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Optimize the Choice of Counteragent Based on the Application of the COSO Internal Control Model

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Abstract. The financial security of trading companies depends on the management of their assets, liquidity and solvency. The authors in this article recommend the formation of an internal control system using the COSO's international approach (The Committee of sponsoring organizations of the Treadway commission (COSO), which will help ensure efficiency a company's activities on the market. When companies are planning their business activity they may not be able to adequately assess the current level of financial security of potential foreign counteragent. This article describes the results of improved internal control of receivables using COSO's international approach. The organization may lack its own financial resources if the turnover period for receivables is high and dynamics increase. In this case, companies usually resort to short-term loans or delay payments to their creditors. Such a situation violates trust relations with suppliers, financial sanctions arise for delaying payments and other negative consequences affecting the company's business activities. Therefore, the solvency of the business entity and its business reputation depends on how quickly the funds invested in receivables turn into real money.

1. Introduction

Internal control is one of the most important elements of the enterprise management system. An effective internal control system ensures the efficiency of the company's operations, the achievement of financial and operational indicators, the safety of assets and reliability of financial reporting, compliance with the requirements of the law. Internal control allows companies to identify and minimize risks in a timely manner. Trading companies have risks: the choice of an unreliable foreign partner, non-compliance with the requirements for filling out customs documents, errors in calculations, market changes, risks in the process of goods sale, etc. That is why the creation of the internal control system is an urgent management task, ensuring the continuity of such activities. COSO's internal control model (2017) consists of interconnected components derived from business management practices that provide an effective basis for describing and analyzing the internal control system in accordance with the financial regulations such as the receivables. The internal control system of receivables is organized by the company's management. This system of measures implemented in the enterprise in order to best perform their duties to all employees in the transactions in relation to receivables. Internal controls determine the legality of these operations and their economic feasibility for the companies. Meanwhile, there are no virtually algorithms to assess due diligence of foreign companies who use international financial reporting standards, yet a thorough check of a potential business partner's due diligence is requisite before starting cooperation at international level. The control should be

started from assessing the credibility of financial reporting, since falsifying accounting data poses a direct threat to the corporate financial security.

2. Literature review

The financial security, receivables control and financial reporting falsification term has many interpretations in research literature. Issues related to the management of the financial relations of the enterprise through the internal control system, begin to be considered in the works of scientists as early as the 19th century, as it is at this time control and accounting begin to play a crucial role in the company's financial relations management. At the same time, the role of accounting and analytical information on the state of receivables in the management of the company is increasing many times. The system of corporate control began to be seen by scientists as a tool for managing the enterprise as a whole. It is especially worth noting the work of scientists of the late 20th century D. Norton and R. Kaplan [1], who developed the concept of a balanced system of indicators. This concept indicates that not only financial performance is important for the management of the company, but also indicators in the field of customer relations, business processes, as well as staff training and company growth. In opinion of V. Tambovtsev, the economic security of a given system means the aggregate of condition properties of its production subsystem providing for attaining the entire system's goals [2]. V.A. Savin believes that "economic security represents the protection system of Russia's vital interests" [3]. Article by economists S.Y. Rakutko, E.I. Denishevich; O.G. Zhitlukhina, E.I. Berezhnova, E.Y.Selezneva, E.V. Belik, N.I. Shalaeva, J.E. Saenko, A.A. Sultanova research the nature and methods of financial reporting falsification [4]. Researcher L.I. Kulikova came to a conclusion about difference in understanding of the nature of financial statement hiding and falsification in representatives of the Russian and foreign school of thought [5]. I. R. Nikolaev considered the statement falsification to be a consequence of different approaches to asset valuation [6]. A company's administration performs reporting falsification on purpose [7]. Therefore, the question about the nature of the phenomenon researched and variety of its forms remains controversial. Analysis of international practices of financial statements falsification in contemporary US companies performed by researchers L.I. Kulikova, J. Eichern [8], A.A. Gordeeva confirm the issue's urgency [8]. The authors review the cases of financial results distortion found out by Securities and Exchange Commission (USA). The researchers show the methods of financial results falsification. Binbin Deng investigates the problem of counterparty risk, central counterparty clearing and aggregate risk [10]. The author speaks of such large giants as Lehman Brothers, Bear Sterans and AIG. Their collapse during the 2008 crisis will prompt to find answers to the question of how to deal with the risk of counterparties. Lijun Bo, Agostino Capponi wrote about the counterparty risk generated from the default event of the trading counterparty [11]. The authors show that the investor does not trade if the risk of the counterparty is high enough. These and other factors make there an urgent need for an effective mechanism to protect enterprises from negative impacts that prevent negative facts of economic life. One such mechanism is the internal control system for receivables. The monitoring of receivables is carried out within the framework of management's current activities or through periodic assessments [12].

3. Research methods

Theoretical and methodological basis of the research are provisions of regulation theory of enterprises' sustainable development under diversity of forms of management and integration processes of economic activity.

The validity of the research is achieved by means of general scientific methods of analysis. Conclusions are developed thought generalization of domestic and foreign experience, abstract and logical, analytical, statistical and comparative analysis, system approach to the study of management [13], structural and functional analysis, tabular and graphical data visualization techniques.

