ECONOMY

PROBLEMATIC ASPECTS OF FINANCIAL RISK ASSESSMENT METHODOLOGY IN STEVEDORING COMPANIES

Candidate of Economic Sciences, ***Boiko M. O.,***
Postgraduate, ***Gevrek Yu. S.***

Ukraine, Odesa, Odesa National Maritime University

DOI: https://doi.org/10.31435/rsglobal_ws/30122019/6828

ARTICLE INFO

Received: 12 October 2019
Accepted: 13 December 2019
Published: 30 December 2019

KEYWORDS

financial risk,
risk factors,
financial stability,
currency rate,
risk map,
stevedoring company.

ABSTRACT

The study is dedicated to identification of problematic aspects of financial risk assessment methodology on the example of stevedoring companies. In research established the list of issues for improvement the methodology of financial risk assessment both in theoretical and practical aspects. Formulated industry features of the stevedoring companies' activity, relevant factors from the perspective of financial risk impact on results of activity, among which are distinguished: loss of net sales, exchange rate instability and decrease of financial stability. It was found that the loss of net income from the sale of state stevedoring companies of Ukraine occurred: due to the failure to fulfill the plan of cargo processing by reducing the number of the number of ship-measures and change of the nomenclature of cargo towards the less profitable and instability of the US dollar. Particular attention is paid to assessing the level of financial stability of state-owned stevedoring companies in Ukraine and identifies a downward trend in recent years. It is argued that the definition of factors that affect financial risks should be conducted using factor analysis, mathematical models that require comprehensive consideration of uncertainty factors and related to the peculiarities of stevedoring companies operation. The feasibility of drawing up a financial risk map and the options of management's response to their presence have been proved.

Citation: Boiko M. O., Gevrek Yu. S. (2019) Problematic Aspects of Financial Risk Assessment Methodology in Stevedoring Companies. *World Science.* 12(52), Vol.1. doi: 10.31435/rsglobal_ws/30122019/6828

Introduction. The activity of any company is associated with the presence of various types of risks, which is due to the uncertainty of the effect of various factors in the market environment. A separate group of existing risks are financial risks that arise in the sphere of financial relations of the company and directly affect the size of the financial result in the form of profit, the likelihood of financial losses in terms of value. Many researchers have paid attention to the definition of financial risk, its characteristics, classification and discovering methods of its assessment.

Financial risk is characterized by the probability of loss as a result of conducting an economic activity, primarily operating and investment activities [1]. The relevance of financial risk management as a subjectively objective category, which not only causes losses but also gives additional benefits under effective management, is growing rapidly, since without financial risk it is impossible to carry out any financial and commercial activities [2, c. 168].

Among the classification signs of financial risk the most common are the following: tax, currency, inflation, credit, deposit, portfolio, reduction of financial stability, liquidity, insolvency, interest, investment, loss of profit [3, 4].

The type of the company activity and its specific industry characteristics influence the interpretation and assessment of financial risk. Thus, for port enterprises "the threat of activity may come from competitors, from their own miscalculations in planning and management, from mistakes in recruitment. In any case, it is important not to avoid risk at all, but to anticipate and reduce risk to a minimum" [5, c. 79].

Stevedoring activity is part of the economic activity of the port as a whole and its main subject of economic activity; it is aimed at generating income in cash or in another form, which is regular and permanent, are also accompanied by financial risks. At present, stevedoring companies are left out of the question of improving financial risk assessment, both in theory and in practical terms. In particular, the need to assess the financial risk of stevedoring companies is due to:

- the likelihood of financial consequences associated with the existence of a dominant share of foreign currency payments, which directly influences the presence of currency risk associated with currency fluctuations, which have been quite significant in Ukraine in recent years [6];
- strengthening of the role of the private sector in the activity of port enterprises: along with the increase of economic efficiency of functioning of the port complex due to the combination of interests of all participants of the process, there is an increase in the probability of occurrence of risky financial transactions [7];
- inflationary processes that result in a rise in the cost of resources (materials, fuel, etc.) that affect the company's net profit;
- credit risks related to the fact that the client may fail to fulfil his obligations to the stevedoring company within a specified timeframe, which will cause financial losses;
- interest rate risk arising from credit financing for the construction of hydraulic structures and port infrastructure facilities, the purchase of reloading equipment;
- the tendency to decrease the financial stability of the state stevedoring companies of Ukraine.

