

UDC 657.92

Nesterenko O. O.

Kharkov State University of Food Technology and Trade

**METHOD OF ESTIMATION INFORMATIVE RISK
IS ON ENTERPRISES OF RETAIL BUSINESS**

The question of calculation of informative risk is investigational on the enterprises of retail business. The model of the informative system of record-keeping of point-of-sale enterprise is developed. The method of the public accountant testing of the newest information technologies which are used in activity of enterprises of retail business is improved.

Key words: public accountant risk, informative system of record-keeping, audit, enterprises of retail business, information technologies.

Problem definition. Internal audit of trade enterprises programme is compiled at the stage of check planning, the main aim of which is identification and public accountant risk assessment.

Under paragraph 3 of the ISA 400 “Risk Assessments and internal control”: “Audit risk” means the risk that the auditor gives an inappropriate audit opinion when the financial statements are materially misstated. [1, p.367]. Such misstatements may appear due to deception or mistakes. Under ISA 400 public accountant risk has three components: inherent risk, control risk and detection risk. ISA 400 gives recommendations concerning their evaluation.

Retail enterprises activity research has shown that trade cycle uses the whole complex of different information technologies, which are aimed at producing a single corporate policy of retail enterprises development. Alongside with advantages of commerce automation system the usage of latest techniques introduces additional risk into the audit work – informational.

Internal audit must provide condition monitoring of the enterprise information security. The control is suggested to be carried out with the help of informational risk calculations which in literature is usually identified as IT- risk.

Nevertheless quantitative evaluation of informational risk is quite a complex procedure which is caused by several reasons. First of all, starting data that are necessary mainly for all types of quantitative evaluation of IT - risks are hard to collect. The collection of such data demand comprehensive understanding of all the information security threats and their impact on the enterprise assets, beginning with IT- assets and proceeding with a commercial enterprise image. This demands accuracy in recording the information security threats, and the recording must continue during a long period of time, for the data must be usable for IT-risk calculation methodology development.

Secondly, the IT environment of a modern trade enterprise includes various application softwares in order to automatize different spheres that in addition constantly undergo changes as far as operational efficiency is one of the most important advantages of a retail enterprise.

One should also admit, that it takes much time and human resources to

hold the audit evaluation of IT-risk. You also need extra time and people to analyze risk exposure. All this doesn't allow to hold quantitative evaluation of informational risk with a required periodicity.

On the modern trade enterprises the problem of evaluation of IT – risk is of high importance as it aims at building up the system which would take control over the risks. Competitive capacity of the domestic enterprises domestically and on the foreign markets depends on the effectiveness of solving this problem. Theoretical and methodological analysis of the problems aforementioned specified the relevance of the research.

The analysis of recent studies and scientific publications:

Many native as well as foreign studies are dedicated to the problem of evaluation of informational risks. Among the authors of these investigations stand: Zharikova L., I. Zhevaho, S. Matveeva, P. Strubalina, S. Deveradzha, R. Kohli, V. Zinkevych, D. Shtatova et al. Besides in the opinion of V. Zinkevych, D. Shtatova: informational risks are risks of loss, unauthorized alterations in information due to the malperformance in the information system or due to breakdowns which lead to the losses. [2, p.50].

Accepting the viewpoint of the authors, we shall consider the informational risks as risks of loss occurrence being a result of human influence as well as the influence of external events on the informative system of record-keeping and also due to the malperformance of the informative system of record-keeping on the enterprises of retail business.

Specifications of earlier undetermined parts of the issue:

Until now in spite of the existence of a great amount and variety of studies the sphere of assessment of informational risks lacked system researches dedicated to the topic of organization of audit monitoring of information systems and development of a single methodology of IT risks assessment on the enterprises of retail business which will conform to the International Standards and market demands.

Aim of the article. The article aims at developing the methodology of IT risks assessment, which will satisfy the demands of the audit and which will allow the development of recommendations for the management personnel in order to prevent the information security threats on the trade enterprise.

Results and Discussion

The first stage of informational risks evaluation is informational system and technology analysis that is used on the enterprises of retail business. The analysis allows to single out the separate packages of application software which serve to solve special assessments on different levels of enterprise management (pic. 1).

