

RESEARCH REPORT

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Assessing the Impact of Receivables on the Enterprise Value

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Abstract

Purpose: An enterprise is considered a business unit in the valuation process. It is an integral property complex consisting of such elements that can be valued more or less independently of each other. Among these elements, it is customary to distinguish between those that can be quantified, such as land, real estate, equipment, liquid assets, receivables, and those that cannot be formalised, such as image, business reputation, technical competence, and quality of management. As a result, the total enterprise value can be defined as the sum of the values of its elements that can and cannot be comprehended. A significant indicator characterising the financial position of an enterprise is the state of settlements with debtors. *Design / Methodology / Approach:* The theoretical and methodological basis of our research is the scientific provisions of the modern theory of accounting and management, the works of domestic and foreign scientists on the basics of accounting, analysis and asset management. To solve the research tasks set in the work, specific methods were used, in particular, the statistical method, methods of regression analysis. *Findings:* Too much receivables is a negative phenomenon in the economy of any state. A significant amount of receivables, which takes place in relations between Ukrainian enterprises, undoubtedly leads to a crisis of non-payments. In turn, the non-payment crisis leads to a shortage of cash by enterprises that could be invested in their economic activities, and thus hinder the development of entrepreneurial activity in the country as a whole. The issues of the optimal amount of receivables in an enterprise are quite important and relevant for the activities of any enterprise, especially in the current conditions of the functioning of the economy. *Originality / Value:* It is determined an interdependence of the amount of receivables and its management. It is substantiated that timely and appropriate measures taken to settle the optimal amount of receivables lead to the financial recovery of all activities of the enterprise and ensure its financial security. It is investigated that the issues of the optimal amount of receivables at the enterprise are very important and relevant for the activities of any enterprise. *Practical Meaning:* An economic and mathematical model of calculation the optimal ratio of receivables is proposed, which will help in the management of receivables at the enterprise and increase the efficiency of its activities. *Further Research:* Development of receivables management models that will help to establish a real assessment of the value of the enterprise and increase the efficiency of the financial aspect of its activities.

Keywords

financial activity, accounts receivable, enterprise accounts receivable management, enterprise value, economic and mathematical modelling, evaluation.

JEL Classification: C61, G32.

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НАУКОВЕ ПОВІДОМЛЕННЯ

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Оцінка впливу дебіторської заборгованості на вартість підприємства

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Анотація

Мета. У процесі оцінки підприємство розглядається господарською одиницею. Вона є цілісним майновим комплексом, що складається із таких елементів, які можуть бути оцінені більш менш незалежно один від одного. Серед цих елементів прийнято розрізняти ті, що можна кількісно оцінити, такі як земля, нерухомість, обладнання, ліквідні засоби, дебіторська заборгованість, та ті, що не піддаються формалізації, а саме імідж, ділова репутація, технічна компетенція, якість управління підприємством. В результаті, загальна вартість підприємства може бути визначена, як сума вартостей його елементів, які можна і не можна осягнути. Суттєвим показником, що характеризує фінансове положення підприємства, є стан розрахунків з дебіторами. **Дизайн / методи / підходи.** Теоретико-методологічною основою нашого дослідження є наукові положення сучасної теорії обліку і управління, праці вітчизняних і зарубіжних вчених з основ обліку, аналізу та управління активами. Для вирішення поставлених у роботі завдань дослідження використовувалися конкретні методи, зокрема, статистичний метод, методи регресійного аналізу. **Результати.** Занадто велика сума дебіторської заборгованості являє собою негативне явище в економіці будь-якої держави. Значний обсяг дебіторської заборгованості, що має місце у відносинах між українськими підприємствами, безсумнівно веде до кризи неплатежів. В свою чергу, криза неплатежів веде до недоотримання наявних грошових коштів підприємствами, які б могли бути ними вкладені у свою господарську діяльність, і тим самим, гальмують розвиток підприємницької діяльності в цілому в країні. Питання оптимального обсягу дебіторської заборгованості на підприємстві є досить важливими та актуальними для діяльності будь-якого підприємства, особливо в теперішніх умовах функціонування економіки. **Оригінальність / цінність / наукова новизна.** Визначено взаємозалежність розміру дебіторської заборгованості та управління нею. Обґрунтовано, що вчасно вжиті адекватні заходи щодо погашення оптимального розміру дебіторської заборгованості призводять до фінансового оздоровлення всієї діяльності підприємства та забезпечують його фінансову безпеку. Досліджено, що питання оптимального розміру дебіторської заборгованості на підприємстві є дуже важливими та актуальними для діяльності будь-якого підприємства. **Практичне значення.** Запропоновано економіко-математичну модель розрахунку оптимального співвідношення дебіторської заборгованості, яка сприятиме управлінню дебіторською заборгованістю на підприємстві та підвищенню ефективності його діяльності. **Подальші дослідження.** Розробка моделей управління дебіторською заборгованістю, що допоможе встановлювати реальну оцінку вартості підприємства та підвищувати ефективність фінансового аспекту його діяльності.

