

## IMPROVEMENT OF THE MODEL OF USING ANALYTICAL PROCEDURES AT INTERNAL AUDITING OF A BANK

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### Abstract

From 2014 the number of banks in Ukraine essentially decreased from 180 to 76 for 01.07.2019. The unstable situation was traced in the country for this period of time. Liquidation of 104 banks demonstrated that they couldn't manage their risks and make correct managerial decisions timely, and also the system of internal control functioned badly. Just this system includes a subdivision of internal auditing that didn't cope with timely revelation of inexactitudes, so reasonable recommendations as to managerial decisions weren't elaborated. For providing functions of internal auditing of a bank, the subdivision uses auditing procedures. They include analytical procedures that, in their turn, are principal for attaining aims of an auditing task. The article considers most urgent questions of using analytical procedures in internal bank auditing. The essence of the definition of "analytical procedures" has been considered and specified. Analytical procedures have been separated from the composition of auditing ones, and their theoretical aspect has been analyzed. The classification of methods of analytical procedures has been analyzed for getting auditing evidences. Analytical procedures consist of methods of internal system estimation and bank financial condition analysis and also analysis of their business-processes. Advantages and defects of methodical components of analytical procedures have been presented and analyzed. The stages of an auditing task have been studied. Analytical procedures are considered at three stages of internal auditing: planning, performing the engagement and resulting, demonstrated through the prism of economic analysis. International standards of the professional practice of internal auditing that regulate it are considered. Questions of working papers that generalize a result of using analytical procedures are separated.

**Keywords:** internal auditing, bank, auditing procedures, analytical procedures, auditing evidences.

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### 1. Introduction

At realizing auditing tasks, internal bank auditors use analytical procedures. Auditing evidences are formed by them. Statements, functioning in Ukraine, don't include methodical recommendations as to classification of these procedures. There is a problem of their division for applying to the concrete stage of an auditing task.

For understanding this question essentially, let's consider different points of view as to the essence of the notion:

– K. S. Surnina defines that "analytical procedures is an analysis of ratios and tendencies that is in revelation of connections between different data about the activity of a checked person and also study of its development direction" [1, p. 34].

– V. P. Bondar notes that "analytical procedures in auditing must be understood as the use of economic analysis techniques relative to financial reporting and economic information about the activity of an economic subject. Auditing procedures must be applied exceptionally at calculating economic indices and estimating the effectiveness of the activity of an economic subject, analyzing its financial condition by an auditor [2, p. 26].

– T. V. Baranovska understands analytical procedures as a "complex notion", consisting of two blocks:

a) use of analysis as a general scientific cognitive method;

b) use of economic analysis as a system of special knowledge. Analytical procedures may be realized in all types of a practical activity, their use character and composition is differentiated, depending on aim and tasks of control subjects" [3, p. 26].

– Arens, A. A., Loebbecke, J. K. and N. I. Dorosh have an idea that interprets analytical procedures as an estimation of financial information, based on studying probable ratios between

financial and non-financial data, including comparisons of written sums with expected ones, determined by an auditor [4, p. 205; 5, p. 321].

– Geoffrey D. Bartlett, Joleen Kremin, K. Kelli Saunders and David A. Wood [6] investigated the organizational structure of the internal auditing subdivision for its effective functioning.

– F. Greg Burton, Scott A. Emmett, Chad A. Simon, and David A. Wood [7, 8] studied that a managerial staff is dependent on recommendations of internal auditors, when they make quantitative estimations, as opposite to external ones.

– Clara-Iulia ZINCA (VOICULESCU) [9] notes that internal auditors may favor attaining their aims and ones of an organization by the active role in risk and corporate management.

– Defiiese P. L., Jaenicke H. R., O'Reilly V. M., Hirsch M. B. think that analytical procedures allow to conduct substantiated examinations of accounts/classes of economic operations and provide the estimation of financial information, gotten by the comprehensive analysis of a dependence between financial and non-financial information [10, p. 230].

– G. M. Chepelyuk notes that the main thing in the auditing activity is the use of information support and analytical procedures. That is why she accents that it is necessary to pay more attention to studying this question, because just they are a guarantee of the effective functioning of internal auditing in banks. Study of problems on this question will help to find solving ways [11, p. 64].

According to International standards of quality control, auditing, inspection and other insurance and associated services № 520 “Analytical procedures”, “analytical procedures are the estimation of financial information, made based on the analysis of expected mutual connections between financial and non-financial data that cover the necessary consideration of identified deviations that don't correspond to other appropriate information or essentially differ from expected values” [12].

