

PAPER • OPEN ACCESS

Reliability Assessment of Counteragent in Electronic Cooperation Channels

To cite this article: E Y Selezneva *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **272** 032200

View the [article online](#) for updates and enhancements.

Reliability Assessment of Counteragent in Electronic Cooperation Channels

E Y Selezneva¹, S Y Rakutko¹, N V Belik¹

¹Far Eastern Federal University, Vladivostok, Russia

E-mail: selezneva.eyu@dvfu.ru

Abstract. National economic security is interrelated with financial security of the business structures. When planning business activity, however, economic agents may not always be able to adequately assess the current level of financial security of potential foreign counterparts. This is due to an insufficient completeness and depth of external and internal data on the current situation in the microenvironment of potential counterpart enterprise, which are available to them, and also to an unpredictable degree of the impact its changes have on the performance of an enterprise's internal mechanisms relevant to the occurrence of internal financial risks. This article describes the results of reviewing existing information systems and resources designed to assess the reliability of counterparts and states the reasons for the inadequacy of domestic information systems to assess the reliability of foreign counterparts. The authors made an attempt to develop the system of parameters to create an information product capable of providing all necessary information about a foreign counterpart to assess its reliability, which does not require substantial amount of time and money and uses electronic communication channels in a one-stop way.

1. Introduction

In today's business environment due diligence check is a decisive and essential task. When selecting new business partners, a company must be sure of their economic strength and reliability. Lack of responsibility and due caution in such matters may entail financial risks, loss of business reputation and financial losses. Nowadays corporate experts have a wide range of sources to check the due diligence of a Russian company. These sources, however, tend to be a stream of both structured and non-structured information. There are virtually no 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 check should be started from assessing the credibility of financial reporting, since falsifying accounting data poses a direct threat to the corporate economic security.

2. Literature Review

The economic security, aggregate risk and financial reporting falsification term has many interpretations in research literature. For instance, 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" [1]. V.A. Savin believes that "economic security represents the protection system of Russia's vital interests" [2]. Papers 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 [3]. 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 [4]. I. R. Nikolaev considered the statement falsification to be a consequence of different approaches to asset valuation [5]. According to Y.V. Sokolov, a company's administration performs reporting falsification on purpose [6]. 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 [7], 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 [9]. The author speaks of such large giants as Lehman Brothers, Bear Stearns 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 пишут о counterparty risk generated from the default event of the trading counterparty [10]. The author gives a clear description of the optimal investment strategy and shows that the investor does not trade if the risk of the counterparty is high enough.

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, structural and functional analysis, tabular and graphical data visualization techniques.

4. Research Results

Financial statement checks helps to reduce commercial risks of an enterprise and prevent financial losses. Since the risk of selecting an unreliable counterparty is quite high, credible data source become requisite.

We believe the models for detecting falsified accounting (financial) statements are imperfect despite the fact that all of them are focused on detecting overstatements of revenue, profit and balance sheet total. Yet, a systematic approach, not just the analysis of financial performance, is necessary for the full confirmation of the reliability of certain data. We propose an algorithm for detecting falsified accounting (financial) statements (see Fig.1).

We suggest to add the detecting falsified accounting (financial) statements using the following criteria of the company activities are analyzed during due diligence check:

technological: data on the technological infrastructure of an enterprise and its technological capabilities;

organizational: company management system;

economic: company financial status and capacities;

legal: regulations and rules directly relevant to a potential cooperation.

Here the indices collected and analyzed by specialized companies and information systems such as 1C: SPARK can be used. Data sources also include ratings of the largest companies published in many countries. They allow determining the ranking of a potential partner among domestic and foreign companies. Yet the studies have shown that although many companies offer respective services the market has no system covering the maximum number of parameters to check due diligence via digital communication channels by the one-stop shop principle. Current web sources allow to analyze accounting (financial) statements and forecast the probability of insolvency, yet they do not let a user to

present clear results of a foreign partner's due diligence check by the one-stop shop principle. Not enough attention is still paid to revealing falsifications of financial statements and their credibility.

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 [11].