Ключові слова

фінансова діяльність, дебіторська заборгованість, управління дебіторською заборгованістю підприємства, вартість підприємства, економіко-математичне моделювання, оцінка.

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Вступ / Introduction

At the current stage of economic development, enterprises are not able to effectively manage their receivables, which make a significant share of the current assets. Most enterprises practically are not able to normally function due to the receivables, as this withdraws funds from the turnover. Under such circumstances, the role of effective accounts receivable management, its timely return and prevention of bad debts increases significantly, and it cannot be done without proper analysis and use of economic and mathematical modelling.

It should be noted that the problems of accounts receivable management, its availability and amount at the enterprise are considered in the researches of many foreign and domestic economists, but the issue still remains topical, and the definition of its optimal ratio at the enterprise is becoming urgent in the current conditions of managing a market economy.

Огляд літератури / Literature Review

The study of literary sources on the accounts receivable management and the determination of its influence on the enterprise activities, as well as its functioning in modern economic conditions, showed a variety of approaches to study of this issue. Thus, the analysis of domestic scientists who considered the above-mentioned issue in their works showed the following:

M. Pasternak (2018) defines that receivables can have a significant influence on the volume and structure of the money supply, payment turnover, the rate of funds turnover at the enterprise. At the same time she states that the increase in accounts receivable and its share in the current assets of the company indicates the unconscionable credit policy of the company with regard to buyers or the increase in the volume of sales of goods, or indicates the financial insolvency of some buyers. It is indicated that a long-term non-return of accounts receivable causes a cash deficit that can reduce the financial activity of the enterprise. The author also notes that an important stage in the accounts receivable analysis is the factorial analysis, which is aimed at quantifying the impact of various factors on the level of receivables. It is also noted that enterprise managers must explore the amount of their receivables in different ways. Very often they do not pay due attention to the implementation of a comprehensive financial analysis of the company, which is very important as the accounts receivable management requires a truly well-considered scientific approach.

N. Khokhlov, & E. Korniienko (2017) also emphasizes the importance of the accounts receivable management. In his works he examines the main stages and models of accounts receivable management at the enterprise, highlighting its main advantages disadvantages. The author notes that the financial resources management of the company is closely connected with the optimal ratio of accounts receivable, as well as its size, the term of its payment and the impact of such receivables on the financial support of the enterprise. Investigation of this issue also focuses on the fact that the excessive receivables lead to an outflow of equity, while its excess to a certain extent can cause both a loss of liquidity and a stop of the production at the enterprise. In addition, accounts receivable management is defined as a process of development and implementation of managerial decisions regarding the coherence of its size and turnover ratio to provide the necessary profit from activities and obtain the optimal amount of available funds at the enterprise.

V. Bielozertsev (2015) pays considerable attention to the methods of managing receivables at the enterprise. In particular, she notes the importance of determining the optimum size of receivables, which would not prevent the normal functioning of the enterprise. Also, in her studies it is noted that insignificant amounts of receivables may indicate a low sales of company, but significant volumes will indicate a large amount of cash outflow from the company. Both of these will significantly affect the economic activity of the enterprise.

In particular, E. Oseifuah, & A. Gyekye (2017) identified in their research the risk of insolvency of small and medium enterprises and their problems with the receivables, noting its significant impact on their development and functioning.

M. Chornobryvets (2013) also consider the accounts receivable management in their research work. The authors note that its timely payment plays a positive role in economic activity, but the presence of a significant amount of debt leads to the risk of delayed payments, as well as additional costs associated with the accounts receivable management. It is being noted that the capital invested in receivables does not bring income to the enterprise. Also, the authors point out that the accounts

receivable management is a very powerful tool for the elimination of the non-payments risk, being an integral part of the financial management of any enterprise. They consider the optimal ratio of receivables size and assessing the creditworthiness of buyers to be the basis of the research. Since receivables for goods, works and services are an integral part of an enterprise's assets, its availability and size are extremely important to control.