Purpose of the research – identify directions for improving the methodology of financial risk assessment on the example of stevedoring companies.

Research results. The definition of financial risk of a company in literary sources is ambiguous, in some cases controversial.

Financial risks create the possibility of losses arising from the failure to achieve a financial objective. The risk reflects uncertainty about foreign exchange rates, interest rates, commodity prices, equity prices, credit quality, liquidity, and an organization's access to financing. These financial risks are not necessarily independent of each other. For instance, exchange rates and interest rates are often strongly linked, and this interdependence should be recognized when managers are designing risk management systems [8, p. 5].

Financial risk includes the problems that an investment firm creates for itself or others as a result of its financial condition. In particular, this kind of risk occurs when a firm has insufficient financial strength to sustain its activities in the trading markets given the commitments it undertakes for itself or for its customers [9, p. 75].

In a financial services context, risk is defined as "the lack of predictability of outcomes" affecting the set of financial transactions and positions which cumulatively form the firm's business [10, c. 15].

Thus, risk includes the possibility of both pleasant surprises as well as adverse business outcomes. Since prediction is facilitated by the availability of information to a decision maker, risk management technology (RMT) can be used to proactively gauge risk in financial operations, where the outcomes of regional lending operations, involvement in selected financial markets and instruments and positions taken by traders are uncertain and may change from day to day. Risk management, on the other hand, is the management of the resources and commitments of a firm so as to maximize its value, taking into account the impact that unpredictable outcomes or events can have on firm performance [11, p. 1].

An important aspect of financial risk assessment is the need to determine an entity's data based on insignificant and relevant information, which avoids insignificant features and parameters and speeds up management decision-making at the least cost and time.

The financial risk assessment of the performance is related to the industry specificities of the company. Consider these features for stevedoring companies.

Nowadays a considerable number of economic entities provide services and carry out work on the order of ship- and cargo-owners: stevedoring, freight forwarding, agent, shipchandler, surveyor, logistic companies. The performance of stevedoring companies from a financial risk management perspective is linked to the new conditions of market transformations and business practices, as well as to international economic integration and the overall transport strategy.

The development of theoretical and methodological bases for the financial risk assessment of stevedoring companies and the development of practical recommendations for their improvement are relevant and require further research in the areas of:

–analysis and systematization of modern theoretical and methodological approaches to the definition of the essence of "financial risk";

- expansion of the system of classification of existing signs of financial risk;
- clarification of the conceptual and categorical apparatus, in particular the "risk of lost profit", which is directly related to the insufficient organization of internal control of financial risks at the enterprise;
- determining the impact of factors on the level of financial risk;
- evaluation of the features of financial analysis as a tool for managing financial risks;
- substantiation of directions of improvement of the system of financial risk management in activity of stevedoring companies;
- development of stevedoring companies financial risk assessment methodological bases that take into account the specificity of company activity;
- development of economic tools for assessing and forecasting financial risk of stevedoring companies.

The solution of the actual scientific problem, which consists in theoretical, methodological and economic-organizational support of estimation and management of financial risks of stevedoring companies will allow:

- to improve the conceptual categorical apparatus; classification of financial risk existing signs, lost profit risk; methodological bases of stevedoring companies financial risk assessment; financial risk management system in stevedoring companies;
- develop methodological approaches to assess the feasibility of applying risk-oriented financial control; economic tools for assessing and forecasting financial risk of stevedoring companies; financial analysis technologies in the field of financial risk management.

