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FORMATION OF DEBT DISCOUNT RATE: ACCOUNTING ASPECT

Abstract. The transformation of the accounting system is under the influence of those changes that characterize the development of new methods and approaches in the field of enterprise business management. Discounting is one such process, characterized by a number of features, including the determination of the rate and the choice of method of its application. The study of discount rate formation in the scientific literature is one of the most relevant.

One of the reasons is the urgency of the issue due to changes in the regulatory documents regarding the accounting of long-term receivables at present value. Based on the analysis of the essence of the category of the term "discount rate" in the legislative documents, as well as among the approaches of foreign and Ukrainian scientists, it is determined that the discount rate is of interest and considers the risk associated with a particular cash flow. In addition, the most common methods for determining the discount rate are discussed. This allowed us to construct a mechanism for determining the discount rate for long-term receivables in the form of an appropriate algorithm, which is based on the "traditional" factors of the discount rate (inflation, profitability of money and risk factor for a specific enterprise), thus considering both the country's financial market indicators as well as peculiarities of the entity's activities.

The developed mechanism became the basis for determining the directions of changes occurring in the structure of financial reporting indicators in the accounting system. Such changes are reflected in the structure of incomes and expenses of the enterprise, because

the accounting system recognizes the financial income or expense from the discounting of receivables in the form of amortization of the discount on the date of occurrence and throughout the maturity of each subsequent reporting date.

The results of the study contribute to the development of both theoretical knowledge on determining the discount rate of long-term receivables, as well as practical aspects of forming a methodological approach to accounting for the components of the financial result of the enterprise.

Keywords: long-term receivables, discounting, discount rate, accounting, financial statements, financial incomes and expenses

Formulas: tabl.: 0, fig.: 2, bibl.: 32

JEL Classification: M41; E43

Introduction. The business activity of the enterprise is closely linked to the cash involved in all processes and determines the level of profitability of the transactions. Profit maximization, as the main goal of an enterprise in the scientific literature, is increasingly criticized and interpreted as one of the main goals of increasing the value of the company. Changes that occur are due primarily to changes in the structure of financing the activities of economic entities. Today, financial resources in the form of attracted (including invested) capital, which are involved in the development and implementation of activities, come to the fore. Thus, for potential investors, the key indicators of the effectiveness of the enterprise is increasing its value.

The use of modern methods of valuation of objects of the enterprise (including debt) is an urgent issue in the light of prospects of development of economic entities and increase of their competitiveness in national and international markets of goods and services. Therefore, in the accounting system, the issue of reliable valuation of assets and liabilities has changed its value and essence based on the introduction of discounting as a method of estimating the value of cash.

To ensure that the use of the discount method is justified and effective, businesses justify the use of appropriate rates to ensure that financial resources of different years are brought to a comparable level in time. However, discounted rates do not always take into account all the factors and conditions in which businesses operate. In addition, in Ukrainian realities, it is difficult to determine the discount rate, given also the external factors of high risk (volatility in the foreign exchange market, underdevelopment of the financial fixed-term market, imbalance of revenues and expenditures of the state budget, general macroeconomic situation in the country, etc.). Investigating the approaches of foreign and Ukrainian scientists, as well as justifying the feasibility and conditions of applying specific methods of determining discount rates, will expand the ability of Ukrainian business entities and will enhance their competitiveness in the field of investment attractiveness not only on the national but international markets.

Literature review and the problem statement. Research of the development and application of methods of determining the discount rate has been relevant since the XIX century. In the scientific works of I. Fisher, J. M. Keynes, H. Markowitz, R. Braille, and S. Myers have elaborated theories that explain the economic value of money over time. For example, I. Fisher [Fisher 1930] in his Theory of Interest (1930), based on the theory of interest, substantiated the economic value of money over time and determined that one of the problems is to bring the future value of money to the present. Keynes J. M. [Keynes

2010] argued that the need for discounting is related to the notion of aptitude for savings and consumption. Instead, Markowitz G. [Markowitz 1952], based on his portfolio theory, proposed one of the methods of determining the discount rate – CAPM (Capital Assets Pricing Model).