D. Kubíčková, & J. Souček (2014) in their studies pointed to the importance of the availability and use of accounts receivable in the management system of companies, paying particular attention to the forms and methods of managing it.

F. Casalin et al (2017) note the importance of researching relations between suppliers and buyers of material assets, in particular, they analyzed such an interconnection on the example of Chinese industrial relations, using different approaches to analysis of the impact of receivables and payables on the activities of the enterprises.

V. Omelyanenko et al (2017) analyzed the determination of the place of working capital and its individual components in the enterprise management system, using the regression data analysis.

V. Gunia, & V. Bielozertsev (2014) emphasizes that in the modern realities of settlement relations when the receivables are an integral part of the economic life of the enterprise, accounts receivable management is of particular importance. In the author's opinion, enterprises, which activities lead to an increase in receivables, have a greater potential to increase their income. At the same time, if there is an existing receivable that is uncontrolled by the enterprise, it can lead to financial problems and, eventually, even to bankruptcy. In the course of the research, the emphasis is made on the importance of managing receivables, establishing a link between it and the turnover of assets at an enterprise, and determining the impact on the efficiency of the activity and the equity capital use.

The above mentioned studies are of unquestionable importance but it should be noted that there continues to be a need for further research on the accounts receivable management at the enterprise, determination of its optimum ratio, in particular, using the economic and mathematical methods.

Постановка завдання / Problem Statement

Accounts receivable affects the economic activity of the enterprise in such a way that it is almost always a probability that it will remain unrecoverable for a certain period of time, and this, in the first place, leads to a crisis in the financial state of the company, as there is a situation of shortfall in available cash. Therefore, the purpose of the study was to find the directions of the effective available receivables management at the enterprise through the application of economic and mathematical modelling.

Матеріали та методи / Materials and Methods

During the study, a number of methods were used, in particular, statistical method, methods of regression analysis, method of simultaneous equations solution.

Результати та обговорення / Results and Discussion

In the process of assessment, an enterprise is considered as a business entity and, at the same time, is a property complex consisting of elements that can be assessed more or less independently of each other. Among these elements, it is common to distinguish the tangible ones, such as land, real estate, equipment, liquid assets, accounts receivable, and intangible ones, namely an image, business reputation, technical competence, and the quality of enterprise management. The importance of these issues is substantiated by T. Demchenko (2011). An important indicator characterizing the enterprise activity is the state of settlements with debtors. Accounts receivable of the enterprise arises as a result of non-cash settlements with buyers, contractors, depositors, accountable persons etc. The incurring of debts is due to the coincidence of the moment of finished products shipment, performance of works or delivery of services with the time of their payment. Significant amounts of accounts receivable lead to working capital redistribution. The issue of the optimum amount of receivables at the enterprise is very important and relevant for the activity of any enterprise, especially in the current conditions of economic performance.

Size of available receivables leads to the need for an optimal risk management and profitability management solution. It is important to consider the comparison of the benefits that an enterprise

wants to receive by investing funds in accounts receivable, with the costs that it will incur as a result. The accounts receivable management includes special procedures and models of company behavior in regard to buyers and customers while selling them the assets with a payment delay and control of its final receipt.

To improve the efficiency of the enterprise in the current conditions of management and taking specific management decisions on the availability and size of receivables, it is advisable to analyze the availability and change of accounts receivable at a specific Ukrainian company "Agroservice" LLC of Odessa region and to determine the directions of forming its optimal size for the economic process optimization.

To analyze the dynamics of the receivables turnover ratio and the duration of its payment at the "Agroservice" LLC, let us consider the data given in Table 1.

Table 1. Receivables turnover ratio dynamics at the "Agroservice" LLC

Index	2014	2015	2016	2017	2018	2019	2020	2021	2021 to 2014, (+/-)
1. Net income (revenue) from sales of products (works, services), thousand UAH	10,600	15,637	29,261	44,105	52,361	54,212	56,320	55,420	+44,820
2. Average annual amount of receivables, thousand UAH	30,008	29,160	66,855	50,984	96,128	101,230	106,570	103,530	+73,522
3. Receivables turnover ratio	0.35	0.54	0.44	0.87	0.54	0.53	0.56	0.55	+0.19
4. Duration of accounts receivable payment, days	1,033	681	834	422	670	695	680	675	-338

Source: Calculated according to the financial statements of the enterprise.

