Improving the Detection of Risk of Non-detection during the Audit of Tax Reporting

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Abstract. The controversial nature of the methodology for assessing the detection risk in tax audits and profound interest of organizations in improving the methodology determined the research goal, the development of a detection risk assessment methodology. We used the Block-wise Selection method, the Key Elements method, the Main Array method, as well as provisions of the information asymmetry theory. We developed the methodology for detection risk assessment in tax audits; proved that there is a correlation between the information asymmetry theory and the more efficient company management process. The practical relevance of the study of the detection risk assessment methodologies on the example of two companies that use the general and special taxation systems proved the causal relationship between the information asymmetry theory and the validity of the owners' managerial decisions. The practical usefulness of the results obtained: the study made it possible to arrange the company management process more efficiently, boost the company's profitability, and minimize the company's risks when audited by the supervising tax body. The methodologies allowed improving the tax audit risk assessment theory.

Keywords: audit risk; risk assessment; tax audit; combined non-statistical methods; general tax system; special tax system; the asymmetry theory

JEL Classifiticaon: M42, C65, H25

I.   INTRODUCTION

In the current conditions of the global economic crisis, independent tax audit is an important and economically justified line of audit that allows mitigating the risk of tax-related losses of companies. The demand for tax audit is higher compared to the demand for accounts audit.

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This is due to the users' considerably growing interest in tax return validation aimed at optimizing tax payments and mitigating tax-related risks. The valid returns allow companies to provide their supervising tax bodies with the most complete information on the timely calculation and payment of taxes.

By the kind of information reporting is divided into the accounting, statistical, operating and tax one (Akhmetshin & Osadchy, 2015). Since mplementation of dual system of financial reporting, business entities prepare one set of financial statements for external users (such as shareholders, creditors), and the other set of financial statements for state institutions (such as tax authorities) (Subačienė et al., 2018). To obtain complete information on tax reports, of critical importance is the achieved level of tax audit risk, which can make it possible to provide a relevant audit opinion on the validity of the tax return in the audit report. Besides, Russian population's involvement in shadow economy is three-pronged: wide-scale illegal economic activity; tax evasion by being paid part of a salary in cash 'under the counter'; and participation in corrupt payment practices when receiving services from public servants (Osipov et al., 2018). In view of this, the audit risk assessment that can ensure a better effectiveness of decisions made by the company management is of great value. Currently, the most relevant issue is the lack of uniform scholarly views of the detection risk assessment in tax audits.

The relevance of the research subject and the inadequate state of knowledge of these issues allowed us to define the goal, objectives, and structure of this study.

The research goal consists in developing the theoretical provisions and practical recommendations for improving the tax audit detection risk assessment methodology that can prove the connection between the reliable tax return and the more efficient managerial decision-making by the owners who are the main consumers, based on the tax audit results.

II.   LITERATURE REVIEW

For the current state of international audit standards, the issues of detection risk assessment in tax audit still remain a disputable and poorly investigated problem, being a serious obstacle for the audit detection risk methodology development.

Currently, there are no developed and implemented concepts in the field of tax audit risk assessment that would make it mandatory to take into account the information asymmetry in order to optimize managerial decision-making.

The subject of this paper, "Improvement of the Methodology for the Detection Risk Assessment Methodology in Tax Audits", was chosen due to the disputable nature and irrelevant scope of study of such a methodology.

The scholars Appelbaum, KoganandVasarhelyi (2018), Gepp, Linnenluecke, Terrenceand Smith (2018), Harris & O'Brien (2018), Hoffman, Sellersand Skomra (2018), Dickins, Johnson-Snyder and Reisch (2018), Hooi, Tronnesand Wong (2018), Brushwood, Johnstonand Lusch (2018), Brandhorst&Kluge (2018), Zamboni & Litschig (2018), Shahzad, Ghulame, El-Temtamy and.Osama (2018), Eleftheriou (2018), Juan, Mendoza and Kirchler (2017), Kuchumova (2017), Mittone, Panebiancoand Santoro (2017), Oestreich (2017), Assidi, Aliani

and Omri (2016), Kogler, Mittone and Kirchler (2016), Hung, Agnes and Lo Phyllis (2015), Rus (2015), Zaiceanu, Hlaciuc and Cioban (2015), Incardona, Kannan, Premuroso, Higgs and Huang (2014) studied the issues of the financial audit theory in their publications, but did not pay due attention to the methodology of detection risk assessment in tax audits. It is worth noting that the audit of tax returns is one of the most critical types of tax audit.

Within the framework of this research, we developed the methodology for detection risk assessment in the audit of tax returns.