Relevance of these directions is confirmed by the recent tendencies of activity of state stevedoring companies of Ukraine:

- loss of net income from sales due to lack of processing of planned volumes of cargoes and reduction of the US dollar rate, which is the basis for investment in the financial plan;
- inefficiency in the use of assets, including cash;
- tendency to decrease financial stability, financial income, profit from exchange rate differences;
- presence of non-profit units of social sphere;
- limited investment opportunities.

In our view, the most significant financial risk factors are the loss of net realizable income, volatility of the exchange rate and the decline in financial stability.

The loss of net sales revenue due to the failure to process the planned cargo volumes is due, first and foremost, to a reduction in the number of ship activities and cargo handling in virtually all types of cargoes and a change in the nomenclature of goods towards less profitable ones. For example, for State enterprise (SE) "Mariupol Commercial Sea Port (CSP)" the decrease in the income rate for 2018, which was 180.8 UAH/ton, which is 12.6 % less than the plan for 2018 [12].

The strong influence of financial risk factors for stevedoring companies is linked to the volatility of the US dollar. Price policy of stevedoring companies is based on Art. 21 of the Law of Ukraine "About Seaports of Ukraine", according to which services provided in a seaport, except specialized, are free and are determined by the contract between the entity providing the relevant services and their customer [13].

From July 15, 2014, free tariffs will be charged for a complex of works related to the processing of foreign trade, transit, cabotage cargo, cargo storage, fees and fees for services rendered to ships. Thus, in financial terms, revenues for loading and unloading, storage of cargoes, mooring fees and for the operation of tugboat differ from the actual received due to currency fluctuations (Fig. 1).

Therefore, sales revenues are planned for 2017 year at the rate of 27.2 UAH / USD, for 2018 year at the rate of 29.3 UAH/ USD. In fact, the weighted average dollar exchange rate for 2017 was 26.59 UAH/USD, and for 2018, 27.2 UAH/USD. The deviation of the actual rate downwards from the planned one in 2017 is 2.1 UAH/USD (7.7 %) and in 2018 year 0.61 USD / USD (2.3 %). The financial losses from such fluctuations are obvious and are measured in thousands of dollars.

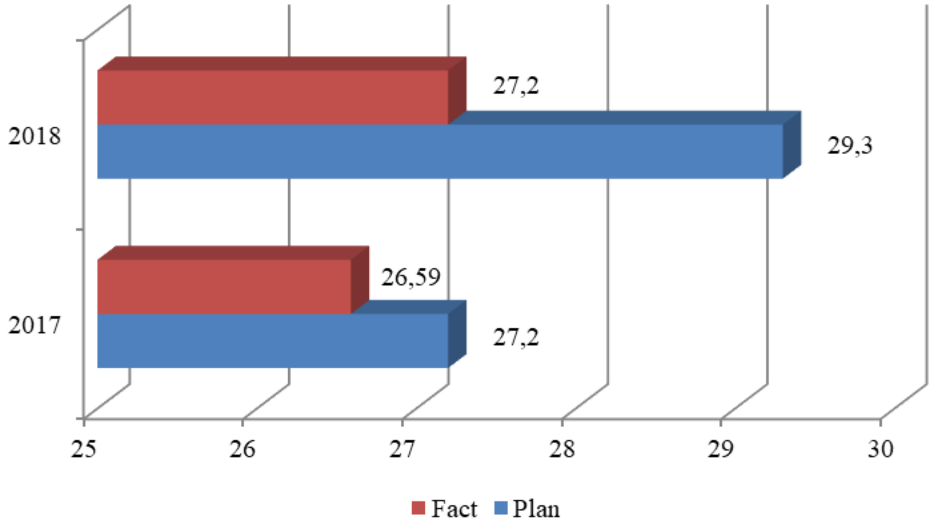

Fig. 1. Analysis of the US dollar exchange rate included in the financial plan of state-owned stevedoring companies of Ukraine, UAH / USD
Source: compiled using [12, 14]

For example, in SE “Commercial Sea Port Pivdenny”, the decrease in operating income as a result of changes in the actual US dollar exchange rate in the reporting period of 2018 amounted to 129,032 thousand UAH [12].

