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ACCOUNTING RESERVES IN OPTIMIZATION OF RISKS OF INNOVATIVE ACTIVITY

Abstract. The article found that the activities of startup companies are constantly influenced by a significant amount of high-level economic risks. In order to improve the efficiency of innovation risk management, it is proposed to form and use a number of accounting reserves, funds, and provisions (required reserve capital; reserve capital to cover losses and damages from innovation risks; innovation guarantee fund; fund for social development of innovative activities; fund for material incentives in innovation; fund for other needs of innovative activity; provision for vacation for employees engaged in the manufacture and promotion of innovative products (works, services); reserve of doubtful debts incurred in the course of innovative activity). Proposed accounting reserves (funds, provisions) of a startup company are means of influencing the degree of risks of its activity and means of minimizing (neutralizing) the negative consequences of the incurred risks. A procedure for accounting reflection of operations from the formation and use of the accounting reserves of innovative companies in risk conditions has been developed. The accounting model of reserves for optimizing the risks of innovative activity has been suggested. Risks of innovative activity of PJSC «Farmak», their probable consequences, and the procedure of accounting reserves formation have been disclosed. The ways of risk optimization due to accounting reserves and their impact on the company's financial result (on the example of financial information for 2018 of PJSC «Farmak») have been grounded. The necessity of further development of organizational and methodological provisions of drawing up internal accounting of start-up companies in the part of the proposed accounting reserves as a component of information support of the risk management system of innovative activity has been established.

Keywords: accounting, risks, management, reserves, funds, provisions, expenses.

JEL Classification M41, G32, D81, O32

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ОБЛІКОВІ РЕЗЕРВИ В ОПТИМІЗАЦІЇ РИЗИКІВ ІННОВАЦІЙНОЇ ДІЯЛЬНОСТІ

Анотація. Установлено, що діяльність інноваційних компаній постійно перебуває під впливом значної кількості господарських ризиків високого рівня. У цілях підвищення ефективності управління ризиками інноваційної діяльності запропоновано формувати і використовувати ряд облікових резервів (обов'язковий резервний капітал, резервний капітал інноваційні компанії; фонд гарантійного обслуговування інноваційної діяльності; фонд соціального розвитку інноваційної діяльності; фонд матеріального заохочення в інноваційній діяльності; фонд на інші потреби інноваційної діяльності; резерв відпусток для працівників, зайнятих виготовленням і просуванням інноваційного продукту (роботи, послуги); резерв сумнівних боргів, що виникли в ході інноваційної діяльності. Запропоновані облікові резерви (фонди, забезпечення) інноваційні компанії є засобами впливу на ступінь ризиків її діяльності та засобами мінімізації (нейтралізації) негативних наслідків ризиків, що настали. Розроблено порядок облікового відображення операцій із формування і використання запропонованих облікових резервів інноваційних компаній в умовах ризику, що базується на запропонованих бухгалтерських рахунках (субрахунок, аналітичних рахунках) до відповідних резервів. Проаналізовано ризики інноваційної діяльності та їхні ймовірні наслідки на прикладі ПАТ «Фармак». Сформовано розрахунок для оптимізації ризику за рахунок облікових резервів і проаналізовано їхній вплив на фінансовий результат на прикладі облікової інформації ПАТ «Фармак». Виділено можливі сценарії розвитку діяльності підприємств залежно від настання або ненастання інноваційних ризиків. Установлено доцільність подальшого розроблення організаційно-методичних положень складання внутрішньої бухгалтерської звітності інноваційних компаній у частині запропонованих облікових резервів як складової інформаційного забезпечення системи управління ризиками інноваційної діяльності.

Ключові слова: бухгалтерський облік, ризики, управління, резерви, фонди, забезпечення, витрати.