International standards of the professional practice of internal auditing [13], of 2017 edition don't interpret this notion. In standard 2040 “Policies and Procedures” it is noted, that for managing the function of internal auditing, a manager must establish procedures. Standard 2240 “Engagement Work Program” defines that for providing the performing the engagement, procedures must be defined in a working program. But these standards don't define analytical procedures distinctly, so this question needs detail research.

The results of analyzing the works gave a possibility to reveal two approaches to interpretation of the notion “analytical procedures”:

– The analysis of economic parameters, study of deviations and their mutual connections by using economic analysis techniques (K. S. Surnina [1, p. 34], V. P. Bondar [2, p. 26], T. V. Baranovska [3, p. 26]);

– The estimation of financial information and interconnections between financial and non-financial data for determining the financial condition of a bank and analyzing the effectiveness of its activity (Arens A. A., Loebbecke J. K. [4, p. 205], N.I. Dorosh [5, p. 321], Defiiese, Jaenicke, O'Reilly, Hirsch [10, p.230], G.M. Chepeliuk [11], Geoffrey D. Bartlett, Joleen Kremin, K. Kelli Saunders and David A. Wood [6], F. Greg Burton, Scott A. Emmett, Chad A. Simon, and David A. Wood [8], David A. Wood [7], Clara-Iulia ZINCA (VOICULESCU) [9], ISA No. 520 «Analytical procedures» [12]).

Using analytical procedures, it is possible to realize the grounded analysis and to estimate a financial condition of a bank. For that it is necessary to offer a methodology for internal auditors and to separate concrete methods. Techniques of analytical procedures include general scientific ones, special research methods and ones of economic analysis that help to collect auditing evidences easier and faster with minimal losses and high effectiveness. Often only most spread methods that not always correspond to task aims are used in practice. The search for optimal ones will facilitate the auditor's work and raise its effectiveness. Time saving is very important for internal auditing, because inspections have usually a short period and objects are numerous. That is why internal auditors need the effective work, aimed at the result. The improvement of the system of parameters and elaboration of the effective method of their use will give a possibility to estimate

the activity of a bank. In further it will provide correct managerial decisions, so forms the topicality of these problems.

## 2. Materials and Methods

In the research process there were used the general scientific methods: analysis and synthesis (specification of the categorical-conceptual apparatus), induction and deduction (cognition of specification of using analytical procedures at internal bank auditing), comparison and analogue (study of the scientific thought development), grouping and classification (separation of methods of analytical procedures and their classification, according to internal auditing stages), abstraction, modeling (elaboration of a model of using analytical procedures of internal bank auditing).

Analytical procedures of internal bank auditing are represented in studies of Ukrainian scientists (K. S. Surinina [1], V. P. Bondar [2], T. V. Baranovska [3], N. I. Dorosh [5], G. M. Chepeliyk [11]) and foreign researchers (Arens A. A., Loebbecke J. K. [4], Defliese, Jaenicke, O'Reilly, Hirsch [10], Geoffrey D. Bartlett, Joleen Kremin, K. Kelli Saunders and David A. Wood [6], F. Greg Burton, Scott A. Emett, Chad A. Simon, and David A. Wood [8], David A. Wood [7], Clara-Iulia ZINCA (VOICULESCU) [9]). Their works demonstrate the ambiguity of approaches to the scientific understanding of these problems. The essential number of researchers considers analytical procedures only from the point of view of financial analysis. There is no complex and structured solution of the question of classifying methods and methodology of their use at auditing tasks stages.

The theoretical and methodological substantiation will solve growing needs of internal bank auditors in theory and practice. Within the research there will be considered performing the engagement stages and improved the model of using analytical procedures. The separated analytical procedures will form a base for getting auditing evidences by internal auditors at each of the separated stages. The solution of set tasks will condition the effective development of the bank system in whole.

## 3. Experimental procedures

Internal auditors make a complex of auditing procedures that help to estimate internal bank systems as to risks of its objects and to get correspondent auditing evidences. At conducting the internal auditing and estimating systems and business-processes of a bank, an auditor uses the following auditing procedures; inquiries; external statements; observations; repeated realization; repeated calculation; examination of means or documents; examination of material assets; inspection; scanning; identification; inventorying; questionnaire [1, p. 16]. Analytical procedures take an important part of the work of an internal auditor. The analysis, realized by auditors, gives a possibility to collect evidences about a financial-economic condition, activity results and movement of monetary assets of a bank.