Among the enterprises of retail business on which record-keeping is computerized the majority uses the "1C COMPANY" software products, which allow to automatize the accounting of receipt, goods transfer and sale of goods on the enterprise, accounting of the income from their realization in accordance with National accounting standard. At the same time tax bookkeeping of merchandise accounts is conducted.

Preparation and placement of accountancy in electronic form using digital signature under the paragraph 49.9 of an article. 49 of The Ukrainian Tax

Code has become an obligatory demand for the taxpayer who belong to large and medium-sized businesses. At the time of information technologies and electronic methods of communication, placement of accountancy in electronic form is not only the way to ensure the transparency of relations between the tax administration and a taxpayer but also a reputation of an enterprise which thus demonstrates to the public its' reputation of a prudent taxpayer [4, p. 118-121]. In the modern context, for preparation and placement of tax accountancy, more than hundred thousand taxpayers of Ukraine use software package «БЕСТ-3BIT», among these are METRO Cash & Carry and The Coca-Cola Company in Ukraine.

Introduction of modern technologies into the audit on the domestic market is in a far worse condition. By comparison, nowadays the Russian Federation may present for about 10 varieties of software packages and their versions, among the main are such products as: AuditXP «Комплекс Аудит» of the company «Гольдберг-Софт», «ЭкспрессАудит: ПРОФ» of a consulting group «Термика», «IT Аудит: Аудитор» of the company «Мастер-Софт» etc.

Ukraine presents only three software products used for automation of auditing services, they are: adapted Russian software package «IT Аудит: Аудитор» domestic programmes «Івахненко & Катеньов Аудит» і «Турбо Аудит». The most adjusted to (adapted for) the merchandise accounts on the trade enterprise is a software complex «IT Аудит: Аудитор», «, which provides control of trade operations in the following areas : testing of application of the declared in accounting policies ways of leading of record-keeping and tax bookkeeping of merchandise accounts; review of the appropriateness of organization of accounting trade transactions; review of conducting and recording the results of the inventory of goods; testing of operations upon the entry of goods; testing of operations upon the retirement of goods.

Software package allows to import the data from the most common in Ukraine, accounting and financial software (including the accounting systems « 1С », Бухгалтерія», «Парус», «Галактика»). For maximum convenience, the system keeps methodical and normative reference database, which is updated monthly, allowing the auditors to significantly reduce the time for violations detecting and facilitate the inspection process itself, and develop internal standards on the enterprise for the conduct of the inspections by the internal audit department.

To collect the primary data required for quantitative estimations of IT risks, the internal auditor should examine all information systems that are used on the trade enterprise. Assessment of the reliability of an information system on the enterprise depends on the specifics of the work cycle, and hence on the functions of procedures. To determine the required amount of information for assessment of IT risks, there is a need to study the functional specialization of commercial activity, which is characterized by a definite volume of a certain type of work performed to meet the challenges and achieve the objectives of the enterprise. The functional approach reveals the key business processes that consist of a number of functions that form the organizational structure of commercial enterprise, according to the strategic policy (pic.2)

Each function is divided into separate components, so that the hierarchy

of functions of lower order is generated (subfunctions), which determine not only the nature of an activity, but also the ways of its implementation. General functions of the company are implemented simultaneously, continuously and in the interaction that ensures the integrity of the enterprise as a system, and thus its continuous activity [5, p. 27].

In the process of management of a trade enterprise such functions are distinguished: financial management, marketing, logistics, sales management etc. Each of the aforementioned systems forms the information flows, for which some specific forms of risks are peculiar. Development of methodology of IT risks assessment by functional approach involves the study of individual blocks of information system of a trade enterprise that reflect all business transactions and objects that take part in them (pic. 3).

Thus, the study of information system and information flows of enterprises of retail business made it possible to identify the following types of IT risks as risks associated with the technical aspects, risks associated with the systems of automation of back-office and front-office; risks which are connected with the information systems of record-keeping (ISRK), risks associated with electronic document management system, the risks associated with automation of audit.

