

**A METHOD FOR CALCULATING THE REAL VALUE  
OF EQUITY BY IDENTIFYING TOXIC ASSETS  
IN THE REPORTS OF PROFESSIONAL PARTICIPANTS  
OF THE SECURITIES MARKET**

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**Key words:** toxic assets, reports of professional participants of the securities market, the real value of equity, supervision of the Bank of Russia.

**A b s t r a c t**

This article is devoted to a comprehensive study of toxic assets, which are on the balance sheets of professional securities market participants, in order to calculate the real value of capital. The authors have developed a method similar to a formalized algorithm for identifying toxic assets of liquidating or liquidated companies and assets in credit institutions with a revoked license, for subsequently adjusting the value of equity (net assets), and analyzing for compliance with the Bank of Russia supervisory requirements. The method is described by the authors in accordance with BPMN notation. The authors determined the information base of the method, which includes only mandatory reporting and open information resources, which makes it simple and transparent for users. Prospective users of the method may be the Bank of Russia, current and future counterparties of professional participants in the securities market, DBMS developers and scientific employees of economic specialties. The method was tested by the authors on the basis of a real-life brokerage company.

**METODA OBLICZANIA RZECZYWISTEJ WARTOŚCI KAPITAŁU WŁASNEGO  
PRZEZ IDENTYFIKACJĘ AKTYWÓW TOKSYCZNYCH W RAPORTACH  
PROFESJONALNYCH UCZESTNIKÓW RYNKU PAPIERÓW WARTOŚCIOWYCH**

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**Słowa kluczowe:** aktywa toksyczne (destrukcyjne), raporty profesjonalnych uczestników rynku papierów wartościowych, realna wartość kapitału własnego, nadzór nad Centralnym Bankiem Rosji.

**Abstrakt**

Publikacja jest poświęcona kompleksowej analizie toksycznych aktywów znajdujących się w bilansach profesjonalnych uczestników rynku papierów wartościowych. Celem było obliczenie rzeczywistej wartości kapitału. Autorzy opracowali metodę w postaci sformalizowanego algorytmu identyfikującego toksyczne aktywa likwidujących się lub likwidowanych spółek i aktywa w instytucjach kredytowych z cofniętą licencją, do późniejszej korekty wartości kapitału własnego (aktywów netto) i analizowania zgodności z wymaganiami pod nadzorem Centralnego Banku Rosji. Metoda ta jest opisana przez autorów zgodnie z notacją BPMN. Autorzy określili podstawę informacyjną metody, która obejmuje tylko obowiązkowe raportowanie i otwarte zasoby informacyjne, co czyni ją prostą i przejrzystą dla użytkowników. Potencjalnymi jej użytkownikami może być Centralny Bank Rosji, a także obecni i przyszli kontrahenci profesjonalnych uczestników rynku papierów wartościowych, deweloperzy DBMS oraz pracownicy naukowci o specjalnościach ekonomicznych. Metodę autorzy przetestowali na podstawie danych z istniejącej firmy brokerskiej.

## **Introduction**

Currently the number of bankruptcies of companies in the Russian economy has reached a maximum historical value. According to the results of the third quarter of 2017, their number amounted to 1,127 bankrupt companies (RYBALKA et al. 2017, p. 2–4). In addition, due to the ongoing policy of the Bank of Russia the mass recall of bank licenses from unscrupulous or ineffective banks is continuing, the results of the third quarter of 2017 showed that 15 licenses of credit institutions have been revoked. Accordingly, the subject of this research is relevant at the moment, because liquidated or liquidating companies, as well as credit institutions with a revoked license may be counterparties to operating companies, which forms toxic assets on the latter's balance sheets (bad accounts receivable, impaired securities, sunken financial resources on bank accounts). However, operating companies do not create provisions for these toxic assets in order to prevent a decline in financial performance, to maintain its attractiveness, and to prevent violations of regulatory standards.

This problem, first of all, relates to non-credit financial organizations, which is explained on the one hand by the peculiarities of their activities, according to which the largest part of used money is borrowed (from individuals and companies) and the main share of the balance comes from financial investments. On the other hand, it is explained by the regulation and supervision of the Bank of Russia, which, unlike credit organizations, are obsolete in terms of volume and quality of the gathered information, and their methods; as well as the ad hoc and spontaneous character of processing it, which do not comply with modern requirements.

