

Indicators of Threats to the Accounting System When Assessing Information Security of an Enterprise

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Abstract: The article substantiates the possibility of determining the level of security of the accounting system by means of indicators reflecting its threats. Based on the results of the analysis of the structure of threats to the accounting system proposed by Russian scientists, the author specified four groups according to the criterion of the structure of threats (informational, methodological, personnel-organizational and technical) and two groups according to the criterion of influence on reliability of financial information (directly and indirectly influential). The author concluded that it is necessary to build indicators for threats that have a direct impact on qualitative properties of information and formulated principles of their construction: validity, measurability, simplicity. The article presents a system of indicators offered by the author for each threat to the accounting activity. The developed indicators correspond to the stated principles. A model for assessing the level of security of the accounting activity was offered, this model includes the level of general materiality, determined both for the purpose of monitoring the reliability of financial information and for organizing accounting.

1 INTRODUCTION

At the turn of the 20th and 21st centuries financial and economic crises began to be permanent. The implementation of entrepreneurship in crisis conditions led to rapid development of activities to ensure the economic security of systems of different levels from enterprises to states. This circumstance predetermined formation of a system of legal regulation of activities in this area, including risk management and reporting: COSO ERM 2017, ISO 31000: 2018, "Principles for effective risk data aggregation and risk reporting" (Basel Committee on Banking Supervision, 2013), Integrated Reporting (International Integrated Reporting Council), IFRS 7 Financial Instruments: Disclosures, IFRS 9 Financial Instruments, etc. These acts regulate the procedure for the provision of information by enterprises about the risks in which they conduct their production, financial, commercial and investment activities. However, scientists and experts note the presence of risks when implementing activities related to formation of information, for example, accounting (Borimskaya E.P., Granitsa Y.V., Demina I.D., Ishchenko O.V., Merkutsenkov S.N., Panchenko I.A., Stafievskaya

M.V., Khodarinova N.V., etc.). There is also a professional opinion that the information contained in financial reports makes it possible to identify business risks (Avdiyskiy V.I., Granitsa Y.V., Demina I.D., Merkutsenkov S.N., Trushanina A.D., etc.). Scientists offer various indicators of threats to business, calculated on the basis of information contained in financial reports (Avdiyskiy V.I., Granitsa Y.V., Demina I.D., Merkutsenkov S.N., Trushanina A.D., etc.). However, there are currently no works in which indicators characterizing the level of threats to the actual accounting activities are presented.

Due to the lack of studies on assessing the impact of threats to the accounting activity on reliability of information in financial reports, it seems appropriate to confirm or reject the following hypothesis: assessment of effectiveness of the accounting activity through indicators of its threats will allow assessing the level of reliability of financial information provided to users.

The purpose of our study is to develop indicators of threats to the accounting activity on formation of financial information about the activities of the enterprise. In accordance with this goal, the following research objectives were identified:

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- to form and systematize threats to the accounting activity;
- to build up indicators of threats to the accounting activity;
- to develop an indicator of the security level of the accounting system.

and control, economic security. When building indicators of threats to the accounting activity, methods of economic modeling were used. When building a model for assessing the level of safety of the accounting activity, methods of mathematical modeling were used.

The study is based on a logical analysis of scientific works on the risks of the accounting activity of business entities.

2 MATERIALS AND METHODS

The methodological basis of the study is the fundamental provisions of the theory of accounting