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УЧЕТНЫЕ РЕЗЕРВЫ В ОПТИМИЗАЦИИ РИСКОВ ИННОВАЦИОННОЙ ДЕЯТЕЛЬНОСТИ

Аннотация. В целях повышения эффективности управления и оптимизации рисков инновационной деятельности предложено формировать и использовать ряд учетных резервов

(обязательный резервный капитал, резервный капитал компании; фонд гарантийного обслуживания инновационной деятельности; фонд социального развития инновационной деятельности; фонд материального поощрения в инновационной деятельности; фонд на другие потребности инновационной деятельности; резерв отпусков для работников, занятых изготовлением и продвижением инновационного продукта (работы, услуги); резерв сомнительных долгов, возникших в ходе инновационной деятельности. Разработан порядок учетного отражения операций с формирования и использования предложенных учетных резервов инновационные компании в условиях риска, основанный на предложенных бухгалтерских счетах (субсчетах, аналитических счетах) соответствующих резервов.

Ключевые слова: бухгалтерский учет, риски, управление, резервы, фонды, обеспечение, расходы.

Формул: 0; рис.: 1; табл.: 3; библи.: 11.

Introduction. One of the important aspects of innovation is the presence of risk at all stages of innovative companies — from the creation and development of the project to its implementation through the establishment of a business entity (startup company), its stable operation as well as sustainable development. In order to avoid or reduce risks, their consequences and related other phenomena and processes, it is significant to implement the necessary measures and procedures of the risk management system, which allow to effectively reduce and even eliminate threats in the activities of a startup company. One of the tools of the risk management system as an innovation activity is method of reservation. Reservation for business purposes is divided into external (insurance) and internal (self-insurance, which is realized through the formation of reserves, funds, provisions at the enterprise). Taking into consideration the high risk of the startup company's activities, the issue of the feasibility of forming internal reserves for the implementation and development of innovation is currently relevant, as well as the need to study the issue of accounting for risk management of the startup company in terms of reservation.

Research analysis and problem statement. The research of issues related to the activities of startup projects and innovative companies was carried out by L.D. Bogatyreva, O.M. Golovinov, P. Günther, L.A. Dmytrychenko, V.V. Dovgalyuk, O.I. Zhylynska, D.V. Zbanatsky, O.D. Zvegintsova, O.V. Zozulyov, I.O. Zolotaryova, N.V. Ivashova, S. O. Kyrychenko, A. Yu. Kovalova, O.A. Kozina, O.V. Kornukh, O.E. Kofanov, I.V. Kravets, M.O. Kravchenko, O.O. Kulinich, I.V. Makaliuk, T.I. Mirkunova, O.B. Mrykhina, S.V. Nedaivoda, N.I. Noritsina, T. Pasch, S.M. Semenova, N.I. Sytnyk, Yu.I. Skorin, A.R. Stoianovskiy, T.M. Tardaskina, Yu.V. Tereshko, E. V. Chazov, O.P. Shvydka, O.V. Shcherbakov, O.V. Shchypanova, O.S. Yavtushenko, O.V. Yarmosh and others. Issues of accounting reserves are considered in the works of such scientists as: O.V. Amelina, I.M. Ageev, S.M. Diachek, L.M. Kindratska, M.O. Kozlova, Yu.N. Lachinov, O.V. Minakov, S.V. Romanova, G.P. Stadnyk, I.F. Tausova, V.I. Tkach, S.A. Cheshchev, S.I. Shkyrman.

The purpose of the article is to investigate the need and feasibility of creating accounting reserves to optimize risks, sources of their provision and areas of use in risk management of innovation.

Results of the research. The implementation of innovative activity is closely associated with a large number of different types of risks, which is determined by the intellectual nature of the results of its implementation. To minimize their negative consequences, reserves (funds, provisions) are created. The main source of formation of such funds in accordance with the provisions of current legislation is the profit remaining after the conditions of its distribution, and the costs of current activities of the entity.

Accumulation sums for creation of special reserve of innovative development will allow to form alternative options of sources of coverage of innovative costs for the implementation of production and technical development of the company in a competitive environment [8, p. 2287].