The problem of information asymmetry was investigated by foreign scholars: Vickrey (1960), Akerlof (1970), Stiglitz (2003), Grossman and Stiglitz (1980).

In the 1960th, the American scholar William S. Vickrey proposed to categorize the optimal income taxation system based on motivation (when tax payers identify their professional activities using the taxation scale) and with account of the information asymmetry (as the government does not have the information on the actual labor productivity of the tax payers) (Vickrey, 1960). However, William S. Vickrey eventually failed to prove his theory mathematically (Vickrey, 1960).

In our opinion, this theory can be used in detection risk assessment at tax audits. We believe that the level of the achieved detection risk can serve as the basis for business owners and other users in order to obtain the information on the values of valid tax returns, which enables them to take managerial decisions more efficiently.

In the early 1970s, the American economists Joseph E. Stiglitz and George A. Akerlof greatly contributed to the asymmetrical information theory (Spence, 1973), (Stiglitz, 2003), (Akerlof, 1970).

Their theory was based on the assumption that any market-based economy must be balanced, with all of their elements being interdependent, allowing the system to achieve integrity and equilibrium. However, it is impossible to fully achieve the system's equilibrium with insufficient and unreliable information on how to harmonize the demand and offer by quick adjustment of prices (Spence, 1973), (Stiglitz, 2003), (Akerlof, 1970). From our point of view, these theoretical models can be used for tax audits in order to minimize the tax burden affecting the pricing policy of the company. If the owners and executives of the audited company are timely informed on the validity of their tax return according to the audit report based on the audit opinion in accordance with the achieved detection risk level, particularly with respect to the taxation of sales of products, works, and services, they are able to choose the most optimal solution based on their calculation of the company's tax burden that affects the market price for their products, thus raising the demand for the key segments of the company's activity, and to optimize the taxes on sales of their products, works, and services.

The problem of asymmetrical information was analyzed by Joseph E. Stiglitz on the example of insurance companies (Stiglitz, 2003). Joseph E. Stiglitz developed a reverse market adjustment mechanism, when the underinformed market players can obtain it from the better-informed ones. The insurance company (the less informed party) should motivate its clients (the better-informed party) more efficiently in order to make them share the information on their insurance risks (Stiglitz, 2003). Joseph E. Stiglitz jointly with Sanford Grossman investigated the efficiency of financial markets. The result of the analysis is known as the Grossman-

Stiglitz paradox: if the market is efficient in terms of informativeness, that is all the required information is determined at the level of prices, then none of the market players has any effective stimuli to use the information contained in the prices (Grossman & Stiglitz, 1980).

In our opinion, Joseph E. Stiglitz' model of markets with the asymmetrical information is best adapted to the tax audit risk assessment. It means that if the owners and executives of the audited company have the information on the valid tax return based on the achieved detection risk level, they can timely and promptly take managerial decisions to reduce and minimize the tax risks.

We are the first to propose to use the developed methodology for detection risk assessment in tax audits in order to prove the interrelation between the information asymmetry theory and the more efficient implementation of managerial decisions of owners based on the tax audit results.

III. METHODS

In order to achieve the research goal, we had to accomplish the following objectives:

1) develop the methodology for detection risk assessment in tax audits, using a combination of non-statistical methods for the determination of the expected error in the tax returns of the audited company;

2) develop practical recommendations for the application of the methodology for detection risk assessment in tax audits for organizations using different taxation systems.

We used the detection risk assessment results obtained during the tax audit of the LLC SSK company, which uses the general taxation system, and the LLC Liovar company, which uses the simplified taxation system, as the experiment basis and the research sample (Note: LLC is the abbreviation for a limited-liability company as identified by Russian laws).

To prove the existence of the interrelation between the information asymmetry and the company management efficiency, we developed the detection risk assessment methodology.

The detection risk at tax audits was assessed using a combination of non-statistical methods for the expected error determination in the tax returns of the audited company. When this methodology is applied to companies using different taxation systems, the auditor has a different scope of information on the nature of error distribution in the sampled population that affects the interrelation between the owners' awareness regarding the tax return validity according to the tax audit results and a more justified managerial decision-making by them.

IV. RESULTS AND DISCUSSION

To investigate this feature, we assessed the detection risk for the general and special taxation systems applied in the companies.

First, we assessed LLC SSK for the detection risk in tax audit.

For this purpose, we analyzed the population scope based on the profit and loss statement and corporate income tax return of LLC SSK.

The profit and loss statement includes the following (Table 1):

Table 1.

Profit and Loss Statement Data of LLC SSK

	Description	Amount, in thousand rubles	%
	Revenue	15,501	49.95
	Cost of revenue	15,486	49.9
	Gross margin	15	0.05
	Sales profit (loss)	15	0.05
	Profit (loss) before tax deduction	15	0.05
	Total	31,032	100

The inhomogeneous population of operations is divided into 5 subpopulations by the financial statement lines.