Thus, researchers pay attention to the economic nature of money, however at that time the historical cost principle dominates in accounting and such accounting objects as not percentage debt and liabilities are recognized in the financial statements at their cost.

However, as modern researchers and economists have argued, the economic nature of debt should be decisive in the assessment and reflecting of accounting objects in accounting and financial statements. Therefore, some issues of debt assessment in accounting have been reflected in the works of scientists: V. S. Adamovska, O. I. Sydorova [Adamovska, Sidorova 2016], R. Baule [Baule 2019], Al-Mahmoud [Al-Mahmoud, Haitham 2020], B. Brady, P. Chang, P. Miu, B. Ozdemir, D. Schwartz [Brady, Chang, Miu, Ozdemir, Schwartz 2006], N. N. Chatnani [Chatnani 2018], H. Dźwigoł [Dźwigoł, Shcherbak, Semikina, Vinichenko, Vasiuta 2019; Dźwigoł, Wolniak 2018], Eckel, Fortin and Fischer [Eckel, Fortin, Fischer 2003], I. Ferguson [Ferguson 2018], M. Grinblatt [Grinblatt, Liu 2008], M. Jung [Jung, You, Chi, Yu, Hwang 2018], K. Kwon [Kwon, K., Lee 2019], E. Lilford [Lilford, Maybee, Packey 2018], R. Miskiewicz [Czyżewski, Matuszczak, Miśkiewicz 2019; Miskiewicz 2017; Miśkiewicz 2019], V. A. Shepeliuk, M.O. Yunatskyi [Shepeliuk, Yunatskyi 2019], N. V. Spitsyna, T. V. Momot, N. S. Akimova [Spitsyna, Momot, Akimova 2019], E. E. Sumina [Sumina 2015].

The purpose of the article is to develop a mechanism for applying the discount rate for long-term receivables as well as to analyze the impact of choosing a rate on the financial results of the enterprises formed in the accounting system. The achievement of the goal is based on the disclosure of the following research objectives: 1) theoretical analysis of the essence of the category of the concept of "discount rate"; 2) an overview of the most common methods of determining the discount rate and determining their advantages and disadvantages; 3) formation of a mechanism for determining the discount rate for long-term receivables and for determining the direction of changes that occur in the system of financial reporting indicators.

Research results. Long-term receivables are one of the instruments of managing the assets of the enterprise, because it reflects the future economic benefits, its occurrence is a prerequisite for increasing the volume of sales and improving the financial condition of the enterprise. However, the uncertainty of valuation and the inconsistency of the methods of recognition used in accounting, and subsequently reflecting in the financial statements, affect the distortion of accounting information and lead to the occurance of conditions that adversely affect processes such as planning and forecasting and the overall development of business activities. Therefore, taking into account a number of factors that determine the amount of receivables under the influence of time, will allow business entities to maximize the benefits of the process of receivables management.

In the economic literature, the change in the value of cash is justified under the influence of the following factors: inflation; profitability of cash; risk (including future non-repayment). The study analyzed the qualitative and quantitative value of these factors in the current economic situation in the country.

Thus, the quantitative values of inflation - its rates and forecasts, are determined on the basis of the consumer price index, are compiled and published by the National Bank of

Ukraine. The yield on cash may be reflected by the following financial market instruments of the country: deposit or credit rates, interbank lending rates, National Bank of Ukraine discount rate, government bond yield rate. Practicing accountants and accounting experts, based on the provisions of tax law and based on the experience of working with audit firms, analyze the examples of risk-free rate of return and indicate that in Ukraine today investing in government bonds is not advisable to consider as a guarantee of future income.

As to such factors as risk, then the debt discount rate is affected by its quantitative value in the form of risk premiums determined under consideration of various factors specific to a particular enterprise (size, capital structure, market activity, competition, profitability, obtained profits volumes, etc.), and are quite subjective.