Financial risk is directly related to the financial stability of the company, which can be estimated by the coefficient of autonomy, which is calculated as the ratio of equity to total assets. In recent years, there has been a tendency to decrease the financial soundness of state-owned stevedoring companies of Ukraine (Table 1), which is a signal for determining the factors that influence this situation, the consequences of risky operations and the optimal structure of sources of formation of assets.

Table 1. The level of financial sustainability of state stevedoring companies of Ukraine

State Stevedoring Company	2017	2018	Deviation	
			absolute	relative
SE “Berdyansk Commercial Sea Port”	0,95	0,95	0,00	0,00
SE “Belgorod-Dnestrovsky Commercial Sea Port”	0,88	0,80	-0,08	-9,1
SE “Izmail Commercial Sea Port”	0,84	0,88	0,04	4,8
SE “Mariupol Commercial Sea Port”	0,94	0,97	0,03	3,2
SE “Nikolaev Commercial Sea Port”	0,96	0,94	-0,02	-2,1
SE “Commercial Sea Port Ust-Dunaisk”	0,95	0,91	-0,04	-4,2
SE “Commercial Sea Port Chernomorsk”	0,90	0,86	-0,04	-4,4
SE “Odesa Commercial Sea Port”	0,99	0,98	-0,01	-1,0
SE “Commercial Sea Port Pivdenny”	0,75	0,76	0,01	1,3
SE “Reni Commercial Sea Port”	–	–	–	–
SE “Stevedoring Company Olvia”	1,00	0,92	-0,08	-8,00
SE “Kherson Commercial Sea Port”	0,93	0,82	-0,11	-11,83

Source: compiled using [12]

The level of financial independence is observed at SE “Berdyansk CSP”, SE “Izmail CSP” and SE “Mariupol CSP”. Decline in financial independence was particularly rapid at SE “Belgorod-Dnestrovsky CSP”, SE “Stevedoring Company Olvia” and SE “Kherson CSP”.

Concerning to SE "Reni Commercial Sea Port" it should be noted that there is a strong dependence on external sources of asset formation and an increase in this dependence. Thus, in 2017 year the excess of attracted sources exceeded the equity by – 2 984,0 thousand UAH, and in 2018 year by 22 415,0 thousand UAH. The presence of such debt is conditioned by long-term and current liabilities, with a significant increase in the latter. The ratio of long-term and current liabilities is 1/3 in 2017 and in 2018. The positive point is the value of the autonomy indicator, which is higher than the one recommended by all state stevedoring companies of Ukraine with the exception of SE "Reni CSP".

Determining the factors that affect the level of financial sustainability should be based on an assessment of the available financial risks of loss of independence from external sources of asset financing. Such an assessment can be made using factor analysis, models that require comprehensive consideration of uncertainty factors and related to the peculiarities of operating stevedoring companies in the face of existing financial risks.

For example, mathematical approaches to the modelling and processing of fuzzy data based on expert judgment, fuzzy sets are valid and allow solving a wide range of management problems, to take into account the fuzziness of the data, the multiplicative influence of uncertainty factors, the impact of risks and subjective decisions, increasing the adequacy of quantitatively and qualitatively. The main advantages of using a fuzzy multiple approaches are the ability to adapt to specific changing conditions, the ability to rank companies by level, and the ability to describe quantitatively and qualitatively information about objects. The disadvantage of this approach is the subjective nature of determining the significance of indicators, the lack of a methodological basis for determining them, the need for systematic collection and monitoring of a large number of performance indicators.

It is also possible to apply methods of scenario analysis and processing, optimization, game-theoretic methods, software-target method, etc. The above methods have not yet received detailed theoretical substantiation and widespread practical use in assessing the financial risk of stevedoring companies.