The greatest attention of startup companies should be paid to the formation of appropriate accounting reserves, as well as to control the use of such reserves in accordance with the purpose or directions of their creation. According to T. Pasch, this is justified by the fact that accounting at the enterprise can significantly affect research innovations, focusing managerial attention on specific issues or launching actions during the process of creating an innovative product [10, p. 215]. Taking into consideration the growing and predominant role of the accounting system in risk management at the enterprises prof. P. Miller, L. Kurumaki and T. Oliri [9, p. 944] note that the need to create accounting support for organizational risk management (their visualization and evaluation) gradually leads to hybridization of accounting, i.e. its gradual methodological transformation in accordance with the needs of management systems of various types, in particular, to the risk management system.

In accordance with the peculiarities of accounting of newly created high-tech enterprises and innovative activity in general, we suggest to form the following accounting reserves (provisions) in startup companies depending on the risk group (*Table 1*).

According to *Table 1* the main types of reserves (provisions) to minimize the negative effects of risk in startup companies are insurance capital, reserves in the form of collateral and doubtful debts. In our paper we will consider each of them separately in terms of detailed characteristics, purpose of creation and features of reflection in accounting.

The insurance fund (reserve capital) is essential reserve for the needs of a startup company in terms of risk. It is formed from retained earnings and is made to repay possible losses, make payments to investors and creditors with insufficient funds, and so on. The importance of the formation of reserve capital is the periodic occurrence of certain negative economic phenomena in the market, which are difficult to predict due to the uncertainty and risks of economic relations. This fund provides self-insurance of the startup company from negative phenomena as well as overcoming their consequences.

In order to minimize the risks of innovative activities of startup companies in various areas, as well as to improve and develop production and general economic activities, appropriate reserves are made in order to secure liabilities. According to AP(S) 11 «Liabilities», collateral is defined as a liability with an indefinite amount or maturity at the balance sheet date [4]. This definition reflects the main features of the provision, among which are: the gradual formation of the reserve; indefinite end date of the obligation; indefinite amount of the reserve at the end of the reporting period (quarter, half-year); it is not known whether the reserve will be used at all or otherwise when it will be necessary to use it. Despite such uncertainties in provisions, due attention by the management should be given to the formation of reserves to repay the probable future liabilities, including in newly established innovative enterprises, which are vulnerable to many economic, social and other changes.

AP(S) 11 «Liabilities» states that «a provision is created when a liability arises as a result of past events, the repayment of which is likely to result in a reduction in resources embodying economic benefits, and the estimate can be calculated. It is forbidden to create provision to cover future losses from the enterprise performance» [4, paragraph 14]. It is important that the amounts of formed provisions for future expenses and payments are recognized as expenses of the reporting period in the area of activity for which they are made. Reflection in the accounting of this group of reserves is carried out on account 47 «Providing future expenses and payments» on the relevant sub-accounts.

According to the Instruction about application of the Chart of accounts of financial accounting of assets, the capital, obligations and economic activities of the companies and organizations generalization of information on the movement of funds, which by the decision of the enterprise are reserved to ensure future costs and payments and include them in the costs of the current period (except for the amount of collateral included in the initial cost of fixed assets) is reflected on account 47 «Providing future costs and payments» [1].