Analytical procedures are used for getting auditing evidences that are information, obtained at formulating conclusions that an auditor's idea is grounded on at all internal auditing stages at:

- Determination of auditing aims;
- Estimation and description of inspection objects;
- Estimation of control arrangements;
- Inspection of the effectiveness and reliability of control arrangements;
- Conclusions making [14, p. 116].

Analytical procedures consist of economic analysis techniques, namely from the simple horizontal (use of absolute and relative deviations of an actual level of studied parameters from a base one for the calculation) and vertical (use of economic phenomena and processes by calculating a specific weight of a part to a whole, and also influence of factors on a level of resulting parameters at studying the structure) analysis to the one with using coefficients.

## 4. Results and discussion

The author approach allowed to form the own vision of analytical procedures as a totality of economic analysis techniques for estimating internal systems and conducting the comprehensive analysis of a financial condition of a bank and its separate business-processes for getting auditing evidences.

The aim of analytical procedures of internal auditing is to get auditing evidences, certain conclusions about the condition and development regularities of studied economic phenomena and processes, elaboration of offers and recommendations, necessary for making managerial decisions for providing the bank work effectiveness.

Objects of the internal auditing analytical procedures realization are financial-economic conditions, activity financial results and bank monetary assets movement.

The subject of analytical procedures of internal bank auditing is economic, organizational, informational and other conditions of objects.

The importance of analytical procedures is in the following:

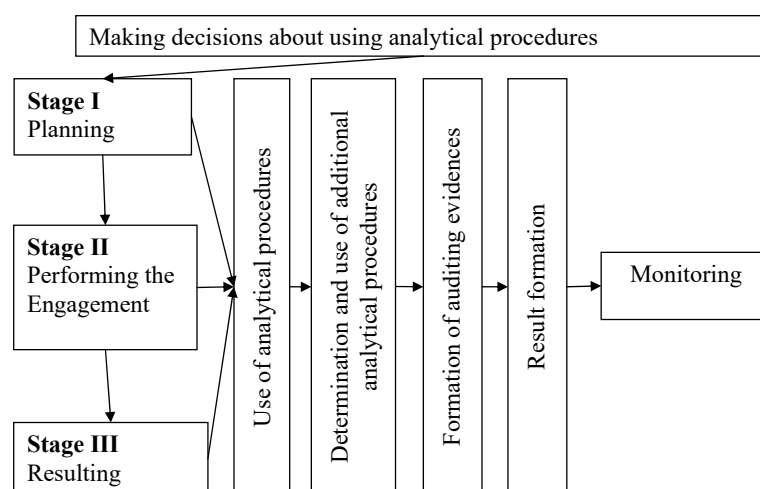
- Decrease to the labor intensity of internal auditing;
- Use of effective methods of errors revelation;
- Estimation of a risk level that an organization is ready to accept and to manage;
- Search for specific auditing evidences that are possible to be obtained only by using analytical procedures;
- Understanding of business, activity branch, essential business regularities and mutual connections between parameters.

A number, content and volume of used analytical procedures of internal auditing depend on the following factors:

- Aim of analytical procedures;
- Presence of financial and non-financial information, its accessibility and adequacy;
- Structure and content of reports (financial, internal and statistical) about the activity of banks and branch offices;
- Reliability of bank internal control systems;
- Value of estimated risks and essence level;
- Quantity and quality of a staff, engaged in the inspection;
- Professional judgment of an auditor and so on.

Auditing documents include primary documents, book entries, other confirming information. Analytical procedures must be formed by working papers. They represent results of the conducted analysis of a financial-economic condition, activity results and money assets movement of a bank, analytic information as to calculating indices (coefficients). Analytic facts may contain information of analytic, illustrative or informative destinations as diagrams or statistic data.

Analytical procedures according to the determined stages are schematically presented on **Fig. 1**.



**Fig. 1.** The model of using analytical procedures of bank internal auditing.

*Source: elaborated by the author*

According to the determined stages, the complete cycle of performing the engagement by internal auditors is demonstrated. Analytical procedures are realized at each stage, namely:

I. Planning is a process of organization and preparation to the internal bank auditing realization, according to which results a plan of the detail inspection of bank risk objects by internal auditing is formed.