We offer a formula to calculate the IT risk on enterprises of retail business:

$$R_{IT} = R_1 \times R_2 \times R_3 \times R_4 \times R_5, \quad (1)$$

Which R_{IT} - risks associated with the use of information technology;

R_1 - Risks associated with the technical aspects;

R_2 - Risks associated with the systems of automation of back-office and front-office;

R_3 - Risks associated with information system of record-keeping (ISRK);

R_4 - Risks associated with electronic document circulation system;

R_5 - Risks associated with systems of automation of audit.

Each of these elements is necessary to define stagewise. The risks associated with the technical aspects we offer to calculate using the formula:

$$R_1 = \sqrt[5]{R_{11} \times R_{12} \times R_{13} \times R_{14} \times R_{15}}, \quad (2)$$

Where R_{11} - risks associated with the acquisition of cheap equipment or with unreliable suppliers;

R_{12} - Risks associated with the use of illegal software;

R_{13} - Risks caused by lack of maintenance and control;

R_{14} - Risks caused by the mismatch of the characteristics of hardware and software;

R_{15} - Risks associated with the lack of system of countermeasure to voltage steps.

We offer the following formula to calculate the risks associated with the systems of automation of back office and front office:

$$R_2 = \sqrt[5]{R_{21} \times R_{22} \times R_{23} \times R_{24} \times R_{25}}, \quad (3)$$

where R_{21} - the risks posed by the usage of different software tools to automate the back- and front-office;

R_{22} - Risks associated with the lack of banknote validators at all cash registers;

R_{23} - Risks related to coding of goods with the help of internal barcodes;

R_{24} - Risks related to lack of maintenance operations and inspection technology and other trade equipment ;

R_{25} - Risks associated with errors in the design, maintenance , modification , exploitation of software for automation of front and back office.

We suggest measuring the risks associated with informative system of record-keeping using the formula :

$$R_3 = \sqrt[7]{R_{31} \times R_{32} \times R_{33} \times R_{34} \times R_{35} \times R_{36} \times R_{37}} , \quad (4)$$

where R_{31} - risks associated with lack of experience and skills of the accountant personnel to work with ISRK ;

R_{32} - Risks associated with the lack of licenses for software packages used to automate record-keeping ;

R_{33} - Risks associated with unauthorized changes of software, not tested by the developers of the software programme;

R_{34} - Risks associated with the lack of personal account passwords of the accountant personnel, which allow to determine the authorship of conducted operations, to prevent possible errors, loss and falsification of accounting information;

R_{35} - Risks associated with decentralization of databases and imperfect methods of transmitting information between departments of trade enterprises and ISRK ;

R_{36} - Risks associated with the customizability of ISRK when changes are made in accounting and tax legislation;

R_{37} - Risks related to the existence and organization of control over ISRK .

The risks associated with electronic document circulation system can be measured by the formula :

$$R_4 = \sqrt[6]{R_{41} \times R_{42} \times R_{43} \times R_{44} \times R_{45} \times R_{46}} , \quad (5)$$

where R_{41} - risks associated with signing of records with the help of uncertified digital signature ;

R_{42} - Risks associated with the preservation of information, its archiving , ease of access, encoding, decoding , limitation of the unauthorized access to it;

R_{43} - Risks associated with poor training of personnel on the enterprises of retail business, that doesn't allow to work with the appropriate hardware and software of electronic document circulation.

R_{44} - Risks associated with the use of electronic documents are not tailored to meet the challenges of trade enterprises ;

R_{45} - Risks associated with providing control over the insertion of data into the electronic documents;

R_{46} - Risks associated with decentralization of databases and imperfectness of methods of transmission of electronic documents between the departments of trade enterprise and the supply organisations.

Risks associated with the systems of audit automation are proposed to be measured by the formula :

$$R_5 = \sqrt[5]{R_{51} \times R_{52} \times R_{53} \times R_{54} \times R_{55}} , \quad (6)$$

Where R_{51} - risks associated with the lack of tools to test the software products used on the enterprises of retail business, in the automation of internal audit software;

R_{52} - Risks associated with the lack of tools to import data from the accounting software in the automation of internal audit software.