Table 1

Suggested accounting reserves for risk optimization of innovative activity

No.	Risk group	Type of reserve	Account, code	Suggested sub-accounts and analytical accounts for accounting for reserves in order to optimize the risks of innovative activity	The purpose of the reserve (provision) and its characteristics
1	Market risks	3 Insurance reserve	4 "Reserve capital"	5	6
1			43 "Reserve capital"	431 «Required reserve capital»	It is formed according to norms of the current legislation by any enterprise for realization of payments to investors and creditors at insufficient provision
				432 «Reserve capital to cover losses and damages from innovation risks»	It is formed to cover losses and damages, caused by innovation risks. Analytical accounting of this reserve is carried out in terms of areas of use, stage of the life cycle, areas of innovation
				473.1 «Innovation Guarantee Fund»	It is formed to ensure warranty repair (maintenance) of innovative products (tools, technological products, software, etc.)
				474.1 «Fund for Social Development of Innovative Activities»	It is spent on meeting the needs of employees, their social development, providing additional social guarantees identified by the management of the startup company to improve the working conditions of the workforce
2	Risks of current activity	Reserves to secure liabilities	47 «Providing future payments»	477.1 «Fund for material incentives in innovation» 474.2 «Fund for other needs of innovative activity» 471.1 «Provision for vacation for employees engaged in the manufacture and promotion of innovative products (works, services)»	It is formed to pay rewards and incentives to employees for innovative ideas on production technology, with high productivity of employees engaged in innovation, etc. Increases the interest of employees in achieving high end results in innovation It is used for various purposes, the main of which is to spend money on charity, support of business innovation and other purposes
3	Risks of non-payment	RDD	38 «RDD»	38.1 «Reserve of doubtful debts (RDD) incurred in the course of innovative activity»	It is used to pay for the holidays of startup company staff engaged in the development, manufacture, promotion, sale of innovative products (works, services) A provision is formed to cover future bad debts that have arisen as a result of an entity's innovation activities. Analytical accounting of this reserve is carried out in the context of groups of debtors (by terms of non-repayment of receivables, etc.).

The main sub-accounts that should be used to account for collateral obligations in startup companies are: 471 «Provision for vacation payment», 472 «Supplementary pension provision», 473 «Provision for guarantee obligations», 474 «Provision for other expenses and payments», 477 «Provision for material incentives». These sub-accounts involve the formation of provisions that allow to manage the level of business risks (optimize risks) and help minimize their negative consequences, or avoid risk / its consequences in general (at the level of risk management measures implemented through formed accounting reserves). Thus, for the development of accounting and analytical support of the management of the newly created business entity innovative activities, we suggest to form the following provisions: provision for vacation for employees engaged in the manufacture and promotion of innovative products (works, services), innovation guarantee fund, fund for social development of innovative activities, fund for material incentives in innovation and fund for other needs of innovative activity. The formation of these funds, except for startup companies, is also useful for fully formed companies with well-organized organization and management of the full cycle of production, sales and other aspects of business entities that are established in the market, have a stable income and need to improve activities in various areas and in accordance with the organizational structure.

Accounting reserves of the startup company, the characteristics of which are presented in Table 1, are not obligatory for formation according to the current legislation, but they provide accumulation of the corresponding resources for the purpose of maintenance and development of innovative activity in the conditions of risk.

The Fund for Social Development for Innovative Activities is used to meet the needs of employees of the enterprise, their social development, providing additional social guarantees defined by the company's management to improve the working conditions of the workforce. In addition to the costs associated with the provision of funds or other valuables for employees of the enterprise, this fund is also intended to finance in cash or other forms of social institutions and socio-cultural facilities, and can be implemented in the form of assistance to certain segments of the population who need it (charity). In general, the maintenance of social facilities and the support of those segments of the population that need support and additional guarantees, ensures the practical implementation of the corporate social responsibility policy of the startup company. Thus, it implies transparent and ethical behavior of an innovative enterprise in the market in relation to the impact of its activities on society and the environment, voluntary commitments of the company and active participation in the social and economic development of a region and even country.

The formation of a Fund for Material Incentives in startup companies is considered through the prism of an innovative product, the process of production and marketing of which needs to be improved. Thus, each department does its job, but when inventing an original method, technique, technology, or even creating a radically new product that enhances the company's status in the market, such work should be rewarded. An example of an improvement that immediately affects the financial result is the effective work of the technical department, whose employees have found a way to reduce such costs by revising the method of forming the cost of an innovative product; or effective advertising activities by the marketing department, which is reflected in sales and revenue in the short term.

If it is necessary to spend money on certification, preparatory work for further production, charity, etc., resources from the fund are used for other needs of innovative activity. The accounting provision of this reserve is carried out in the same way as with the fund of funds directed to social needs. Analytical account 474.2 «Fund for other needs of innovative activity» has been developed to detail the accounting for this object.