According to the model, at this stage internal auditors use analytical procedures, connected with organization, namely: the analysis of a strategic plan of the internal auditing subdivision, analysis of an annual risk-oriented plan, estimation of risks, analysis of the normative-legal base of the internal auditing realization. Then an auditor can make a decision about using additional procedures that form a more distinct image. Obtained information will be reflected in working papers of an auditor and will form his/her ideas, proved by the evidential base. The result of using analytical procedures will be the working program elaboration. According to International standards of internal auditing professional practice [13, 15], “engagement work program is a document that lists the procedures to be followed during an engagement, designed to achieve the engagement plan”. A program indicates: objects, content and time of conducting planned auditing procedures. The final stage is the set tasks realization monitoring in a working program.

It is regulated by: International standards of internal auditing professional practice [13]: 2010 “Planning”, determines aims and functions of internal auditing; 2200 “Engagement Planning”, is used for planning an auditing task; 2201 “Planning Considerations”, ones that an auditor must take into account at task planning; 2210 “Engagement Objectives”, aims for each task are defined; 2220 “Engagement Scope”, the enough volume of a task for attaining aims is determined; 2230 “Engagement Resource Allocation”, resources for providing task aims are considered; 2240 “Engagement Work Program”, elaboration of the working program for realizing an auditing task.

II. Performing the engagement is a complex of expert-analytic, estimating, inspecting and other forms of arrangements, directed on providing the bank activity. It is connected with acceptance of correspondent managerial decisions and realization of functions, according to normative-legal, prescriptive, other acts and internal documents. Internal auditing is realized for providing the independent estimation of processes of corporative management, control and risk management in a bank. Based on an auditor’s idea, recommendations as to improving the internal control system and minimizing revealed risks are elaborated [16].

An auditor uses the following analytical procedures at the stage of performing the engagement in the presented model:

1) The comparison method – juxtaposition of analytic parameters for determining general and specific signs of economic phenomena, tendencies and regularities of their development:

- Horizontal analysis;
- Vertical analysis;
- Trend analysis;
- One-factor analysis;
- Multi-factor analysis.

2) Balanced method – study of the ratio of 2 groups of interrelated parameters, which results must be equal.

3) Methods of economic statistics – statistic indices are calculated:

- Method of mean values:
  - Simple arithmetical mean;
  - Chronologic mean;
  - Geometric mean;
  - Simple square mean.
- Dynamics series:
  - Base method;
  - Chain method.

- grouping:
  - typological;
  - structural;
  - analytical.

4) Mathematical-statistic methods – description of selective research data, based on mathematical-statistic techniques of verification of hypotheses and estimation of their influence.

- Correlation analysis;
- Dispersion analysis;
- Factor analysis;
- Regression analysis;
- Cluster analysis.

5) Method of expert estimations – method of prognosticating and estimating future results of actions, based on specialists' foresights.

Using these methods, an auditor compares planned and actual economic indices, studies interconnections, ratios and changes. Pluses and minuses of such techniques were considered by Omelyanchuk T. [17, p. 150], who noted that it is positive in the horizontal and vertical analysis to examine general changes in the structure of assets and their sources. At that, it is negative, that this technique gives no possibility to make variational economic decisions. The coefficient analysis complexly forms an understanding about a general financial condition by logically selected parameters, but is labor intensive.

If there is no enough information, an auditor makes a decision to use additional analytical procedures. Conclusions after using each of the methods form auditing evidences, represented in working papers by internal auditors. Although a bank has its own accounting-analytic information system, an internal auditor recreates such operations during his/her work and compares with bank data. At the final stage of the model the monitoring or observation is realized, which results serve for substantiating managerial decisions as to inspection objects.

It is regulated by: International standards of internal auditing professional practice [13]: 2300 "Performing the Engagement", the information base of realizing a task is formed; 2310 "Identifying Information", information for attaining task aims is collected; 2320 "Analysis and Evaluation" interprets that whole information must subject to the critical analysis; 2330 "Documenting Information", notes that auditing procedures are presented in working papers and are the evidence base at forming an auditing report; 2340 "Engagement Supervision", considers the quality improvement of the internal auditors' work.

III. Resulting stage – description of results, formation of auditing documents and making of an auditing report. Data are generalized in analytical memos (certificates) and auditing evidences are formed.

In the author model it is noted, that at this stage internal auditors make decisions about using main and additional analytical procedures, namely: the analysis of working papers of auditors, analysis of events after a reporting date, analysis of revealed deviations and their causes, analysis of the auditing program, analysis and estimation of the auditing evidences strength, analysis of the reasonableness of internal auditor's conclusions. The formation of auditing evidences is reflected in internal auditor's certificates. Inspection results are presented in an auditing report, were a professional judgment forms. At this stage the monitoring is realized within the control over observance of given recommendations by auditors. They elaborate a plan of arrangements and terms, in which defects must be eliminated.