To these factors O. S Ralko relates: the purpose of the valuation, the type of cash flow, the availability and reliability of information about the market environment, the specifics of both the internal and external environment of the functioning of the valuation object [Ralko 2015]. Len V. S. and Hlyvenko V. V. also give a number of factors that determine the choice of discount rate used to determine the present value of long-term debt: the type of debt (trade, investment, etc.); type of currency of payments; borrowing terms; the size of a bank deposit or loan; type of borrower and lender (legal entities or individuals); the country of origin of the debt; expected rate of inflation; the risks inherent in a specific obligation; contractual terms, etc. [Len, Glyvenko 2020]. That is, we see that each entity, depending on its needs and stage of development, taking into account the "traditional" factors: inflation, yield, risk in determining the discount rate, deepens the capabilities of the debt management system and creates benefits in the field of reporting for participation of potential stakeholder groups in the activity of the enterprise.

Analyzing the nature and role of each factor affecting the value of receivables, we should pay attention to the set of methods for determining the discount rate (as a process of bringing the amount of debt or liabilities to their future value, i.e. the determination of present value) that is presented in the scientific literature. However, the provisions of the legal documents and the opinions of some scholars regarding the interpretation of the essence of the term "discount rate" were initially systematized, which partly reveals the characteristics of the methods of its determination.

In the scientific literature, the authors (Sharpa U., Alexandera H., Bailey J. [Sharp, Aleksander, Beily 1998], Ageev A. A. [Ageev 2009], Tereshchenko O. (2006), Podkopaev A.A. [Podkopaev 2015]) agree that the discount rate has percentage and takes into account the risk associated with a particular cash flow. Brady B., Chang P., Miu P., Ozdemir B., Schwartz D. add that «the discount rate used should be commensurate with the (opportunity) costs of holding the defaulted asset over the workout period, including an appropriate risk premium required by the asset holders» [Brady, Chang, Miu, Ozdemir & Schwartz 2006].

Instead, there are no clear provisions in the legal documents that outline the procedure of actions of the company when choosing the discount rate. AS 28 "Impairment of Assets" [Accounting Standard 28 "Impairment of Assets" 2004] specifies that the discount rate is based on the market rate of interest (before tax) used in transactions with similar assets. In the absence of a market rate of interest, the discount rate is based on the interest rate of the enterprise on possible loans or calculated using the weighted average cost of capital of the enterprise.

Tereshchenko O. notes that "the discount rate fulfills three main functions: 1) characterizes the rate of return at which future cash inflows are brought to present value at the time of

valuation; 2) shows the level of risk of investing in the object of valuation; 3) characterizes the value of the capital raised by the enterprise» [Tereshchenko 2006]. Based on the analysis, the types of methods of determining the discount rate that are considered by such scientists as: Ralko O.S. (2015), Korbutiak A.H., Kulbachynska I.M. [Korbutiak, Kulbachynska 2019], Kravchuk T.V., Vysochyna A.V. [Kravchuk, Vysochyna 2018], Len V.S., Glyvenko V.V. [Len, Glyvenko 2020] are considered.

The main methods of determining the discount rate, scientists include: the model of estimating capital assets CAMP (equity method), the method of determining the discount rate based on weighted average cost of capital WACC (Weighted Average Cost of Capital), cumulative method, the method of determining the discount rate based on return on equity, expert method, regulatory method, method of determining discount rate based on market multipliers, comparable sales, related investments, internal rate of return, rates LIBOR, Fama and French model; Carhart model; Gordon growth model (dividends of constant growth) and others.

Eckel, Fortin and Fischer (2003) in their paper offer rates, which may be applied as discount rates: risk-free interest rate; a sum of risk free rate and a risk premium; market rates of individual assets and liabilities; rates which are stipulated in the contracts for assets and liabilities; rates which are characteristic of particular company – cost of equity, cost of capital, opportunity costs of investments; interest rates specified in legislation (if available) [Eckel, Fortin, Fischer 2003]. Kravchuk T. V. and Vysochyna A. V. in their study conclude that "in today's economic Ukrainian conditions, it is most appropriate to use the weighted average cost method, the Gordon model (for over-the-counter companies) and the use of a deposit interest rate for simple business transactions and for economic entities that are not joint stock companies" [Kravchuk, Vysochyna 2018].

Each of these methods has its advantages and disadvantages and conditions of use. Thus, the CAMP capital asset valuation model takes into account the risk-free investment return rate (e.g., government bond yields or short-term bank deposit interest rates) and the average market rate of return (determined based on retrospective information on the level of return on shares in the securities market of the industry, to which the object of assessment belongs). Therefore, for countries with undeveloped financial markets, determining the information on the stock quotes of the company will be quite difficult.