The solution to this problem on the basis of the current mandatory reporting is proposed to be considered by the example of the professional securities market participants (hereinafter abbreviated to PSMP) and is presented as a method. In accordance with the Federal Law of the Russian Federation No. 39-FZ of April 22, 1996 *On the Securities Market* a PSMP is:

- brokerage activity;
- dealer activity, including a forex dealer;
- securities management;
- depositary activity;
- activities to maintain the register;
- organization of transactions in the securities market.

The method, which is proposed in the article, includes, in general terms, the search for assets of liquidated or liquidating companies and for assets, which are held in credit institutions with revoked licenses, the adjustment of equity (net assets) and the analysis of compliance with supervisory requirements, which is established by the Bank of Russia (for PSMP, it is the fulfillment of the conditions imposed on capital).

Within the framework of the developed method, it is advised to use two sources of information on the activities of the PSMP and its counterparties, which include borrowers and debtors of the PSMP, companies, whose securities were acquired as property, and companies, whose promissory notes were discounted by the PSMP, etc.

## **Research methodology**

Indicators of certain forms of PSMP reports, which were prepared in accordance with the Instructive Regulation of the Bank of Russia No. 3533-U of January 15, 2015 *On the Terms and Procedure for Compiling and Submitting Reporting Forms by Professional Securities Market Participants to the Central Bank of the Russian Federation* (Instructive Regulation of the Bank of Russia of January 15, 2015 No. 3533-U *On the Terms and Procedure for Compiling and Submitting Reporting Forms by Professional Securities Market Participants to the Central Bank of the Russian Federation*).

Data of information resources SPARK or Kontur and the Federal Tax Service of Russia, on the basis of which the user conducts:

- a search for liquidated or liquidating companies among counterparties of the PSMP (using the Unified State Register of Legal Entities);
- an analysis of the PSMP counterparties with signs of “one-day” firms, such as the address of a company’s registration being the address of a mass registration; the chief executive officer, chief accountant officer and founder are one and the same person; the absence of the organization at the place of registration etc.

The proposed method for identifying toxic assets in the reporting of the PSMP includes 5 stages:

Phase 1: Determination of the book value of the PSMP equity, which is based on the form 0420413 *Calculation of the amount of equity*, the value of the minimum amount of equity and the capital-adequacy ratio in accordance with the Instructive Regulation of the Bank of Russia No. 4373-U of 11 May, 2017 *About requirements to equity of professional participants of the security market* (Instructive Regulation of the Bank of Russia of 11 May, 2017 No. 4373-U *About requirements to equity of professional participants of the security market*) by the equation:

$$\text{MAE} = X \cdot \text{AC} \quad (1)$$

where:

MAE – minimum amount of equity,

$X$  – a constant value, which equals 2 million rubles (excluding depositories),

AC – additional coefficient, which is set by point 3 of the Instructive Regulation No. 4373-U (Instructive Regulation of the Bank of Russia of 11 May, 2017 No. 4373-U *About requirements to equity of professional participants of the security market*).

For depositories, the value of  $X$  is calculated in accordance with the equation and requirements reflected in the Instructive Regulation No. 4373-U.

Phase 2: Identification of liquidated or liquidating companies and companies with signs of being “one-day” firms among PSMP counterparties. The analysis of counterparties is undertaken on the basis of the forms: 0420412 *Information on the largest debtors and creditors*; 0420414 *Information on loans and credits*; 0420415 *Report of a professional participant of the securities market*. The next test includes a check of all counterparties for the presence of the above characteristics in the Federal Tax Service of Russia or information resources, such as SPARK and Kontur. The presence of such companies among the counterparties of the PSMP, in our opinion, may indicate toxic assets on the balance sheets. Moreover, it is important to note that these assets are characterized by a long period of stay on the balance sheet within the same amount for different reporting dates.