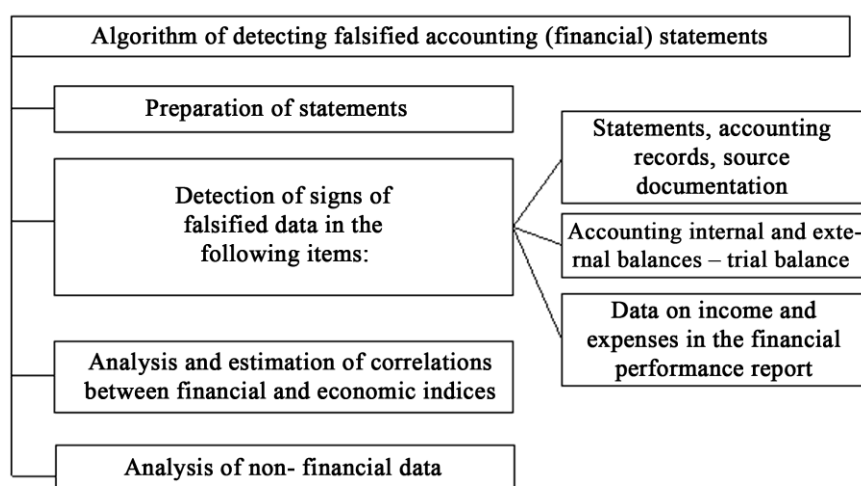


Figure 1. Algorithm for detecting falsified accounting (financial) statements.

In our opinion, it is advisable to assess the level of a partner's reliability on the basis of scoring indices and present its results as the following indices:

1. Due diligence index is used to determine the chance of a partner to turn out a sham, a pass-through company or abandoned asset. Such parameters as participation in government tenders, licenses, patents; any judicial disputes, tax arrears or pledges; web presence, sham indicators and other factors are used to calculate this index;

2. Financial risk index describes the financial condition of a company to determine the probability of bankruptcy;

3. Payment discipline index shows the average period of time taken by the company to fulfill its financial liabilities.

A partner's selection and due diligence check require calculating and analyzing the following comprehensive indices:

1. General financial stability (financial indices).

2. Business assessment.

3. External and internal rating.

At the same time, it is appropriate to use the following financial indices to assess general financial stability of a company:

Total amount of assets: all assets owned by a company;

Amount of capital: an enterprise's equity;

Sales volume (turnover);

Sales growth rate;

Financial independence ratio: the rate that shows the extent to which an enterprise is independent from its creditors;

Financial solvency ratio: describes a company's ability to fulfill its liabilities with current assets;

Return on assets: describes the efficiency of using assets to form the revenue;

Current liquidity ratio: a company's ability to fulfill its short-term liabilities with current assets only;

Coverage ratio: used as a general indicator of a company's solvency and its ability to make preferential payments and expressed as a ratio of current assets (circulating funds) to short-term accounts receivable;

Debtor turnover ratio: this value describes a company's ability to receive credit payments for goods (works or services) and is calculated as a ratio of the total amount of sales to average amount of accounts receivable;

Inventory turnover ratio: shows a relative amount of inventory;

Net profit per monetary sales unit;

Asset turnover ratio: shows how effectively a company uses its assets to boost the sales. This index is calculated as a ratio of amount of sales of goods (works or services) to annual average asset value;

Return on investment ratio: describes the profit gained per each monetary unit invested in the assets;

Return on equity ratio: shows the profit that investors gain from each monetary unit invested;

Debt to equity ratio: this ratio describes a company's ability to repay its long-term debts and is calculated as a ratio of a company's debt to its equity;

Interest coverage ratio: it describes a company's ability to timely and fully repay its credits and loans.

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 [12]. This index is calculated as the difference between the company's acquisition cost and its net assets (fair value) [13]. 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.

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) [14].

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.

5. Implications and Recommendations

Summarizing the study, it is worth noting that the issue of falsifying financial statements, just like any other serious economic issue, requires comprehensive approach. Understanding the motives and reduction of «potential room for falsifying» within the framework of structural and operational functioning of a company are the best way of reducing the risks of fraud and falsifying financial data. And the support at state level (i.e. legislative control) and social level (i.e. public control) are, by no doubt, necessary to address this issue.

At the present moment, availability and functioning of internal audit services are not a must for management or economic entities. It should be noted that there are many unsolved problems in the internal audit organization at Russian enterprises not allowing to use the advantages of this tool preventing financial statement manipulations [15]. Implementing internal audit systems will allow economic entities to improve the reliability and quality of financial statements and provide for taking measures of economic security [16].