R_{53} - Risks associated with the inability to complement functional possibilities of the internal audit software, with one's own audit methodology adapted to the object of the inspection;

R_{54} - Risks associated with poor computer competence of the internal auditor;

R_{55} - Risks associated with making false conclusions by the internal auditor, because of the inaccuracies during the development, maintenance and technical support of programmes of internal audit automation.

Each of the elements of IT risk with the help of method of expert estimates is evaluated on a scale : 1- low risk , 2- medium risk, 3- high risk. The following scale of IT risk assessment was developed for the enterprises of retail business «Жизнь -97» t: from 1 to 51 - the risk is low, from 51 to 101 – the risk is medium , from 101 to 151 – the risk is high , from 151 to 201 – the risk is critical; more than 201 - the risk is extreme.

Conclusions and recommendations. The proposed model of information risk calculation allows to improve the methodology of audit testing of new information technologies that are used by the enterprises of retail business. The testing of complex software products can be carried out by technical experts. The internal auditors should verify the results of such tests and take them into account when assessing audit risk of information technologies. The effectiveness of the internal audit largely depends on the quality of electronic data processing, and full implementation of information technologies is the basis for reducing of audit risk .

Generally, materiality and audit risk are assessed both at the initial planning stage , and while summarizing the results of the audit. However, if at the beginning of the audit the internal auditor only predicts the results, then after the end of the audit he receives actual results, that may differ from projected and, as a result, the assessment of audit risk may change.

References:

1. Chernelevskiy L. M. Audit: teoriya i praktika : [navch. posibnik] / L. M. Chernelevskiy, N. I. Berenda. – K. : «Hay-Tek Pres», 2008. – 560 s.
2. Zinkevich V. Informatsionnyie riski: analiz i kolichestvennaya otsenka / V. Zinkevich, D. Shtatov // Buhgalteriya i banki – 2007. – # 1. – S. 50–55.
3. Podatkoviy kodeks Ukraini [Elektronniy resurs]. – Rezhim dostupu : <http://zakon.rada.gov.ua>.
4. Pizhik O. E. Perevagi elektronnoyi zvitnosti : zb. tez dop. Mizhnar. nauk.-prakt. konf. [Rol i mistse buhgalterskogo obliku, kontrolyu y analizu v rozvitku ekonomichnoyi nauki ta praktiki], (Kiyiv, 14 trav., 2010 r.). – K. : KNEU, 2010. – S. 118-121.
5. Yancheva L. N. Organizatsiya upravlencheskogo ucheta v trgovno-proizvodstvennyih predpriyatiyah : [monografiya] / L. N. Yancheva, A. S. Krutova, V. V. Belyavtseva. – Harkov : HGUPT, 2008 – 169 s.

Нестеренко О. О.

Харківський державний університет харчування та торгівлі

**МЕТОДИКА ОЦІНКИ ІНФОРМАЦІЙНОГО РИЗИКУ
НА ПІДПРИЄМСТВАХ РОЗДРІБНОЇ ТОРГІВЛІ**

Резюме

Досліджено питання розрахунку інформаційного ризику на підприємствах роздрібною торгівлі. Розроблено модель інформаційної системи бухгалтерського обліку торговельного підприємства. Удосконалено методику аудиторського тестування новітніх інформаційних технологій, які використовуються у діяльності підприємств роздрібною торгівлі.

Ключові слова: аудиторський ризик, інформаційна система бухгалтерського обліку, аудит, підприємства роздрібною торгівлі, інформаційні технології.

Нестеренко О. О.

Харьковский государственный университет питания и торговли

**МЕТОДИКА ОЦЕНКИ ИНФОРМАЦИОННОГО РИСКА
НА ПРЕДПРИЯТИЯХ РОЗНИЧНОЇ ТОРГОВЛІ**

Резюме

Исследован вопрос расчета информационного риска на предприятиях розничной торговли. Разработана модель информационной системы бухгалтерского учета торгового предприятия. Усовершенствована методика аудиторского тестирования новейших информационных технологий, которые используются в деятельности предприятий розничной торговли.

Ключевые слова: аудиторский риск, информационная система бухгалтерского учета, аудит, предприятия розничной торговли, информационные технологии.