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RISK-BASED METHODOLOGY FOR CALCULATING MATERIALITY IN INTERNAL AUDITS OF BUDGETARY ORGANIZATIONS

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Abstract. The article analyzes the problem of determining the materiality level in internal audits of budgetary organizations and finds that, in practice, it is often set subjectively without documented calculation. To address this issue, a methodology linking materiality to the level of audit risk is proposed. Overall materiality is calculated using the formula M_overall = Base × F(R), where F(R) is a risk-dependent percentage. Performance materiality is determined as M_perf = M_overall × k, where k = 0.50–0.75. In addition, a three-tier materiality structure is introduced. The proposed methodology links audit scope and sample size to the level of risk and ensures the international comparability of audit results.

Keywords: internal audit, materiality level, audit risk, performance materiality, materiality base, risk-based auditing, budgetary organization, public sector.

Аннотация. В статье исследуется проблема определения уровня существенности при проведении внутреннего аудита бюджетных организаций и установлено, что на практике данный показатель нередко определяется субъективно, без документально обоснованного расчёта. Для решения данной проблемы предложена методика, основанная на увязке уровня существенности с уровнем аудиторского риска. Общий уровень существенности рассчитывается по формуле M_{overall} = Base × F(R), где F(R) представляет собой процентную ставку, зависящую от уровня риска. Рабочий уровень существенности определяется по формуле M_{perf} = M_{overall} × k, где k = 0,50–0,75. Кроме того, предложена трёхуровневая структура существенности. Разработанная методика обеспечивает взаимосвязь объёма аудиторских процедур и размера аудиторской выборки с уровнем риска, а также способствует повышению сопоставимости результатов внутреннего аудита в соответствии с международной практикой.

Ключевые слова: внутренний аудит, уровень существенности, аудиторский риск, рабочая существенность, база расчёта существенности, риск-ориентированный аудит, бюджетная организация, государственный сектор.

INTRODUCTION

The concept of materiality is central to ensuring audit quality. Materiality is the threshold that determines the extent to which an identified error or misstatement may affect users' decisions. It also determines where the auditor should focus attention, how much evidence should be collected, and which misstatements should be assessed as significant. International Standards on Auditing and public sector audit standards define materiality as an integral element of audit planning and performance.

However, in the practice of internal auditing in budgetary organizations, determining the level of materiality often lacks a systematic basis. Auditors may either not establish a materiality threshold at all or determine it approximately, based on professional experience, without proper documentation. As a result, different auditors may apply different thresholds in the same situation, audit scope and sample size may be determined without sufficient justification, and the consistency and comparability of audit conclusions may decrease.

In addition, materiality is often not linked to the risk level of the audit object. Applying the same threshold to both high-risk and low-risk objects may lead to an inefficient allocation of audit resources.

The specific nature of the public sector further complicates this issue. While in the commercial sector materiality is usually determined in relation to financial indicators such as profit or revenue, budgetary organizations do not use profit as a key indicator. Instead, expenditures or budget allocations are generally taken as the main basis. Therefore, materiality approaches developed for commercial audits cannot be directly transferred to the budgetary sector; they require appropriate adaptation.

LITERATURE REVIEW

Errors and omissions that may lead to unnecessary financial costs, losses, or damages, as well as mislead users when making decisions based on reports, are considered significant or material (Tulakhodjaeva, 2011).

In most cases, the overall level of materiality is not determined immediately, but gradually, through an overall assessment of the totality of audit evidence collected during the audit of individual segments (Mamatov, 2002).

The concept of reasonable assurance requires auditors to plan and perform an audit in such a way as to obtain reasonable, but not absolute, assurance that material misstatements will be detected. This concept recognizes that material misstatements may exist in financial statements even if they are not identified by auditors (Coate, 2002).

Materiality is a threshold characteristic in accounting that influences the application of other qualitative characteristics of financial information. Financial information is considered material if it is capable of affecting the decision-making process. The omission or alteration of material information may change the judgments and decisions of rational users regarding the activities of an economic entity (Farajzadeh and Azizzadeh, 2012).

Although materiality is directly related to audit performance and the auditor's subsequent opinion, insufficient disclosure of information about materiality has caused users, including investors, and regulators to be cautious in assessing auditors' application of materiality (Tuttle et al., 2002).

RESEARCH METHODOLOGY

The research employed systematic analysis, comparative analysis, and modelling methods. The proposed methodology for calculating the level of materiality consists of four stages: selecting the materiality base; determining the materiality percentage according to the risk level of the audit object; calculating overall materiality; and forming performance materiality together with a three-tier materiality structure.