The WACC method of determining the discount rate based on the weighted average cost of capital can be applied to various sources of financing, it is easy to calculate (includes the following components: cost of equity; share of equity in the general capital structure; cost of borrowing capital; share of borrowing capital in the general structure capital, income tax rate), but can only be used for businesses that have been in business for a certain period.

The cumulative method has the disadvantages in the part of setting a risk-free rate and is used to assess the factors that affect the risk of shortfall in planned revenues. Also, the discount rate can be calculated on the basis of a number of indicators, for example, based on the return on equity using financial statements indicators, which also requires the use of retrospective information and may not significantly affect the forecasting process. The calculation of discount rate based on Gordon model has also limited scope, since it is only applicable to those companies that issue common stock with dividend payments.

It should be noted that the company independently chooses the discount rate and methods of its determination, based on the professional judgment of accountants and the data that exists in the market.
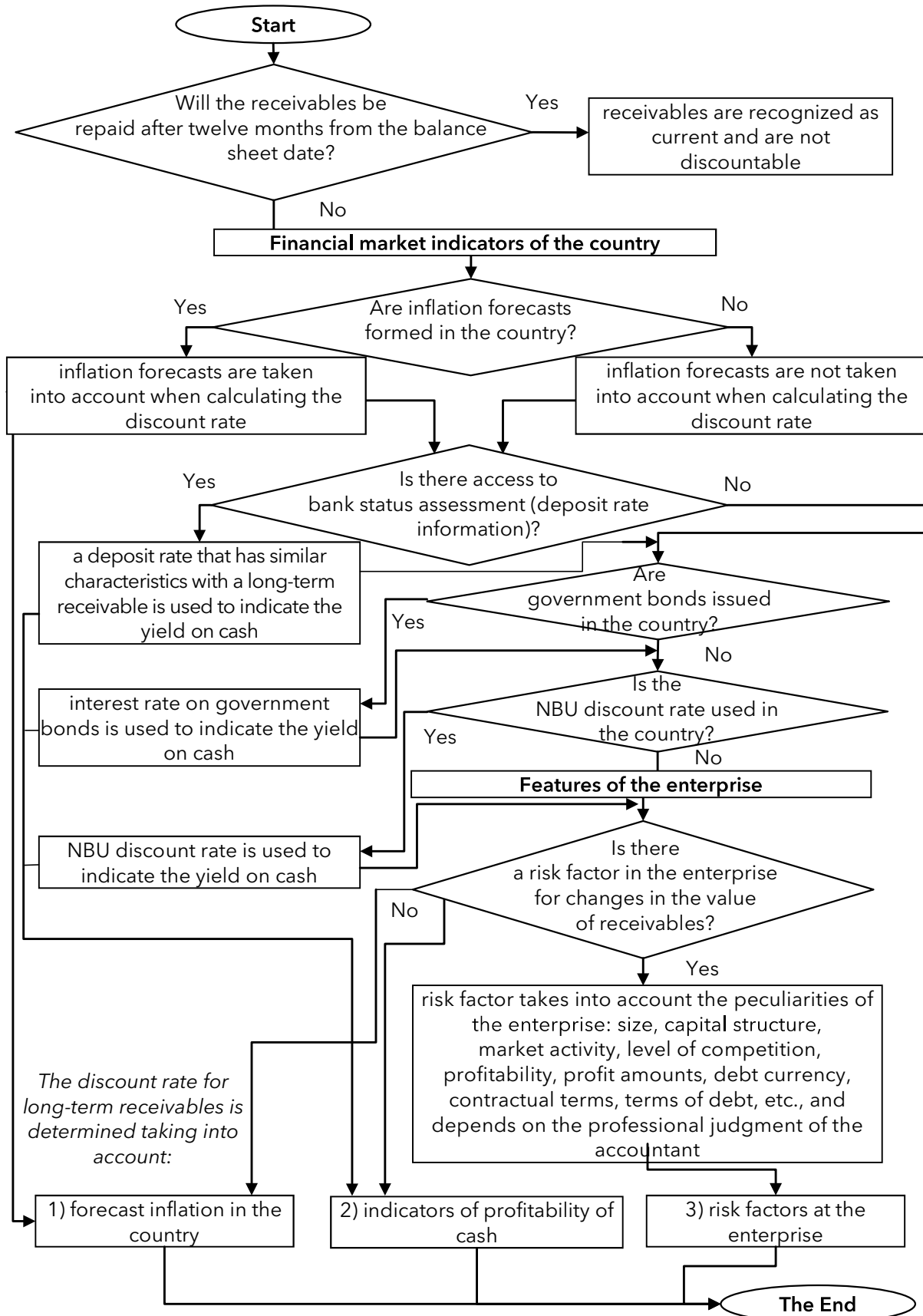
Figure 1 – The algorithm for applying the discount rate for long-term receivables
Source: *developed by the author*