Phase 3: Identification of credit institutions, whose licenses have been revoked, among counterparties of the PSMP. Analysis of the PSMP accounts in credit institutions is implemented on the basis of the form 0420409 *Information*

on bank accounts. Detection of monetary funds that have been placed in a credit institution with a revoked license is evidence that this type of asset has a problematic nature.

Phase 4: The assessment of the size of toxic assets and created provisions for toxic assets. In identifying such toxic assets in reports of the PSMP and in the absence of created provisions for these assets (for each of these counterparties), it is necessary to calculate the additional size of the PSMP provisions. For assets of liquidated or liquidating counterpart companies and assets of companies with signs of being “one-day” firms, the amount of the additional provision needs to be 100% because of the low probability of the counterparty’s performance of its liabilities and of the inability to collect these assets. For assets (monetary funds) in credit institutions with revoked licenses, the amount of the additional provision equals the difference between the maximum provision value and the average satisfaction value of claims of creditor companies at the beginning of the reporting year. In accordance with the *Methodology for establishing creditors’ claims and keeping a registry of claims of creditors of a liquidated credit institution*, which was approved by the decision of the Board of the state corporation *Deposit Insurance Agency* dated on 07.09.2006 and documented by No. 54, when a credit organization is liquidated, a turn of creditors is formed, in which companies are creditors of the third (last) turn (The methodology of the state corporation *Deposit Insurance Agency* of September 07, 2006 *Establishment of creditors’ claims and maintenance of the register of claims of creditors of the liquidated credit organization*). At the beginning of 2017, the average percentage of satisfaction of creditor claims of the third line of credit organizations was 7.5% (Central Bank of the Russian Federation 2017).

Phase 5: Analysis of PSMP compliance with the supervisory requirements, which is established by the Bank of Russia. Based on the results of the assessment of the amount of toxic assets in the reports of the PSMP and on the calculation of additional provisions for these types of assets, the value of its equity (net assets) needs to be adjusted, after which the obtained value is compared with the supervisory requirement, namely, with the minimum amount of equity in accordance with the Instructive Regulation of the Bank of Russia of 11 May, 2017 No. 4373-U. If the adjusted capital is below the minimum amount of equity, the Bank of Russia should send a request to the PSMP for adding provisions for problematic debts and for increasing its equity.

A detailed description of the method for identifying toxic assets in the reporting of the PSMP and for assessing compliance with the requirements of the Bank of Russia is presented in Figure 1.

The proposed method can be expanded in terms of increasing the number of sources of analyzed information in the identification of toxic assets of the PSMP, in particular additional data of the Federal Tax Service of Russia, such as *Companies that have not submitted tax reports for more than a year*, *Companies, which are in collection of tax debts by the bailiffs* and other

