management and Economics Research* 17(3), pp. 222-241.

## Sažetak

*Rad se fokusira na analizu ključnih faktora koji utiču na efikasnost interne revizije u javnom sektoru Bosne i Hercegovine (BiH). Kroz analizu višestruke regresije (Ordinary Least Squares-OLS), uticaj pet nezavisnih varijabli (kompetentnost internih revizora, veličina odjela interne revizije, odnos između internih i eksternih revizora, podrška menadžmenta internoj reviziji i nezavisnost internih revizora), mjerene su dvije kontrolne varijable (sektor organizacije i ukupan broj zaposlenih u organizaciji), na zavisnoj varijabli (efikasnost interne revizije). Rezultati istraživanja pokazuju da se značajan dio ( $R^2 = 45,00\%$ ,  $Adj\ R^2 = 40,90\%$ ) varijabilnosti u djelotvornosti interne revizije može objasniti varijabilnošću pet nezavisnih varijabli u modelu. Najveći pozitivan uticaj na efektivnost interne revizije pripisuje se veličini odjela interne revizije i nezavisnosti internih revizora. S druge strane, podrška menadžmenta internoj reviziji imala je najmanji uticaj, što je u suprotnosti sa našim predviđanjima i rezultatima prethodnih istraživanja. Ograničeni uticaj podrške menadžmenta na efektivnost interne revizije u javnom sektoru BiH može proizaći iz nerazumijevanja uloge i značaja interne revizije, kao i iz percipiranja iste kao samo formalnog zakonskog zahtjeva bez suštinske vrijednosti.*

**Ključne riječi:** *javni sektor, interna revizija, efektivnost interne revizije*