The consequences of risky operations can be significant to the financial results of the stevedoring companies, so it is advisable to draw up a risk map and make a significant selection of risks. The main purpose of this process is to obtain the output of the list of risks that are located in order of decreasing materiality.

Examples of risk mapping are given in the works [8, 15]. The estimated risks can then be prioritized using a likelihood/impact matrix, such as that illustrated in Figure 2.

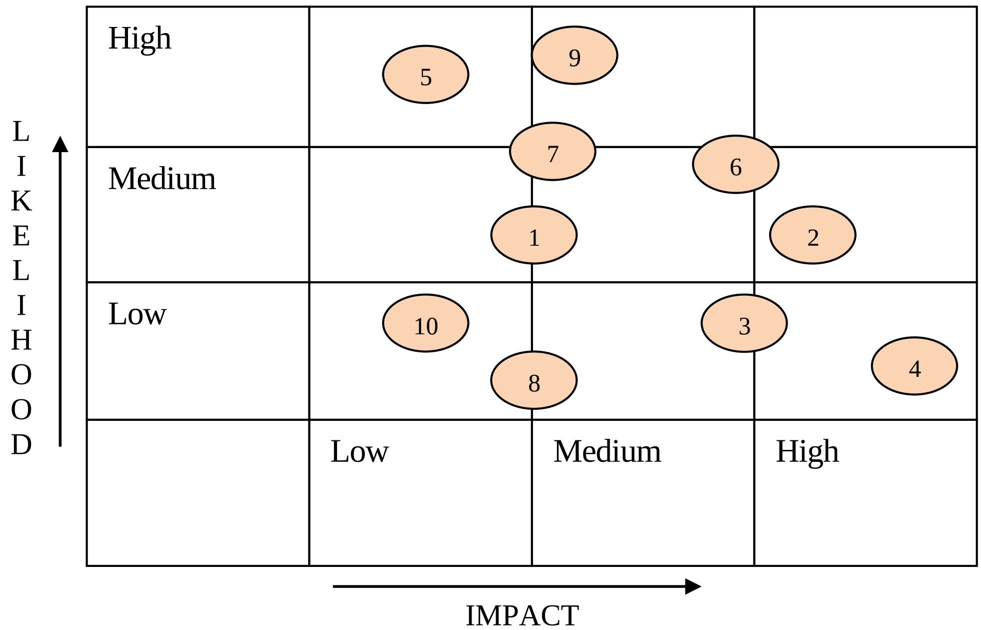

Fig. 2. A Likelihood/Impact Matrix
Source: [8, p. 8]

A variety of situations are associated with types of risk probability (Table 2)

Table 2. Risk probability situations

Probability	The probability of occurrence
The risk will not manifest itself	5
Most likely, the risk will not manifest itself	10
The probability of manifestation and non-manifestation of risk is the same	50
The risk is most likely will manifest itself	75
High risk of risk	95

Source: [15, p. 240]

The following nuances must be taken into account when drawing up the risk map:

- if the activity of the company includes several directions - a separate risk map is prepared for each direction;
- if the company has subsidiaries, then cards are drawn up for both the subsidiaries and the parent company;
- risks of large projects are considered separately.

The response of the management of the stevedoring company to the presence of financial risks may be different (Fig. 3).