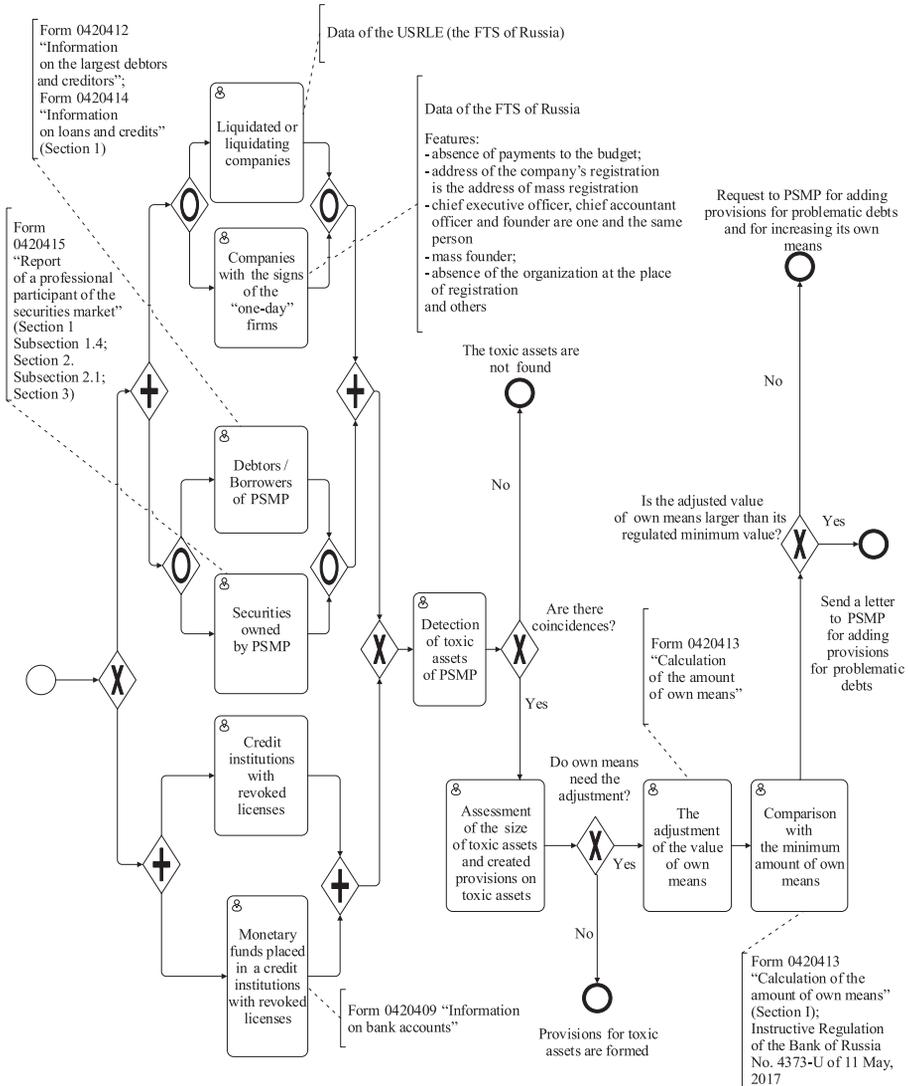


Fig. 1. Algorithm for searching the toxic assets of professional participants of the securities market (not credit institutions) using the reporting and data of the Federal Tax Service of Russia Source: own elaboration.

information. In addition, it should be noted that this method can be automated both by the Bank of Russia and by other companies (credit organizations, software developers and others), because it is a formalized algorithm.

Analyze the reporting of the PSMP, which carries out brokerage, fiduciary management and financial consulting, in accordance with the proposed method for identifying toxic assets.

At the first stage, the value of the minimum amount of equity was calculated as the multiplication of the value of X (2 million rubles) and the capital-adequacy ratio (17.5), which corresponded to the Instructive Regulation of the Bank of Russia of 11 May, 2017 No. 4373-U. The value of this indicator is 35 million rubles. Furthermore, the value of the equity of the PSMP was determined as the difference between the total amount of assets and liabilities, which amounted to 136.05 million rubles. Accordingly, the PSMP fulfilled the supervisory requirements of the Bank of Russia in terms of the minimum amount of equity. The calculation of the value of PSMP equity is presented in Table 1.

Table 1  
Equity calculation of a professional participant of the securities market

Indicator	Cost, thous. RUR
Assets	
Real estate, vehicles and computer facilities	38,834.78
Computer programs and the cost of their acquisition	195.62
Accounts receivable	30,244.60
Securities and financial contracts	456,586.81
Monetary funds	211,768.57
Total value of assets	737,630.39
Liabilities	
Short-term credit and loans	466.44
Accounts payable (including overdue)	598,989.87
Provisions for future expenses and payments and provisions for doubtful debts	2,121.79
Total value of liabilities	601,578.11
Total value of equity	136,052.28

Source: own elaboration.

At the second stage, after checking the PSMP counterparties on the website of the Federal Tax Service of Russia, both liquidated and liquidating companies were identified. On the basis of the form 0420412, large PSMP debtors having debts over 90 days, which amounted to 18.08 million rubles, were found and are reflected in Table 2. The provisions for these debts were not created.

On the basis of section 1 subsection 1.4 of the form 0420415, ordinary shares of the liquidated company were found on the balance sheet of the PSMP. The total amount of investments is 3.74 million rubles, which is reflected in Table 3. The provisions for these securities were not created.