4. Research results

Financial statement check helps to reduce commercial risks of an enterprise and prevent financial losses. Recently we proposed an algorithm for detecting falsified accounting (financial) statements [14]. At operating level and statements preparation level an effective control system and continuous monitoring of the operating environment should be established for detecting falsifications. This phase can be indicated as prevention [15].

Based on the basic concepts of 2017 COSO model, the authors have developed a system of indices for generating an information content of the subsystem of accounts receivable internal control.

The authors propose the following list of comprehensive indices for choosing and assessing the counterparty reliability:

1. Company's general financial stability (financial indices);
2. Business assessment;
3. External and internal ratings.

To assess the general financial stability of a company, the authors propose to use the following financial indices: volume of cumulative assets, amount of capital, sales volume (turnover), sales growth rate; financial independence ratio; solvency ratio; return on assets; current liquidity ratio; coverage ratio; borrowers' turnover ratio; inventory turnover ratio; net profit; asset turnover ratio; return on investment; return on equity; debt to equity ratio; company's long-term solvency ratio; and interest coverage ratio.

The business reputation is also considered. An integrated index «business reputation», which is a special intangible asset describing the value of a company's legal name and its significant client base shall also be taken into account [16]. This index is calculated as the difference between the company's acquisition cost and its net assets (fair value) [17]. This index may also be considered as an amount to be paid by acquiring company. Business reputation assessment requires the data on activity and organizational structure of a company; information about its supply of goods (works or services) and 3-year accounting statements with an auditor's opinion and breakdown of accounts payable and accounts receivable [18]. The business reputation is a special intangible asset, which describes the value of the corporate name of a company and its robust pool of clients. This index is calculated as a difference between a company's purchase price and net assets (fair value). Assessment of the business reputation requires data on the type of business and organizational structure of a company; data of supply of goods (works, services); and also 3-year accounting data with auditor findings and details on the accounts payable and receivable. It is advised to analyze business assessment and external and internal ratings of a potential partner on the basis of non-financial indices. For this purpose the data on a company's age and its market position, activity diversification, meeting the terms of liability fulfillment and stock market activity are used.

Taken all together, the foregoing indices of counterparty activity should be differentiated by the degree of their importance and assessed on the basis of a basic score, which should be further adjusted by importance rate. To illustrate the interrelation between the net profit (loss) and the balance of cash flow generated by current transactions, the ratio of cash generated by current operations (RCGCO) [19; 20].

5. Implications and recommendations

The authors propose to analyze business assessment and external and internal ratings on the basis of non-financial indices. Such analysis is usually featured by using data on a company's age, market position, business diversification, meeting the deadlines for debt settlements and also its stock market activity.

Taken all together, counterparties' activity indices are differentiated by the degree of their importance. Each index is assesses on the basic score, which is subsequently adjusted for importance rate. The standardization of singular indices is proposed to be used for establishing objective comparable numerical values. Initial indices are standardized by dividing by the reference value as follows:

$$x_{ij} = \frac{a_{ij}}{\max a_{ij}},$$ (1)

, where i – index numbers (i = 1, 2, 3, …, m);

m – number of singular indices;

j – index numbers (i = 1, 2, 3, …, n);

n – number of indices;

max – maximum (reference) value of the i-th singular index;

x_{ij} – standardized i-th singular value.

Thus, singular indices of the positive trend are standardized as follows: the higher the index value, the better the relevant parameter is assessed.

Next, the authors propose to calculate the rating score and counterparty ranking not only by the whole aggregation of singular indices, but also by each group of singular indices.

It is proposed to use additive method of criteria bundling on the basis of calculation of weighted sum of singular indices to generate group rating scores as follows:

$$R_j = \sum_{i=1}^{m} a_i X_{ij},$$ (2)

, where a_i – weight ratio of the singular index importance determined by expertise;

X_{ij} – standardized i-th singular index;

R_j – rating value (criterion) of the group index.

The summarizing rating index is proposed to be determined using the following formulae:

$$R_j = \sqrt{\sum_{i=1}^{m} A_i X_{ij}^{2}},$$ (3)

, where R_j – rating value (value of the summarizing integral index) of a counterparty;

X_{ij} – standardized i-th group index of the j-th counterparty;

A_i – weight of the group index;

i – group index number (i = 1, 2, 3, …, m);

m – number of group indices.

The results is the ranking of the counterparties being assessed, which is based on the summarizing rating index that allows to determine the rating of each foreign counterparty in the market.