In this case, an important role is given to the principles of accounting and preparation of financial statements. The principle of full disclosure provides that the financial statements contain "all information about the actual and potential consequences of business transactions and events that can influence the decisions made on its basis" [Law of Ukraine "On Accounting and Financial Reporting in Ukraine" 1999]. Therefore, the assessment of long-term receivables should take into account the real conditions of management and determine the value of cash that will be received by the enterprise within a certain period of time. In addition, the accrual principle in accounting requires that "income and expenses are recorded in the accounting system at the time they arise, regardless of the date of receipt or payment of funds" [Law of Ukraine "On Accounting and Financial Reporting in Ukraine" 1999]. That is, receivables are recognized for income that does not involve receiving cash at the time of their occurrence. If such receivables have a maturity of more than one year, then their value should be higher. Therefore, a discounting process should be used to evaluate such assets, which will reflect the present value of cash, which is more expensive than their future value, until the repayment of long-term receivables.

Analyzing the research of the scholars on the advantages and disadvantages of certain methods of determining the discount rate and taking into account the accounting requirements, we think that it is advisable to develop a mechanism that takes into account different features and will be the basis for managerial decisions in the field of cash flow management in the application of the discounting process. Therefore, Fig. 1 presents the algorithm for applying the discount rate for long-term receivables in the uncertainty in the development of the financial market and taking into account the nature and characteristics of this rate.

The proposed algorithm is the mechanism that improves and creates theoretical grounds for applying the process of discounting receivables at the enterprise. The implementation of the created mechanism in practice will ensure that both the indicators of the country's financial market and the features of the entity's activity are taken into account.

It is also worth pointing out the problematic aspects of discounting caused by the use of different rates by counterparties. Thus, this leads to the fact that the actual amounts of debt in the accounts of the buyer (debtor) and seller (creditor) differ. Therefore, an important aspect of the algorithm developed above is to take into account the peculiarities of the enterprise (in particular, consideration of the terms of the contract, which reflects long-term receivables).

In addition, a number of changes occur in the accounting system under the influence of discounting, which also depend partly on the discount rate chosen. After all, the accounting system reflects the financial income or expense from the discounting of accounts receivable in the form of amortization of the discount at the date of occurrence and throughout the maturity of each subsequent reporting date.