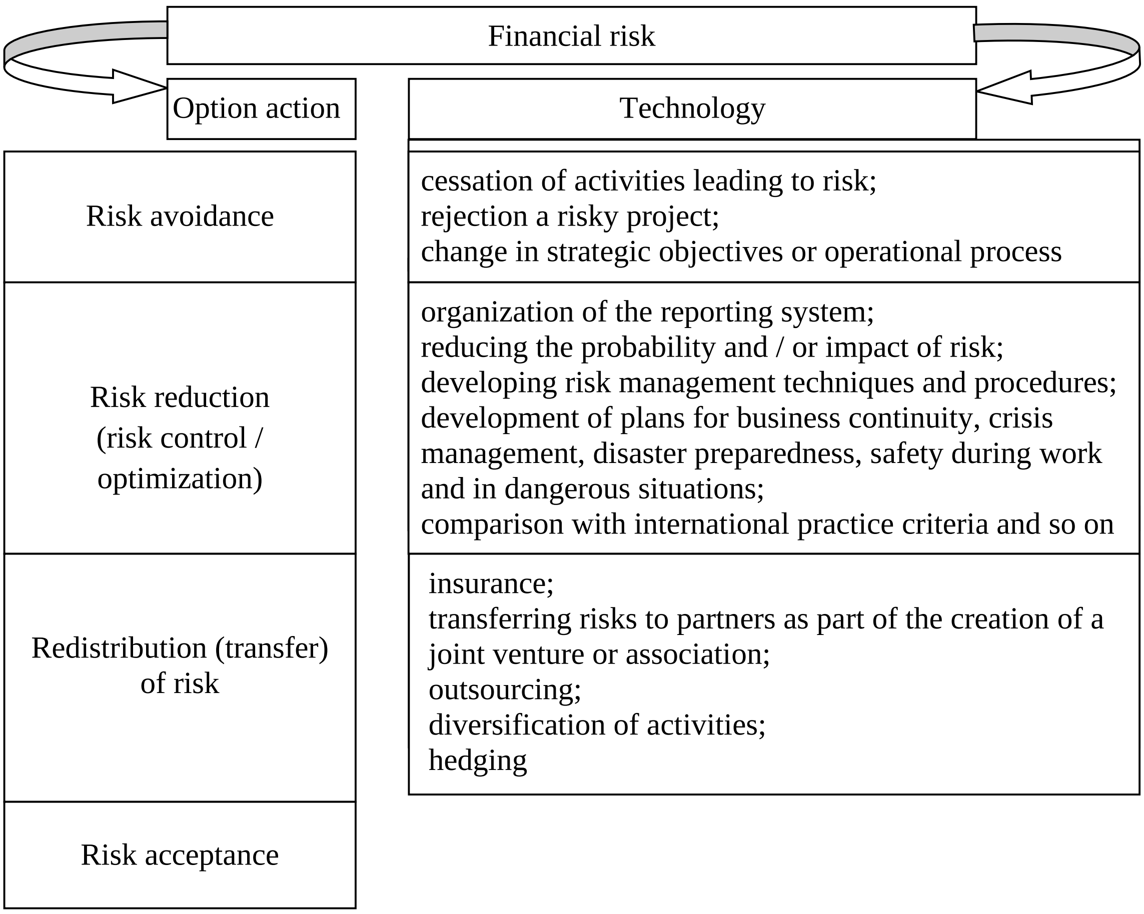

Fig. 3. Options for management's response to financial risks [8, 15, 16]

Although the business requirements facing firms related to financial risk management are increasing, so are the ways to address them. The technology that can be applied to the fled of financial risk management is changing extremely rapidly. Attempting to keep abreast of the constantly evolving technologies can be overwhelming [16, p. 7].

The system of financial risk management in terms of individual management functions, methods and measures of their practical implementation should be aimed at the selection of indicators, their analysis and forecasting of all financial transactions at the company. As a result, systematic monitoring, response and normalization of the situation are the avoidance of situations that significantly affect the financial result of the company in the form of profit, and in some cases, loss reduction.

Conclusions. The research sets out a list of issues of improvement of the method of financial risk assessment, both in theoretical and practical aspects. Formulated industry features of the stevedoring companies' activity, relevant factors from the perspective of financial risk impact on results of activity, among which are distinguished: loss of net sales, exchange rate instability and decrease of financial stability. It was found that the loss of net income from the sale of state stevedoring companies of Ukraine occurred: due to the failure to fulfill the plan of cargo processing by reducing the number of the number of ship-measures and change of the nomenclature of cargo towards the less profitable and instability of the US dollar. Particular attention is paid to assessing the level of financial stability of state-owned stevedoring companies in Ukraine and identifies a downward trend in recent years. It is argued that the definition of factors that affect financial risks should be conducted using factor analysis, mathematical models that require comprehensive consideration of uncertainty factors and related to the peculiarities of stevedoring companies operation. The feasibility of drawing up a financial risk map and the options of management's response to their presence have been proved. The practical significance of the expected scientific results will be the ability to apply the scientific provisions and conclusions of the study to the practical activities of the stevedoring companies in assessing and managing their financial risks.