The significance level for the given population equaled to 800 rubles.

Then, we performed a 100% examination of the total of all revenue indication operations (15,500,000 rubles) by the Main Array and Key Elements methods. For these methods, the expected error of the population K was taken as equal to the cumulative error in the sample k according to the formula (1):

$$Kg1 = k_{\text{в}} \qquad (1)$$

The expected error of the population component based on the formula (1) equaled to Kg1 = 150,000 rubles (unreasonable indication of data of the revenue line of the profit and loss statement).

The total of the operations of the cost of sales indication (15,486,000 rubles) was checked by the Block-wise Selection method based on the assumption that it contained regular errors. Next, we selected the cost-of-

revenue documents for a period of one month. Having verified the documents, we spotted an error in the calculation of the cost of revenue: k_B = 100,000 rubles.

The expected error of the population in this case was found as the product of the cumulative error of the sample and the proportion of the population volume and the sample by the formula (2):

$$Kg\ 2 = \frac{Qg}{Q_B} \times k_B, \tag{2}$$

where $Kg\ 2$ is the expected error of the population (in rubles); Qg is the population scope (in physical terms); $Q_в$ is the sample scope (in physical terms); $k_в$ is the error of the calculation of the cost of revenue for a period of one month.

Based on the formula (2), the expected cumulative error made:

$$Kg2 = \frac{12}{1} \times 100,000 = 1,200,000\ rubles$$

Using the Key Elements method, we checked the total of gross margin recognition operations (15,000 rubles), income on sales (15,000 rubles) and profit (loss) due to taxation (15,000 rubles).

The expected error of the general population Kg is equal to the cumulative error in the sample $k_в$.

The assumed population errors based on the formula (1) equaled to:

- Kg3=200 rubles;
- Kg4= 200 rubles;
- Kg5= 200 rubles.

Next, we calculated the expected error of the general population using the formula (3):

$$Kg = Kg1 + Kg2 + Kg3 + Kg4 + Kg5 \tag{3}$$
$$Kg = 150,000 + 1,200,000 + 200 + 200 + 200 = 1,350,600\ rubles$$

The detection risk value equaled to 4.3 %, which means it is necessary to revise the audit procedures to minimize the detection risk to an acceptable low level.

According to Table 2, the corporate income tax return includes (Table 2):

Table 2.

Data of the Corporate Income Tax Return

	Description	Amount, in rubles	%
	Sales income	15,501,179	49.97
	Expenses reducing the sales income	15,485,692	49.92
	Profit (loss)	15,487	0.05
	Taxable income	15,487	0.05
	Assessed tax	3098	0.01
	Total	31020943	100

Taking into account the population of operations by the lines of the corporate income tax return, we split it into 5 subpopulations.

The significance level for the given population equaled to 154.9 rubles.

Further, we checked the total of all sales income indication operations (15,501,179 rubles) based on their 100% examination by the Main Array and Key Elements methods. The expected error of the population L was taken as equal to the cumulative error in the sample l according to the formula (4):

$$Lg\ 1 = l_\text{в} \tag{4}$$

The assumed population error based on the formula (4) equaled to: Lg 1 = 150,000 rubles.

The total of the operations of indication of the expenses reducing the total sales income (15,485,692 rubles) was analyzed by the Block-wise Selection method. The documents for the calculation of these expenses for a period of one month were taken as one block. Having checked the documents, we spotted an error in the calculation of the expenses: m = 100,000 rubles. The expected error of the population was found by the formula (5):

$$Lg\ 2 = \frac{L}{l} \times m, \tag{5}$$

where $Lg\ 2$ is the expected error of the population (in rubles);L is the population scope (in physical terms);l is the sample scope (in physical terms);m is the expense calculation error for a period of one month.

Based on the formula (5), the expected cumulative error made:

$$Lg\ 2 = \frac{12}{1} \times 100{,}000 = 1{,}200{,}000\ rubles$$

Using the Key Elements method, we checked the total of profit indication operations (15,487 rubles) and the taxable income (15,487 rubles).

Based on the formula (4), the assumed population errors equaled to:

- Lg3=100 rubles;
- Lg4=100 rubles

Further, we used the Block-wise Selection method to check the population of the tax assessment operations (3098 rubles). The population error of the assessment of the corporate income tax by the formula (5) equaled to:

$$Lg\ 5 = \frac{12}{1} \times 20 = 240\ \text{rubles}$$

Next, we calculated the expected error of the population according to the formula (6):

$$Lg = Lg1 + Lg2 + Lg3 + Lg4 + Lg5 \tag{6}$$

$$Lg = 150{,}000 + 1{,}200{,}000 + 100 + 100 + 240 = 1{,}350{,}440\ rubles$$

The obtained detection risk value is 4.4 %. This enabled us to conclude that the auditing procedures are to be revised in order to minimize the detection risk to an acceptable low level.