The net income of "Agroservice" LLC for 2014–2021 increased by UAH 44.8 million, while the increase in average annual receivables amounted to UAH 73.5 million, that is, more than three times. This led to a low value of the receivables turnover ratio, as a result the period of receivables payment in 2014 was 1,033 days, and in 2021 – 675 days.

Since the accounts receivable make a certain share of current assets, there is a correlation between the working capital value and the amount of receivables. The simplest and, at the same time, objective enough to detect a correlation relationship between the investigated values is the regression analysis method.

Data analysis showed the importance of receivables in 2014. It can be assumed that this is due to the complex social and political situation in Ukraine, caused by events in the East of the country.

The dependence of average annual receivables (AAR) on the average annual value of working capital (AVWC) was obtained using the linear regression method. In order to find the linear regression coefficients, we used the least squares method, according to which the model parameters are chosen in such a way that the sum of squares of empirical values deviations from the model ones is minimal according to F. Rohalskyi, & A. Tsokurenka (2001).

$$AAR = 3,203.287 + 0.798 \cdot AVWC. \quad (1)$$

To evaluate the model quality, we calculated the determination coefficient (for linear regression it is equal to the squared multiple correlation, which value ranges from 0 to 1 and the more it approaches to 1, the more appropriately the model describes the empirical data).

The determination coefficient for the model (1) equals to $R^2 = 0.999$. The determination coefficient does not differ much from one, indicating that the conditional variance of the model differs little from the real significance variance and with a sufficient probability indicates that the model is not bad enough to describe the data.

The coefficient of argument in Formula (1) is equal to 0.798, that is, with the increased working capital cost by 1 UAH, the amount of accounts receivable increases by UAH 0.798.

Settlements with debtors are of dynamic character, and therefore require constant control of the company management. This activity is inextricably connected with the processing of large streams of economic information, which largely depends on the accounting system efficiency of the enterprise. For

proper management and functioning, it is necessary to have reliable and timely information on the status of accounts receivable, legality and verifiability of economic operations.

Висновки / Conclusions

Thus, the study of the optimal ratio of receivables available at the enterprise is one of the key tasks in solving problems that arise during the current management of the enterprise, including from the position of liquidity.

To develop an economic and mathematical model, we assumed that the impact of liquidity on the enterprise profitability is statistically significant. At the same time, the growth of the liquidity ratio leads to an increase in the profitability of assets, but to a certain limit, after which the connection becomes inverse. Consequently, at the functional dependence of the current assets profitability ratio on the liquidity ratio the maximum value should be observed.

At the enterprise a certain amount of receivables will always be present, as it is the result of its financial and economic activity. At the same time, important for the company managers should be not the problem of its complete elimination, but optimization of its volume. The tools for managing and controlling the level of accounts receivable and its structure should be developed at the enterprise. In addition, the main factors that have a significant impact on its dynamics and structure should be taken into account. The accounts receivable management essentially depends on the analysis of such factors, and it, in turn, affects the entire financial activity of the enterprise.

The values of the optimal amount of receivables in the enterprise are very important and relevant for the activities of any enterprise, especially in the current conditions of the economy. The received assessments of the optimal ratio between the accounts receivable and monetary and working assets cannot be considered accurate. But one can make a fairly sure conclusion that accounts receivable cannot be less than the sum of all other components of current assets. This is primarily due to the issue of the expediency of large stocks storing at the enterprise, as it is better to sell them and have a certain amount of receivables than hold significant volumes of finished stock products.

Авторський внесок / Author Contributions

концептуалізація та проектування / Conceptualization and Design: T. Demchenko;
огляд літератури / Literature Review: T. Demchenko;
методологія та обґрунтування / Methodology and Validation: T. Demchenko;
формальний аналіз / Formal Analysis: T. Demchenko;
розслідування та збір даних / Investigation and Data Collection: T. Demchenko;
аналіз та інтерпретація даних / Data Analysis and Interpretation: T. Demchenko;
написання – початковий варіант / Writing – Original Draft Preparation: T. Demchenko;
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адміністрування проекту / Project Administration: T. Demchenko;
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