REFERENCES

1. Невмержицький Я. Фінансовий ризик та дивідендна політика підприємства. *Ринок цінних паперів в Україні*. 2006. № 5-6. URL: http://securities.usmdi.org/?p=22&n =29&s=280
2. Вінницький П.А., Шокало О.Ю. Управління фінансовими ризиками підприємства. *Економічний простір*. 2010. №42. С. 168-173.
3. Дерменжі Д.Ф. Визначення сутності фінансових ризиків та основних методів їх оцінки в умовах нестабільної ринкової економіки. *Причорноморські економічні студії*. 2018. Вип. 25. С. 71-74.
4. Жихор О.Б., Балясна Ю.С. Управління фінансовими ризиками та методи їх нейтралізації на підприємстві. *Фінансово-кредитна діяльність: проблеми теорії та практики*. 2011. №2. С. 149-153.
5. Бойко М.О. Ідентифікація і побудова класифікації загроз економічної безпеки підприємств портової галузі. *Розвиток методів управління та господарювання на транспорті*. 2015. № 1(50). С. 63-81.
6. Oneshko S., Ilchenko S. Financial monitoring of the port industry companies on the basis of risk-oriented approach. *Investment Management and Financial Innovations.* 2017. Volume 14, Issue #1, pp. 191-199. DOI: 10.21511/imfi.14(1-1).2017.05
7. Онешко С.В. Особливості побудови системи управління економічною безпекою в портовій діяльності. *Проблеми розвитку транспорту і логістики: матеріали VII Міжнародної науково-практичної конференції*, 26-28 квітня 2017. Одеса. С. 257-259.
8. Margaret Woods and Kevin Dowd Financial Risk Management for Management Accountants. 2008. 29 p. URL: https://www.cimaglobal.com/Documents/Imported Documents/ cid_mag_financial_risk_jan09.pdf
9. R. “Tee” Williams An Introduction to Trading in the Financial Markets: Global Markets, Risk, Compliance, and Regulation, 2012. pp. 73-81. URL: https://www.sciencedirect.com/topics/economics-econometrics-and-finance/financial-risk
10. Doherty, N.A. Corporate Risk Management, McGraw-Hill Inc., New York, NY 1985. xvi 483
11. Arun Bansal, Robert J. KaufFman, Robert M. Mark, Edward Peters Financial risk and financial risk management technology (RMT): issues and advances, 1991. 34 p. URL: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.829.9691&rep=rep1&type=pdf
12. Звіти про виконання фінансового плану підприємств, що підпорядковані Міністерству інфраструктури України за 2018 р. та пояснювальні записки до них. Міністерство інфраструктури України. URL: https://mtu.gov.ua/news/29813.html?PrintVersion
13. Закон України «Про морські порти України» № 406-VII із змінами від 04.07.2013 р. URL: http://zakon4.rada.gov.ua/laws/show/4709-17
14. Фінансові плани водного транспорту та пояснювальні записки. Міністерство інфраструктури України. Retrieved from: http://mtu.gov.ua/timeline/ Plani.html
15. Онешко С.В., Бойко М.О. Контролінг стивідорної діяльності: навчальний посібник. Одеса: Астропринт, 2019. 268 с.
16. Watson Financial Services: A new era of technology-enabled financial risk management. Copyright IBM Corporation, 2019, 8 p. URL: https://www.ibm.com/downloads/cas/ GEK48KWA