Table 1: Classification of threats to the accounting activity

Types of threats to the accounting activity	Threat structure
Information	<ul style="list-style-type: none"> - lack of support for transparency and openness on the part of people who generate information (Avdiyskiy and Trushanina, 2019); - information distortion (Borimskaya and Panchenko, 2013; Naam and Rozhkova, 2020; Sungatullina and Gogoleva, 2014); - leakage of confidential information (Borimskaya and Panchenko, 2013); - untimeliness, unreliability of external information (Naam and Rozhkova, 2020)
Personnel	<ul style="list-style-type: none"> - insufficient knowledge of heads of the accounting department, their insufficient competence (Borimskaya and Panchenko, 2013); - low professional level of accounting employees (Borimskaya and Panchenko, 2013); - leakage of confidential information due to the fault of the accounting department workers (Borimskaya and Panchenko, 2013); - manipulations with accounting documents and reports (Borimskaya and Panchenko, 2013); - deliberate violation of tax legislation, including an unjustified reduction in the tax burden (Borimskaya and Panchenko, 2013; Sungatullina and Gogoleva, 2014); - recording in documents unacted facts of the economic life (Borimskaya and Panchenko, 2013); - technical errors in accounting (Naam and Rozhkova, 2020); - corruption schemes using official powers (kickbacks, bribes, commercial bribery) (Borimskaya and Panchenko, 2013)
Methodological	<ul style="list-style-type: none"> - accounting methodology (Borimskaya and Panchenko, 2013); - violation of principles and rules of accounting (Borimskaya and Panchenko, 2013); - incorrect accounting policies (Sungatullina and Gogoleva, 2014); - financial miscalculations when choosing accounting methods regulated by accounting and financial reporting standards (Borimskaya and Panchenko, 2013); - incorrect content, procedure for formation and presentation of the company financial reports to external users (Sungatullina and Gogoleva, 2014)
Organizational-technical	<ul style="list-style-type: none"> - violation of confidentiality (Avdiyskiy and Trushanina, 2019); - violation of the storage regime for accounting information that constitutes the commercial secret (Borimskaya and Panchenko, 2013); - absence or non-compliance with internal control rules, including control over the accountant's activities (Borimskaya and Panchenko, 2013; Bezdenezhnykh, Bezdenezhnykh & Karanina, 2020; Grytsay and Havran, 2020; Plikus, 2017); - outdated information technologies that do not correspond to processing, storage and presentation of accounting information to individual groups of users (Borimskaya and Panchenko, 2013); - violation of the document flow regime (Borimskaya and Panchenko, 2013); - incorrect Regulation on the accounting service of the enterprise (Sungatullina and Gogoleva, 2014); - non-recording of facts of the economic life in documents (Sungatullina and Gogoleva, 2014)

3 RESULTS AND DISCUSSION

The International Standard "Integrated Reporting" regulates the obligation of the enterprise management to inform users of these reports about risks in which management will perform activities to create a product in short-term, medium-term and long-term periods. Also, this reporting discloses tools for leveling these risks. The procedure for generating information about risks involves, firstly, identification of information about risks, secondly, its selection from incoming information, thirdly, appropriate processing (classification, systematization, transformation), fourthly, presentation of outgoing information in various formats (financial reports, explanation reports, integrated reports).

A part of information on risks presented in the financial and explanation reports is processed in the accounting system, which is a part of the general information system of the company. In addition, the

accounting activity, like other types of activities (production, financial, commercial, etc.), is subject to various threats, implementation of which may lead to formation of inaccurate financial reports. Therefore, many scholars identify accounting risks (Avdiyskiy & Trushanina, 2019; Borimskaya & Panchenko, 2013; Grytsay & Havran, 2020; Naam & Rozhkova, 2020; Stafievskaya, Nikolayeva ets, 2015; Sungatullina and Gogoleva, 2014).

To build a system of indicators of threats to the accounting activity, it is necessary to define the concepts that underlie it. We understand a risk in economic security as a result of implementation of a threat, namely material or financial damage that may be caused to the company. At the same time, a threat is a disadvantageous event, an action that is likely in nature and which employees of the company can influence and prevent. In information security or information system security, a risk can be viewed as a loss of information properties, such as reliability.