Thus the authors have formed the algorithm, which implies the formation of a data set for the software of the subsystem of foreign counterparty's reliability assessment, including that in terms of control of the presence and status of accounts receivable, as follows:

1. Gathering data on a would-be counterparty;

2. Assessment of financial indices specified in financial statements, including those drawn up in accordance with the IFRS;

3. Calculation of both integral indices for groups (financial status, performance etc.) and summarizing integral index for all assessment parameters;

4. Determination of counterparty's rating with a 10-point scale in the basis of obtained integral values. The rating value is applicable to the ranking of borrowers into groups and allows to establish a debt limit for each group. It is necessary to create a software product, which could automate the handling of accounts receivable and would allow to add analytical indices and note particularly risky counterparts. The software would automatically ban a shipment to the counterparty that has exceeded the limit of accounts receivable. Subsequent shipment and deals with such counterparty would take

place on the basis of participation of the employees of a higher level of responsibility. Customized approach to dealing with borrowers will allow to effectively manage the accounts receivable within the framework of internal control of a company.

References

[1] Kaplan R 2015 Strategy-oriented Organization. How organizations applying a balanced scorecard (Moscow:: Olymp-Business) 416 p

[2] Tambovtsev B L 1995 Economic Security of Economic Systems: Structure and Issues *Bulletin of Moscow State University Series 6 Economy* **3** 3-9

[3] Savin V A 1995 Certain Aspects of Economic Security of the Russian Economy Ural *Agricultural Bulletin* **9** 14

[4] Zhitlukhina O G, Rakutko S Y, Berezhnova E I, Selezneva E Y, Belik E V, Shalaeva N I, Denisevich E I, Belik N V, Saenko Z E, & Sultanova A A 2016 *Issues of Falsifying Financial Statements in terms of Economic Security* vol 11 Issue 17 10163-10176

[5] Kulikova L I 2011 Hiding and Falsification of Financial Statements: Historic and Evolution Aspect *Mezhdunarodny Bukhgaltersky Uchet (International Accounting)* **14(164)** 56-68

[6] Rakutko S Y, & Selezneva E Y 2015 Falsifying Financial Statements in Terms of Global Market *Economika I Predprinimatelstvo* **4.(4.1)** (57-1) 581-584 (Moscow)

[7] Rakutko S Y, Denishevich E I 2015 Study of Regulatory and Methodological Basis of Estimating Credibility of Accounting (Financial) Statements *Economika I Predprinimatelstvo* **6** 623-627 (Moscow)

[8] Eichern J, Kulikova L I, Gafieva G M 2014 Methods of Financial Results Falsification Used by Contemporary US Companies Mezhdunarodny Bukhgaltersky Uchet (International Accounting) **16(310)** 58-62

[9] Gordeeva A A 2014 Methodology of Detecting Frauds in Accounting (Financial) Statements (Moscow: Vershina) 202 p

[10] Binbin Deng 2017 Counterparty risk, central counterparty clearing and aggregate risk *Annals of Finance* volume 13 Issue 4 355–400

[11] Lijun Bo 2018 Dynamic Investment and Counterparty Risk. Applied Mathematics & Optimization vol 77 Issue 1 1–45

[12] Murach E V, Selezneva E Y 2019 Assessment of receivable management as a basic element of the internal control system of the transport and logistics cluster (on the example of Rail Continent LLC) *Vector of Science of the Tolyattin State University Series: Economics and Management* **1(36)** 33-39

[13] Zhitlukhina O G, Babak L N, Rakutko S Y, Selezneva E Y, Denisevich E I, Berezhnova E I, Belik E V, Khegay E V, Gubareva O I, Mikhalyova O L 2018 Specifity of the relationship between project management and organizational culture *Journal of Entrepreneurship Education (USA)* vol 21 Issue 3 ULR https://www.abacademies.org/articles/specificity-of-the-relationship-between-project-management-and-organizational-7211.html

[14] Selezneva E Y, Rakutko S Y and Belik N V 2019 Reliability Assessment of Counteragent in Electronic Cooperation Channels International science and technology conference "Earth science". 4–6 March 2019, Russky Island, Russian Federation Accepted papers received: 4 April 2019 Published online: https://iopscience.iop.org/issue/1755-1315/272/3/ .21 vol 272

[15] Lemeshenko G L, & Temchenko O S 2012 Correction of errors in accounting and financial statements of organization *International accounting* **14** 16-22

[16] Rakutko S Y, & Selezneva E Y 2015 Financial Security in Terms of Integration of National Market into the Economy of APEC countries 2nd International Academic and Research Conference Modern Tendencies and Perspectives of Economic and Management Development Vladivostok: Russian Presidential Academy of National Economy and Public Administration pp 433-436

[17] Federal Standards of Auditing Activity 5 Auditor Responsibilities Regarding Consideration of

Unfair Actions During Auditing Consultant Plus. http://base.consultant.ru

[18] Velichenko N A, Selezneva, Goodwill E Y 2017 Analysis of Accounting and Evaluation In the collection: New Economy, Business and Society Collection of materials of the April Scientific and Practical Conference of Young Scientists Russia (Vladivostok: FEFU) 543-546

[19] Selezneva E Y, Rakutko S Y 2012 Russian Legal Acts and International Standards of Disclosure for Cash Generation Data *Innovatsionnaya Nauka* **4** 47-50 (Yakutsk)

[20] Moraes M B C, & Nagano M S 2012 Cash balance management: A comparison between genetic algorithms and particle swarm optimization (Acta Scientiarum – Technology) **34(4)** 373-379