Another provision that should be formed in the startup company when carrying out innovative activities in conditions of risk is the reserve for the payment of leave, which is reflected in account 471 «Provision for vacation payment», in particular on the proposed sub-account 471.1 «Provision for vacation for employees engaged in the manufacture and promotion of innovative products (works, services)». The formation of this reserve is due to the fact that the availability of free working capital in the process of innovative activity is not always in the required amount. That

is why for the timely payment of leave to employees in the amounts under current law, it is necessary to form a provision for the payment of leave, which is a reserve for repayment of debts by the company to employees.

For the needs of accounting support for risk management of startup companies in terms of risk, it is suggested to use analytical account 381 «Reserve of doubtful debts incurred in the course of innovative activity». This reserve is «active» and is created to reduce external financial risks. It should be noted that trade receivables that are not repaid are a negative phenomenon and a risk for most companies. For newly created innovative enterprises, the lack of such necessary payment for products, works, services from customers implies the impossibility of full operation, given the regular lack of the required amount of working capital. Therefore, to reduce this risk, the current legislation allows formation of a reserve for doubtful debts, which is reflected in the accounting account 38 «Reserve of doubtful debts».

According to the Instruction about application of the Chart of accounts of financial accounting of assets, the capital, obligations and economic activities of the companies and organizations accounting for provisions for doubtful receivables, for which there is a risk of default is reflected on account 38 «Provision for doubtful debts» [1]. According to paragraph 10 AP(S) 10 accrual of the amount of the provision for doubtful debts for the reporting period is reflected in the statement of financial performance as part of other operating expenses [3]. This is an important provision that affects the further determination of the financial result, namely, it reduces the profit that could be used for specific purposes in order to improve the activities of the startup company. Therefore, when creating a reserve for doubtful debts incurred in the course of innovative activity, and for its effective use, it is necessary to keep analytical records of this object in terms of debtors.

The above proposals for optimizing the risks of innovative activity through the creation of accounting reserves of a cost nature are summarized in the relevant model (Fig.).

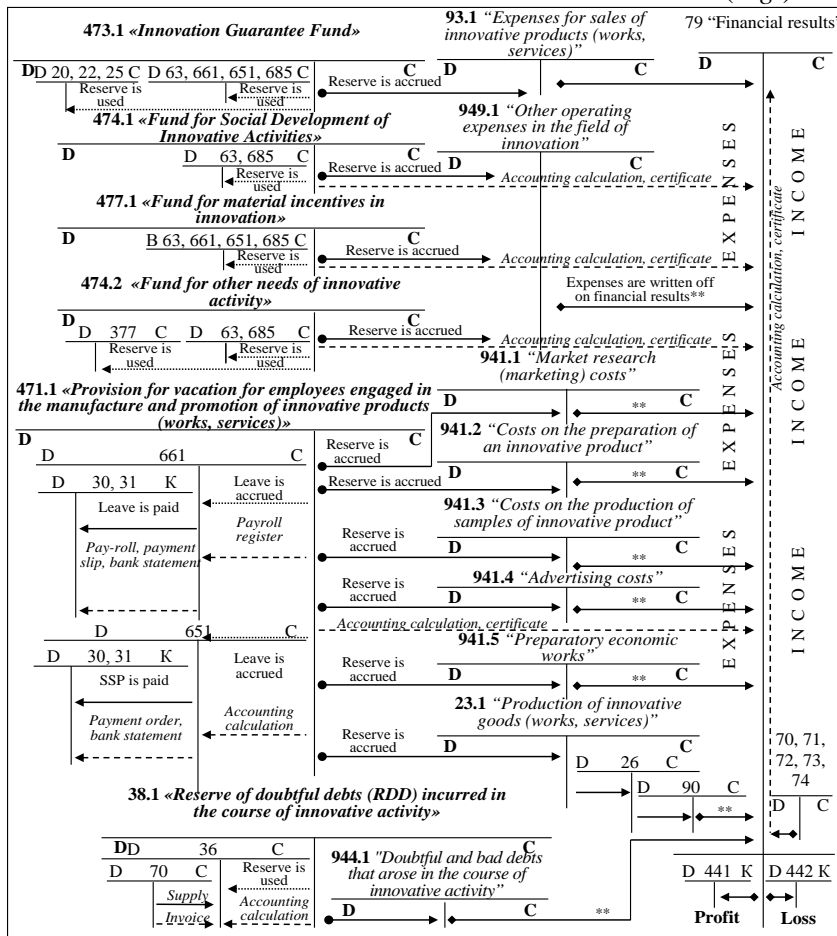


Fig. Accounting model of reserves for optimizing the risks of innovative activity