We found that the detection risk value was higher than the lowest acceptable level of the risk. Therefore, it was necessary to adjust the audit procedure by increasing the sample scope and correcting the tax accounting and tax returns of LLC SSK according to the revealed errors.

Due to the high detection risk, the owners of LLC SSK need to revise their tax violation monitoring and prevention system management and, probably, replace the managers accountable for the low performance of the system.

Next, we proceeded to finding the expected error in the tax return of LLC Liovar.

For this purpose, we analyzed the population scope based on the profit and loss statement and corporate income tax return of LLC Liovar, which operates under the simplified taxation system.

The structure of the profit and loss statement is shown in Table 3 and consists of the following elements (Table 3):

Table 3

Data of the Profit and Loss Statement of LLC LIOVAR

	Description	Amount, in thousand rubles	%
	Revenue	3,237	43.6
	Cost of revenue	2,614	35.2
	Gross margin	623	8.4
	Selling costs	139	1.9
	Administrative costs	160	2.2
	Sales profit (loss)	324	4.4
	Profit (loss) before tax deduction	324	4.4
	Total:	7,421	100

Due to the inhomogeneous population of operations in the lines of the profit and loss statement, it was divided into 7 subpopulations.

The level of significance of the population was determined as equal to 16,200 rubles.

Then, we calculated the expected population error based on the profit and loss statement of LLC Liovar (Table 4).

Table 4.

Calculation of the Level of Significance for LLC Liovar based on the Profit and Loss Statement

Subpopulation of operations	Check method	The expected error of the subpopulation in thousand rubles	The expected error of the population in thousand rubles
1. Revenue	The Main Array and Key Elements methods	50	195
2. Cost of sales	The Block-wise Selection method	84	
3. Gross margin	The Key Elements method	10	
4. Selling costs	The Block-wise Selection method	5	
5. Administrative costs	The Block-wise Selection method	6	
6. Sales profit (loss)	The Key Elements method	20	
7. Profit (loss) before tax deduction	The Key Elements method	20	

The detection risk value (2.6%) is within the acceptable range of tax audit risk.

The tax return for the tax payable under the simplified taxation system includes the following (Table 5):

Table 5

The tax return data of LLC LIOVAR on the tax payable under the simplified taxation system

	Description	Amount, in rubles	%

	The cumulative total income for the taxable period	3,236,673	49.6
	The cumulative total expense	2,913,005	44.7
	The taxable income	323,668	5
	The assessed tax for the taxable period	48,550	0.7
	Total:	6,521,896	100

We divided the population of operations in the lines of the tax return for the tax payable under the simplified taxation system into 4 subpopulations.

The level of significance of the population was determined as equal to 2428 rubles.

Table 6 shows the calculation of the expected error of the population based on the data of the tax return of LLC LIOVAR.

Table 6

Calculation of the Significance Level for LLC LIOVAR based on the Tax Return for the Tax Payable under the Simplified Taxation System

Subpopulation of operations	Check method	The expected error of the subpopulation in rubles	The expected error of the population in rubles
1. The cumulative total income for the taxable period	The Main Array and Key Elements methods	30,000	216,600
2. The cumulative total expense	The Block-wise Selection method	180,000	
3. The taxable income	The Key Elements method	3000	
4. The assessed tax for the taxable	The Block-wise Selection method	3600	

period			

The obtained value of the detection risk (3.3%) is within the acceptable range of the audit risk.

Thus, the detection risk for LLC LIOVAR is reasonably low. Therefore, the owners can rest assured that the tax return indicates the reliable data on the assessed and payed tax and that the risk of tax abuse in the organization is low. In view of the above, the company has good prospects with respect to improving its performance.

V. CONCLUSIONS

The practical implementation of the methodology for detection risk assessment in the tax audits of companies that use different taxation systems established the interrelation between the information asymmetry theory, valid tax returns, and effective managerial decision-making by the company owners.

The developed methodology serves as the basis for further scientific research dedicated to the methodological support for detection risk assessment in tax audits.

The conclusions on the studied problem of improvement of detection risk represent the further development of the theory of tax audit risk assessment and can be used as the learning materials for the academic discipline of audit.

The unresolved issue for this research is the problem of correlation of the range of detection risk values in tax audits with the significance level. This problem can justify the range of values of this risk and have an impact on the respective audit opinion on the validity of the companies' tax returns.

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