It is regulated by: International standards of internal auditing professional practice [13]: 2400 "Communicating Results", considers the reporting process, according to the results of a realized task; 2410 "Criteria for Communicating", characterizes components in a report; 2420 "Quality of Communications", determines the correspondence and distinctness of reports for making correct decisions by information users; 2421 "Errors and Omissions", separates a possibility of omissions in a report; 2430 "Use of "Conducted in Conformance with the International Standards for the Professional Practice of Internal Auditing"", the use of the statement for confirming results; 2431 "Engagement Disclosure of Nonconformance", information about causes of discrepancy with

standards must be revealed in a report; 2440 “Disseminating Results”, reporting of an internal auditing manager is considered.

The auditor’s work doesn’t stop at the defined stages. It is also important to elaborate and to support the monitoring system for executive managers’ actions, realized by task results. An internal auditing manager must elaborate the process of further monitoring, which aim is to be sure that actions, realized by executive managers, are effective, or that higher managers accepted risks, having decided not to use any arrangements. If, from the point of view of an internal auditing manager, the level of residual risk, accepted by higher executive managers, is not admissible for an organization, he/she must discuss this question with higher managers. If the problem, connected with a residual risk, remains unsolved, an internal auditing manager must transmit this question for considering by the bank council [13].

It is regulated by: International standards of internal auditing professional practice [13]: 2500 “Monitoring Progress”, the control of managers’ reacting to results; 2600 “Communicating the Acceptance of Risks”, a conclusion about a risk level, unacceptable for an organization.

## 5. Conclusions

1. At realizing the internal auditing function, the three stages have been separated: planning, performing the engagement and resulting. At the planning stage analytical procedures are used for estimating a risk level, using the comparative analysis. At the stage of an auditing task the horizontal, vertical and coefficient analysis were used for studying an object. At the resulting stage, an auditor analyzes and estimates collected auditing evidences for forming an auditing report.

2. The theoretical generalization of scientific approaches to the content of the notion “analytical procedures” has been realized. It has been revealed, that they must be interpreted through the prism of economic analysis. There has been offered the model of analytical procedures of bank internal auditing that proposed steps for their use. The research results concretized and substantiated analytical procedures methods at the internal auditing stages that form auditing evidences. Based on the offered model, it is possible to elaborate methodical recommendations to their use in further studies.

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## ESTIMATION OF THE OVERALL TAX BURDEN ON THE ECONOMY IN UKRAINE

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### Abstract

The estimation of the tax burden is important, since, on the one hand, its results reflect the tax system efficiency, and, on the other hands, the level of income redistribution in the national economy. The estimation of the general tax burden level on the national economy of Ukraine should be realized through the development of forecast scenarios, based on economic and mathematical modelling. The economists have not yet sufficiently worked out the problems of the predictive assessment of the tax system efficiency through the introduction of a scenario approach, economic-mathematical modelling and extrapolation of dynamics series. It is necessary to evaluate and to develop scenarios for forecasting the level of the overall tax burden on the national economy of Ukraine. The modelling of the influence of GDP dynamics on the volume of tax revenues and a unified social tax is implemented. The method of calculating the level of the overall tax burden on the national economy is proposed. The scenarios for forecasting the total tax burden on the Ukrainian economy have been developed. It is proved that in Ukraine, by the end of 2017, one third of the revenues in the national economy is redistributed through the fiscal system, while in 2004 the tax burden made only a quarter of GDP. Thus, it is established, that over the next 5 years, the overall tax burden on the national economy will increase (growth may range from +0.9 to +4 %).

**Keywords:** direct taxation, indirect taxation, unified social tax, national economy, GDP dynamics.

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### 1. Introduction

In the context of macroeconomic instability and the debt problem aggravation, the estimation of tax burden becomes of particular importance, since, on the one hand, its results reflect the efficiency of the tax system, and, on the other hand, the level of income redistribution in the national economy. Also, the tax burden must fulfill the stimulating function, based on the effect of setting such tax rates, under which the business will receive more benefits from legal status than when doing the underground work.

To study the effectiveness of the tax system of Ukraine, it is necessary to estimate the level of the total tax burden on the national economy by developing forecast scenarios, based on the