Table 2

Liquidated or liquidating large debtors of a professional participant of the securities market

Name	TIN	Company's status in the USRLE by TIN	The amount of debt up to 90 days	The amount of debt over 90 days, thous. RUR	Total amount of debt, thous. RUR
LLC "Mitprof"	7721756029	excluded from the usrle on the basis of p. 2 art. 21.1 of the federal law of 08.08.2001 No. 129-FZ	0	13,665.14	13,665,14
RLLC "Agrostroy-Service"	7714706450	in the stage of liquidation	0	4,411.42	4,411.42

Source: own elaboration.

Table 3

The securities book value of liquidated or liquidating companies which belongs to a professional participant of the securities market on the basis of ownership and taken to accounting as financial investments

Name of the issuer	TIN	Issuer's status in the USRLE by TIN	Country code of the issuer	Security type code	The volume of investments in securities, thous. RUR
SVYAZSTROY-5	7451003871	liquidated for bankruptcy	643	SHS3	3,739.00

Source: own elaboration.

At the third stage, the analysis of accounts of the PSMP in credit institutions with the subsequent verification of them was made on the basis of the form 0420409 and on the basis of the websites of the Federal Tax Service of Russia and the Bank of Russia. As a result, monetary funds, which were located in a credit institution with a revoked license, were found. The amount of monetary funds on the account at the end of the reporting period in the PJSC Bank Yugra was 27.5 million rubles. It is reflected in Table 4. The provisions for these placed monetary funds were not created.

At the fourth stage, the value of toxic assets was estimated and amounted to 49,315.56 thousand rubles (13,665.14 thousand rubles + 4,411.42 thousand rubles + 3,739.00 thousand rubles + 27,500.00 thousand rubles). At the same time, there were no provisions for the devaluation of these analyzed assets. In accordance with the proposed method, the value of the additional provisions should be 100% for assets in liquidated or liquidating counterparty companies and should be as a difference between the value of maximum provision and the average satisfaction value of the claims of creditors at the beginning of the

Table 4

Information on bank accounts of a professional participant of the securities market in liquidated or liquidating credit institutions or in credit institutions with a revoked license

Abbreviated name of the credit organization	TIN	Bank's status in the USRLE by TIN	Account currency code	The amount of monetary funds on the account at the end of the reporting period, thous. RUR
PJSC Bank Yugra	8605000586	not excluded, the bank of russia disclaimed a license	643	27,500.00

Source: own elaboration.

reporting year for assets (monetary funds) in credit institutions with revoked licenses. Therefore, the amount of additional provisions will be 47,253.06 thousand rubles [13,665.14 thousand rubles + 4,411.42 thousand rubles + 3,739.00 thousand rubles + (27,500.00 thousand rubles – 27,500.00 thousand rubles × 7.5% : 100)].

At the fifth stage, the real value of equity (net assets) was calculated and amounted to 88,799.22 thousand rubles (136,052.28 thousand rubles – 47,253.06 thousand rubles), which indicated an overestimation of the real value of PSMP equity at 53.2%.

Therefore, the PSMP needs to complete the provisions for the toxic assets, but doesn't need to increase its equity, because the real size of the PSMP equity is higher than the supervisory requirement of the Bank of Russia (35,000 thousand rubles).

## Summary

The presented method for identifying toxic assets of the PSMP on the basis of mandatory reporting has shown its efficiency in the example of the real PSMP and can be applied both by the Bank of Russia for supervisory functions and by the counterparties of PSMP for assessing their real financial condition. It should be noted that this method can be extended and applied to other participants in the financial market (insurance companies, management companies of investment funds, mutual funds and non-state pension funds).

The following results, which have scientific novelty, have been obtained in the article. This new method for identifying the toxic assets of PSMP on the basis of mandatory reporting has been developed and it does not have any current practical analogues. The advantage of this method is its implementation on the basis of current PSMP mandatory reporting, the simplicity and transparency of analysis and calculations, and the possibility of automation with subsequent

implementation in the DBMS, since this method is a formalized algorithm. Moreover, the proposed method has the potential for further development, such as an increase in the number of resources of analyzing information and an expansion in the number of analyzing participants in the financial market and their counterparties, thereby making further in-depth cross-sectoral analysis.

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