ANALYSIS AND RESULTS

The main idea of the proposed methodology is to link materiality with risk. Figure 1 illustrates the inverse relationship between the materiality percentage and the risk level: for low-risk objects, the materiality percentage is set at 2.0%; for medium-risk objects, at 1.0%; and for high-risk objects, at 0.5%.

This logic is fully consistent with audit theory: the higher the risk of the audit object, the more sensitive the auditor should be to errors and misstatements, and therefore the lower the materiality threshold should be. As a result, even relatively minor violations in high-risk objects are treated as significant, and audit procedures are performed more thoroughly (Figure 1).

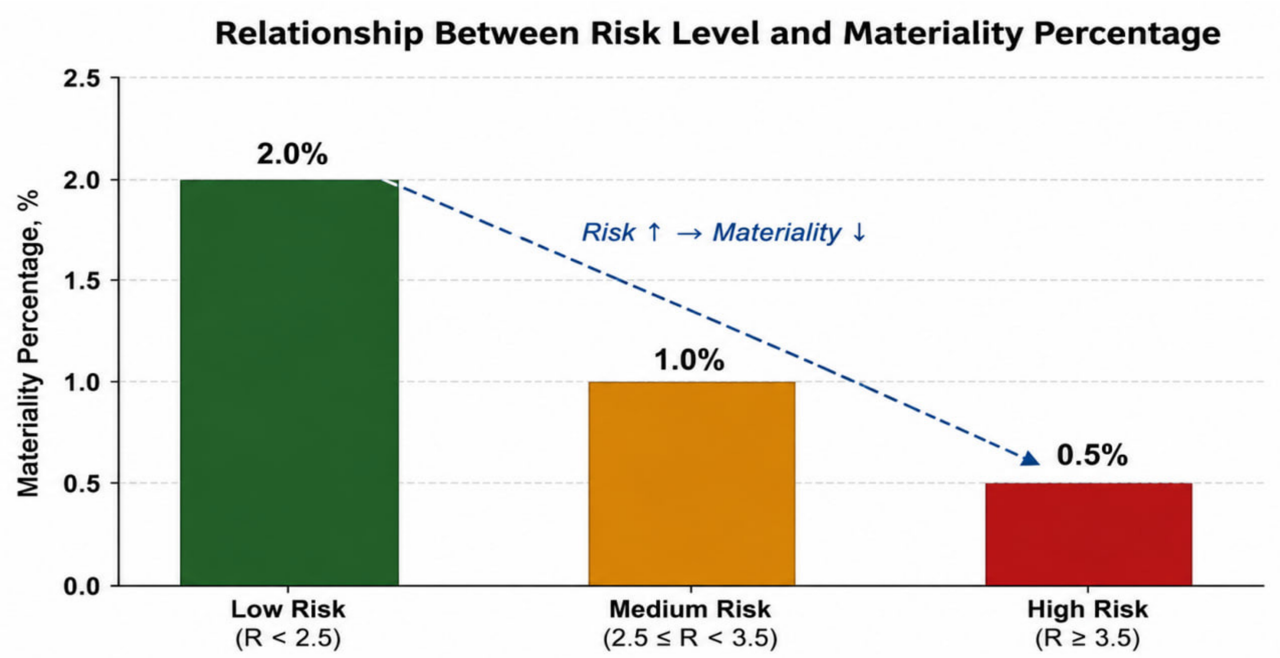

Figure 1. The inverse relationship of the percentage of importance to the level of risk[1]

1 Prepared by the author

The practical application of the methodology is shown in a typical example (Table 2). The importance levels were calculated for three objects with different risk levels - A-OTM (high risk, R = 4.38), G-ITM (medium risk, R = 3.00) and E-College (low risk, R = 2.30). For each object, its annual costs were taken as a basis, and the importance percentage and coefficient corresponding to the risk category were applied (Table 2).

Table 2
A sample example of calculating the significance level[2]

Object	R	Category	Base, million	F(R), %	Total, million	Mishchi, million
A-OTM	4.38	Up	250,000	0.5	**1 250**	**625**
G-ITM	3.00	Medium	80,000	1.0	**800**	**520**
E-college	2.30	Low	15,000	2.0	**300**	**225**

An illustrative example shows how the methodology works in practice step by step. For the A-OTM object, annual total expenditures of UZS 250,000 million were taken as the materiality base. Since the object belongs to the high-risk category (R = 4.38), the materiality percentage was set at 0.5%. Accordingly, overall materiality was calculated as follows: M_overall = 250,000 × 0.005 = UZS 1,250 million. When the reduction coefficient for high-risk objects was set at k = 0.50, performance materiality was determined as M_perf = 1,250 × 0.50 = UZS 625 million. In the same way, materiality levels were calculated for the G-ITM and E-College objects. This example shows that the methodology provides a clear and justified materiality threshold for each object, corresponding to its size and risk level, based on transparent calculations rather than the auditor's subjective judgment.