During this period, there is also a change in the discount rate, which can decrease (leads to an increase in the discount) and increase (affects the decrease in the discount). As a result of calculating the discount rate, changes changes in the structure of income and expenses of the enterprise are reflected in accounting. This, in turn, affects the indicators of the financial statements and is the basis for decision-making in the area of enterprise's income and expenses management. In Fig. 2, an approach is developed that reflects changes in the financial statements (Balance Sheet (Statement of Assets) and the Income Statement (Statement of comprehensive income) when applying long-term receivable discounting.
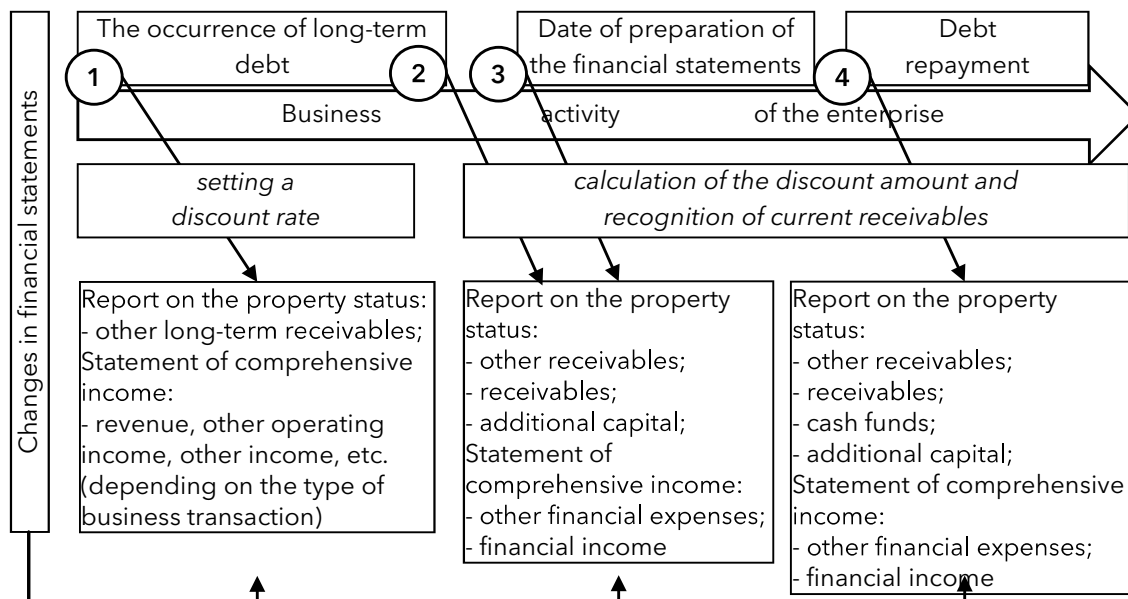
Figure 2 – Changes in financial statements when applying long-term debt discounting
Source: *developed by the author*

The analysis of the information presented shows that business entities using discounting should be prepared to change the structure of their financial result before tax. This confirms the importance of the discount rate selection process, which directly forms the amount of the discount and determines changes in the accounting as well as financial reporting system. That is why not only the results of previous scientific researches, but also the provisions of the normative and legal legislation in the field of accounting and preparation of financial statements were used in the formation of the algorithm.

This approach ensures compliance with the law by enterprises, and also enables the professional judgment of the accountant to be applied in the discount rate calculation, which is based, in particular, on the peculiarities of contractual terms in the context of the business transactions under which cash flows occur.

Conclusions. In the course of the research on the basis of identification of the issue of estimation of long-term receivables and in the context of the actuality of formation of reliable financial statements for potential investors, taking into account the value of the enterprise and its potential in the field of expansion of production, the expediency of the analysis of the choice of the approach to valuation of value was substantiated. Discounting is one of them, it requires the determination of the rate at which the present value of the enterprise's debt will be assessed.

We have analyzed the approaches disclosed in the regulations and scientific contributions regarding the interpretation of the term "discount rate" and concluded that the legislation does not provide a clear procedure for the choice of the discount rate. Instead, in the scientific literature, the authors are of the opinion that the discount rate is of interest and takes into account the risk associated with a particular cash flow.

Thus, systematizing the most common methods of determining the discount rate outlines their advantages and disadvantages. On this basis, a mechanism for determining the discount rate for long-term receivables is formed, which is based on taking into account

the "traditional" factors of creating a discount rate (inflation, cash profitability and risk factor for a particular enterprise).

The application of specific methods of determining discount rates remains an open question, since each of them has a mathematical justification and takes into account only a separate set of factors, which, in our opinion, is subjective and requires a reversal from the professional judgment of accountants.

The flexibility of methodological approaches to accounting reflection of business transactions, which are declared in the accounting policies of the enterprise, is decisive when applying discounting and determining its rate. According to the research, the calculation of the discount amount determines a number of changes in the financial statements that in the future affect the financial performance of the entity.

Therefore, the study formed an approach that reflects changes in the financial statements, which is an addition to the developed algorithm for determining the discount rate. The proposed mechanism of using the discount rate creates additional opportunities for Ukrainian business entities to make decisions about cash flow management (in particular, long-term receivables) and financial results of the enterprise.

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