Table 2: Indicators of threats to the accounting activity

Types of threats to the accounting activity	Threat structure	Indicators
Information	untimeliness of external information	valuation of objects that are recorded in external information and should have been included in the financial reports (I ₁)
	unreliability of external information	degree of distortion of valuation of objects (I ₂)
Personnel	violation of tax legislation	amount of claims filed by tax authorities based on the results of tax audits (I ₃)
	recording in documents unacted facts of the economic life	valuation of unacted facts of the economic life recorded in documents (I ₄)
	technical errors in accounting	valuation of technical errors in accounting (I ₅)
Methodological	violation of principles and rules of accounting, regulated by the accounting policy	valuation of violations of accounting principles and rules (I ₆)
	incorrect accounting policies	amount of deviations from the regulated methods and accounting methods (I ₇)
	financial miscalculations when choosing accounting methods regulated by local acts	value of deviations of the chosen from the rational accounting method (I ₈)
	incorrect content, procedure for formation and presentation of the company financial reports to external users	valuation of errors made in the procedure for creation and presentation of financial reports (I ₉)
Organizational-technical	absence or non-compliance with internal control rules, including control over the accountant's activities	valuation of errors in accounting and financial reporting missed by the internal control system (I ₁₀)
	violation of the document flow regime	valuation of objects recorded in documents, executed and transferred with violations of the workflow schedule (I ₁₁)
	non-recording of the facts of the economic life in documents	valuation of facts of the economic life not recorded in documents (I ₁₂)
	loss of primary accounting documents	valuation of objects recorded in lost primary documents (I ₁₃)

Of course, risks in the form of financial losses (for example, for compensation for moral damage, etc.) and material losses (for example, loss of structural elements of IT systems) remain relevant for information security. In this article, we will focus only on the loss of information properties - its reliability, which is closely related to the concept of materiality.

We systematized lists of accounting threats presented by the authors based on the dualistic nature of accounting (as a type of activity and information system) into four groups: information, organizational-technical, methodological and personnel (Table 1).

Problems of indicative assessment of the level of safety are considered by many scientists (Karanina, Ryazanova & ets. 2018). When constructing a system of indicators characterizing the safety of the accounting activity, we use four basic principles that we proposed earlier (Karzaeva & Davydova, 2020):

- relevance of indicators to the content of a specific threat;
- measurability, preferably in natural or monetary units;
- validity of indicators;
- simplicity of their calculation.

The analysis of the structure of these threats in order to build indicators allowed to divide them into two groups: 1) directly influencing a decrease in the level of reliability of financial information and 2) indirectly influential. Rationality of organization of the process of assessing the level of security of the accounting activity supposes development of indicators only for the first group of threats (Table 2).

In addition, indicators are built to assess reliability of information contained in financial reports; therefore, the structure of threats includes only threats that influence its indicators. We also excluded threats that generalize other threats, for example, distortion of information, accounting document and report manipulation, a particular case of which is the failure to reflect facts in accounting documents.

Indicators are built on the basis of data for the previous reporting period, usually it is a calendar year. The possibility to use the indicators expressed in terms of valuation allows to compare them with the level of materiality, which is of great importance for perception of users of information contained in financial reports. We proposed methods for constructing the level of materiality earlier in our works (Karzaeva, 2019). Here we only note that the comparison of the sum of particular indicators of threats to the accounting activity (I) with the given

general level of materiality (M) will allow to assess the level of security of the accounting system (K).

$$\sum_1^{12} I - M = K$$

If the difference between the sum of particular indicators of threats to the accounting activity and the specified level of materiality is higher than zero, the level of security of the accounting system can be considered satisfactory. If this difference does not reach zero, the security level of the accounting system is unsatisfactory.

4 CONCLUSIONS

As a result of the study, the following main conclusions were formulated:

- threats to the accounting activity for the purpose of monitoring and organizing activities to prevent them should be systematized according to a meaningful criterion in four groups: information, personnel, methodological and organizational-technical;
- threats to the accounting activity in order to construct their indicators should be divided according to the criterion of the degree of influence on financial reports indicators into two groups: directly influencing a decrease in the level of reliability of financial information and indirectly influential;
- with the purpose of rational organization of the process of assessing the level of security of the accounting activity, develop indicators only for threats that directly influence a decrease in the level of reliability of financial information;
- indicators of threats to the accounting activity can be measured in value;
- comparison of the sum of particular indicators of threats to the accounting activity with the general level of materiality allows us to assess the level of security of the accounting system.

The conclusions confirm the hypothesis of the possibility of assessing the security of the accounting activity by means of indicators of its threats and, accordingly, assessing a possible decrease in the level of reliability of financial information provided to users tested in this study.

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