We have defined a great variety of indices, yet the indices as such mean very little [17]. What is important is their relationship to other indices and changes over a certain period. Corporate annual

reports will become important data sources for us [18]. These companies use international financial reporting standards so in the article we have proposed the indices that could be used to compare the financial condition of international companies [19, 20]. We believe that financial indices of corporate accounting reports must be reviewed against general understanding of the company status and standing, hence our suggestion to consider non-financial indices as well. These parameters will provide a basis for developing an algorithm to calculate the due diligence rating of a potential partner, which, in turn, will serve as a basis for selecting a reliable potential business partner via digital communication channels.

6. References

- [1] Tambovtsev B L 1995 Economic Security of Economic Systems: Structure and Issues *Bulletin of Moscow State University. Series 6 Economy* **3** 3-9
- [2] Savin V A 1995 Certain Aspects of Economic Security of the Russian Economy *Ural Agricultural Bulletin* **9** 14
- [3] Zhitlukhina O G, Rakutko S Y, Berezhnova E I, Selezneva E Y, Belik E V, Shalaeva N I, Denisovich E I., Belik N V, Saenko Z E, Sultanova A E 2016 Issues of Falsifying Financial Statements in terms of Economic Security vol 11 **17** 10163-10176
- [4] Kulikova L I 2011 Hiding and Falsification of Financial Statements: Historic and Evolution Aspect *Mezhdunarodny Bukhgaltersky Uchet (International Accounting)* **14**(164) 56-68
- [5] Rakutko S Y, Selezneva E Y 2015 Falsifying Financial Statements in Terms of Global Market *Ekonomika I Predprinimatelstvo* **4** (57-1) 581-584 (Moscow)
- [6] Rakutko S Y, Denisovich E I 2015 Study of Regulatory and Methodological Basis of Estimating Credibility of Accounting (Financial) Statements *Ekonomika I Predprinimatelstvo* **6** 623-627(Moscow)
- [7] 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
- [8] Gordeeva A A 2014 Methodology of Detecting Frauds in Accounting (Financial) Statements Moscow: *Vershin* 202
- [9] Binbin D 2017 Counterparty risk, central counterparty clearing and aggregate risk *Annals of Finance* vol 13 **4** 355–400
- [10] Lijun Bo 2018 Dynamic Investment and Counterparty Risk. *Applied Mathematics & Optimization* **77** **1** 1–45
- [11] Lemeshenko G L, Temchenko O S 2012 Correction of errors in accounting and financial statements of organization *International accounting* **14** 16-22
- [12] 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
- [13] 2010 Federal Standards of Auditing Activity 5. Auditor Responsibilities Regarding Consideration of Unfair Actions During Auditing <http://base.consultant.ru>
- [14] 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)
- [15] 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
- [16] Selezneva E Y, Belik N V 2012 Internal Audit: Term, Types and Functions within Internal Supervision System Modern State and Development Perspectives of Accounting, Economic Analysis and Audit: *Proceedings of All-Russian Research and Practice Conference* Irkutsk: Baikal National University of Economics and Law 334–339

- [17] Gordeeva A A 2013 Methodology of Revealing Distortions in Accounting (Financial) Statements: thesis for obtaining PhD in economics: 08.00.12. Thesis Defense: Russian University of Cooperation – Autonomous Non-Profit Establishment of Higher Professional Education of Centrosoyuz of the Russian Federation Mytishchi 202
- [18] Pustynick I, Temchenko O, Gubarkov S 2017 Estimating the influence of accounting variables change on earnings management detection *Journal of International Studies* vol 10 **1** 110-122
- [19] Komekbayeva L S, Legostayeva A A, Tyan O A, Orynassarova Y D 2016 Government Measures for Economic Support in the Conditions of a Floating Exchange Rate of the National Currency *IEJME-Mathematics Education* **11**(7) 2227-2237
- [20] Selezneva E Y, Temchenko O S, Belik N V 2012 Experience of Audit Activity Development in China Modern State and Development Perspectives of Accounting, Economic Analysis and Audit: Proceedings of All-Russian Research and Practice Conference Irkutsk: Baikal National University of Economics and Law 334 –339