The calculation results reveal an important feature of the methodology: the materiality threshold depends not only on the size of the base but also on the level of risk. For example, although the base of the A-OTM object is more than three times higher than that of G-ITM, a stricter percentage of 0.5% is applied due to its higher risk level. This reflects the two-dimensional nature of materiality — size and risk — and directs the audit more precisely toward risk-sensitive areas.

The practical relevance of the methodology is also supported by real audit data. In 2024, financial violations totalling UZS 65.1 billion were detected during audits conducted within the ministry system [9]. To effectively identify violations of such scale, the materiality threshold must be set correctly: it should be neither too high, which may cause significant violations to be overlooked, nor too low, which may overload the auditor with minor errors. The proposed methodology adjusts materiality to the size and risk level of the audit object, thereby ensuring this balance. A stricter threshold for large and high-risk objects enables the detection of significant violations, while a more flexible threshold for small and low-risk objects helps save audit resources.

The relationship between materiality and audit coverage is another practical aspect of the methodology. The lower the materiality threshold, the more evidence the auditor needs to collect and the larger the sample size should be. Thus, a lower materiality threshold automatically requires broader audit coverage for high-risk entities. This mathematically ensures that audit resources are allocated in proportion to the level of risk. In other words, the materiality methodology serves not only as a criterion for assessing violations but also as a tool for managing audit depth. This feature naturally links the methodology with risk assessment and resource planning.

Another important element of the methodology is the three-tier materiality structure. Overall materiality is the main threshold for the entire audit. Performance materiality is set below overall materiality to address the risk of accumulation of undetected errors. The trivial threshold is determined as a small proportion of performance materiality, usually 5%, below which misstatements are not accumulated. Figure 2 shows these three levels for the A-OTM object: overall materiality is UZS 1,250 million, performance materiality is UZS 625 million, and the trivial threshold is UZS 31.25 million (Figure 2).

2 Prepared by the author

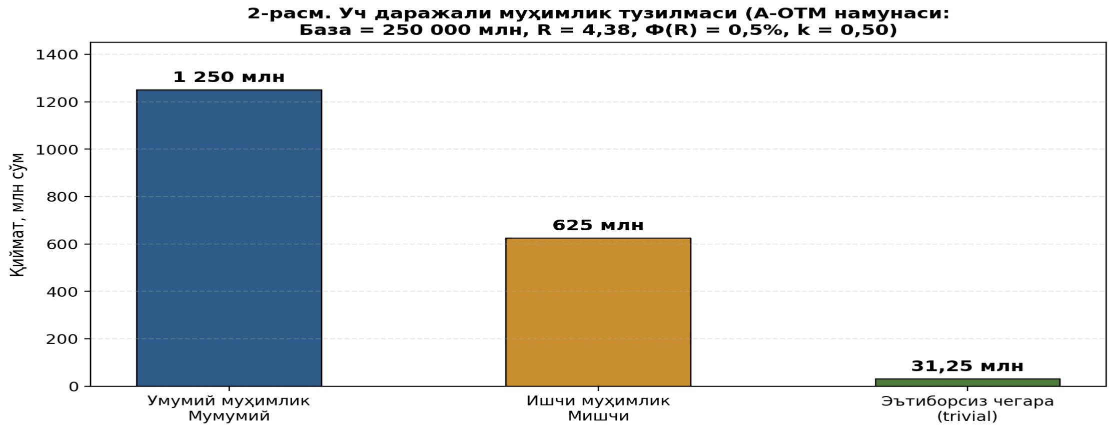

Figure 2. A three-level importance structure[3]

The advantages of the proposed methodology over current practice are as follows. First, it ensures objectivity and documentation: the materiality threshold is calculated based on a clear formula and input data, which makes it possible to justify the threshold in audit documentation and subject it to external review.

Second, the methodology is risk-oriented: materiality is adjusted according to the risk level of the audit object, thereby directing audit resources toward areas with higher risk. Third, it ensures consistency: a unified methodology determines materiality according to the same principles for different auditors and audit objects, increasing the comparability of audit results.