For such analysis the following reporting of the enterprise is necessary: f. 1 «Statement of financial position (Balance Sheet)», f. 2 «Statement of comprehensive income (Statement of financial performance)» and Management report (in terms of information about risks).

One of the main business risks of PJSC «Farmak» is the introduction of new pharmaceutical products (generic or original), i.e. their production, which is associated with the existence of a significant number of risks (*Table 2*).

Table 2

Risks of innovative activity of PJSC «Farmak», their probable consequences* and the procedure of accounting reserves formation

Risk	Reserve (account)	Reserve source (account)	The amount of losses (max), thousand UAH	Degree of risk, % **	Expected losses (column 4 x column 5), thousand UAH *	Reserve (column 6: 12 months), thousand UAH	Unexpected losses (column 4 - gr. 6), thousand UAH
Warranty risk for a new pharmaceutical product	473.1	93.1	28 000,0	60	16 800,0	1 400,0	11 200,0
Impossibility of development of new high-tech pharmaceutical products	474.2	941	2 000,0	100	2 000,0	166,7	0,0
Lack of raw materials for the production of new pharmaceutical products	474.2	949.1	17 000,0	80	13 600,0	1133,3	3 400,0
Lack of production capacity for the production of new pharmaceutical products	474.2	949.1	6 000,0	40	2 400,0	200,0	3 600,0
Untimely certification or European registration of new pharmaceutical products	474.2	949.1	56 000,0	15	8 400,0	700,0	47 600,0
Total	X	X	109 000,0	X	43 200,0	3 600,0	65 800,0

* The amount of losses and the degree of risk — conditional values.

** The probability of occurrence is taken into account (all factors influencing the level (degree) of risk, the expected period of time for the occurrence of risk).

Accrual of reserves specified in *Table 2* risks is recommended to be carried out monthly at the expense of operating costs: 93.1 «Expenses for sales of innovative products (works, services)», 949.1 «Other operating expenses in the field of innovation», 941 «Expenditures on research and development».

The pre-tax financial result is defined: 1) in accounting — as the difference between income (accounts 70, 71, 72, 73, 74) and expenses (accounts 90, 91, 92, 93, 94, 95, 96, 97); 2) in the reporting f. 2 «Statement of comprehensive income (Statement of financial performance)» (row 2290/2295) the difference between income (rows 2000 + 2120 + 2200 + 2220 + 2240) and expenses (rows 2050 + 2130 + 2150 + 2180 + 2250 + 2255 + 2270). Reporting indicators of costs for f. 2 contain data on the amount of accrued reserves: a row 2150 — sales costs, which include the amount of the accrued reserve for warranty service of innovative activity, a row 2180 «Other operating expenses» contains information on the costs incurred to create a fund for other needs of innovative activity.

The costs on measures to optimize innovation risks, i.e. the creation of reserves, are concentrated in the above accounts of collateral and costs and have an impact on the financial result only in the amount of risk, taking into account its probability. However, this situation has two paths of development, which will be discussed below. Therefore, we will analyze the feasibility of creating the proposed reserves for risk optimization on the example of innovative risks at PJSC «Farmak» (*Table 3*).