The fourth important advantage of the methodology is international comparability. Since the concepts of overall materiality and performance materiality, as well as the logic of their calculation, comply with the requirements of ISA 320 and ISSAI 2320, the results obtained using the methodology are comparable with international audit practice. This helps bring the quality of public sector audits closer to international standards and facilitates cooperation with external auditors.

In addition, the methodology is closely linked to the risk assessment methodology: determining the risk score R serves as the starting point for calculating materiality, and these two methodologies form a unified methodological system.

When implementing the methodology in practice, certain organizational conditions should be observed. The exact values of materiality percentages F(R) and coefficients k should be adjusted according to the characteristics of each sector and organization and reviewed periodically. It is also important to use the organization's financial reporting data when selecting the materiality base and to determine the base consistently. When these conditions are met, the methodology turns the determination of materiality into a transparent, justified, and repeatable process.

The difference between the proposed methodology and traditional practice can be clearly demonstrated through comparative analysis. In the traditional approach, materiality is often not defined at all or is estimated based on experience, is not linked to risk, and is not documented. In the proposed methodology, materiality is calculated using a specific formula, linked to the level of risk, structured into three levels, and fully documented (Table 3).

Table 3
A comparison of traditional and proposed approaches to determining significance[4]

Meson	Traditional practice	Proposed methodology
A method of determining significance	Based on experience, it is determined approximately or not at all.	The exact formula is calculated by (Base × Φ(R))
Risk-related	Unbound; same approach to all	Inversely related to risk
Structure	Single border or none at all	Three levels: general, working, neglected
Documentation	Few; hard to justify	Complete; reflected in the work documents
International comparability	Limited	In accordance with ISA 320, ISSAI 2320

3 Prepared by the author
4 Author development

Comparative analysis shows that the proposed methodology eliminates the main shortcomings of traditional practice. Instead of subjectivity, it provides formula-based objectivity; instead of an approach unrelated to risk, it ensures risk orientation; and instead of undocumented judgment, it provides full documentation.

The documentation of materiality is particularly important in external assessments of audit quality, such as quality assurance reviews, where it is necessary to justify how the materiality threshold was determined. Under the traditional approach, such justification is often difficult to provide, whereas in the proposed methodology materiality is reflected in working papers as a precise calculation and can be verified at any time.

To assess the stability of the methodology, a sensitivity analysis was performed for changes in the materiality percentage and coefficient. When the materiality percentage F(R) was tested within normative limits, overall materiality and performance materiality changed proportionally, while the relative structure of materiality by risk category remained stable: stricter for high-risk objects and more flexible for low-risk objects. This shows that the main logic of the methodology is based not on the exact numerical value of the percentages, but on the principle of the inverse relationship between materiality and risk. Thus, even if each organization adapts the percentage and coefficient values to its own characteristics, the main idea and advantages of the methodology remain unchanged.

It should also be noted that the correct selection of the materiality base has a significant impact on the results. If the base is selected incorrectly, for example, if an indicator that does not fully reflect the scale of activity is used, the materiality threshold will also be inaccurate. Therefore, it is important to choose a stable and comprehensive indicator, such as total expenditures, as the materiality base. In addition, automating the calculation of materiality using data from information systems, including treasury and accounting systems, makes it possible to determine the base objectively and speed up the calculation process.

CONCLUSIONS AND RECOMMENDATIONS

The results of the study lead to the following conclusions.

First, in the internal audit practice of budgetary organizations, determining the level of materiality often lacks a systematic and documented basis and is not linked to the risk level of the audit object. This may lead to an insufficiently justified determination of audit scope and sample size.

Second, as a solution to this problem, a methodology linking materiality to risk was proposed. Overall materiality is calculated using the formula M_overall = Base × F(R), while performance materiality is calculated using the formula M_perf = M_overall × k, where k = 0.50–0.75.

Third, the methodology introduces a three-tier materiality structure: overall materiality, performance materiality, and the trivial threshold. This structure helps reduce the risk of accumulation of undetected misstatements and adjusts materiality to the risk level through both the percentage rate and the reduction coefficient.

In conclusion, the risk-based materiality methodology is an important tool for improving the quality of internal audits in budgetary organizations. It focuses the auditor's attention on significant violations, allocates audit resources in proportion to the level of risk, and provides documented support for audit conclusions. The simplicity of the methodology, its compliance with international standards, and its potential integration with information systems make it suitable for broad implementation. Therefore, this methodology may serve as an important methodological basis for improving internal audit in the public sector and contribute to raising audit activities to a qualitatively new level.

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