Table 3

Risk optimization due to accounting reserves and their impact on the company's financial result (on the example of financial information for 2018 of PJSC «Farmak»), thousand UAH

Financial reporting indicator	Line code, reporting form	2018	2019	
			The risk did not come	The risk has come
<i>Income</i>				
Net income from sales of products (goods, works, services)	2000, f.2	6346224	6346224	6346224
Other operating income	2120, f.2	10506	10506	10506
Income from the method of equity participation	2200, f.2	3680	3680	3680
Other financial income	2220, f.2	7437	7437	7437
Other income	2240, f.2	-	-	-
<i>Expenses</i>				
Cost of sold products (goods, works, services)	2050, f.2	2802614	2802614	2802614
Administrative expenses	2130, f.2	638008	638008	638008
Sales costs, including costs of the guarantee fund	2150, f.2	1241195	1224395** 16800	1252395*** 11200
Current provisions (in part of sub-accountnt 473.1)			0*	16800
Other operating expenses, including the costs on accounting reserves	2180, f.2	313576	287176** 26400	368176*** 54600
Current provisions (in part of sub-accountnt 474.2)			0*	26400
Financial expenses	2250, f.2	41172	41172	41172
Losses from the method of equity participation	2255, f.2	-	-	-
Other expenses	2270, f.2	34929	34929	34929
<i>Financial result before tax</i>		1296353	1339553	1230553

* Cancellation of the accounting reserve.

** The amount of accrued and unused accounting reserve is calculated (by cancellation).

*** The company incurs additional losses that increase costs and adversely affect the financial result.

**** No data for the previous period.

The calculations given in *Table 3*, are conducted on the basis of reporting indicators for 2018 (baseline values), and indicators for 2019 are given as conditionally baseline, focused on the values of 2018; probability of occurrence or non-occurrence of risk in *Table 3* is taken conditionally with the degree of risk according to *Table 2*.

Thus, the scenario of innovative risks has two further ways of development: 1) in case of non-occurrence specified in *Table 2* innovation risks, formed in the current year reserves under AP(S) 11 «Liabilities» should be cancelled, which optimizes the financial result of the enterprise and reduces its cost, which in general will not affect the financial result of the company; 2) in case of risks, the financial result will be reduced by the amount of accrued and used reserves (43.200 thousand UAH) and additional operating expenses — by 65.800 thousand UAH.

The above scenarios for the development of the enterprise as a result of the occurrence or non-occurrence of innovative risks should be summarized in special management reports on the risks and consequences of their occurrence. As noted by P. Günther [7, p. 327], the formation of such management reports relating to the innovative activities of the enterprise, is one of the most effective means of creating the conditions for improving the efficiency of its management. Thus, the reports can also be used to analyze the profitability of innovative activities of the enterprise or to assess the overall effectiveness of the costs of research and development [11, p. 63].

Conclusions and prospects for further research. The analysis carried in the article revealed that the activities of startup companies, which are characterized by a high level of innovation, are under the constant influence of a significant number of economic risks. To ensure the effectiveness of innovation risk management, it is suggested to form and use a number of accounting reserves.

Suggested accounting reserves of startup companies (mandatory reserve capital, reserve capital of startup companies; guarantee service fund of innovative activities; fund of social development of innovative activities; fund of material incentives in innovative activities; fund for

other needs of innovative activities; reserve of leave for employees, engaged in the manufacture and promotion of innovative products (works, services), the reserve of doubtful debts incurred in the course of innovative activities) are means of influencing the risks of its activities and means of minimizing (neutralizing) the negative consequences of risks that have already occurred. In the context of the above proposals, the procedure for accounting for operations on the formation and use of the proposed accounting reserves of an innovative enterprise in terms of risk has been developed. This development is based on the proposed sub-accounts and analytical accounts for the relevant reserves in the accounts 43 «Reserve capital», 47 «Providing future expenses and payments», 38 «Reserve of doubtful debts». The formation of reserves (funds, provisions) is a complex process that involves planning, management, accounting, control, analysis and use of other systems in order to implement only those measures and tools that ensure the improvement of innovation of the entity. An important aspect concerning the formation of reserves in startup companies is the creation of only those collateral (funds) that are really necessary for the continuation and development of innovative activity (this does not apply to required reserves, which are allowed by current legislation), namely minimize the impact of negative consequences of risks.

Prospects for further research are the development of organizational and methodical provisions for the preparation of management reports of startup companies in terms of the proposed types of funds (reserves) as a component of information support for risk management of innovative activity.

Література

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