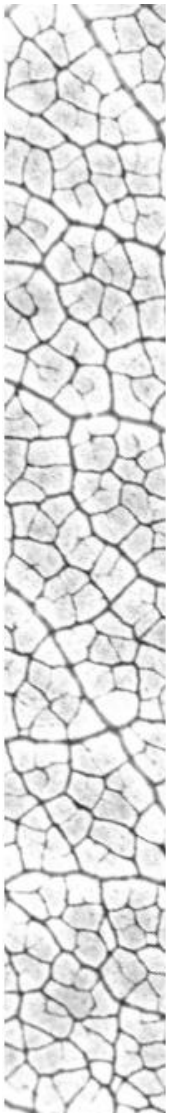

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Controlling in cash flow management of the company

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Abstract
In today's business environment, cash flows are one of the main resources that provide conditions for sustainable business development, maintaining the company's solvency, and protecting against the risk of bankruptcy. The success of the production, investment, and financial activities depends on the effective use of funds, therefore, the issues of improving internal cash flow controlling become especially relevant in the context of the aggravation of the external financial and economic situation in the country, the increase in the cost of financial resources, and the restrictions of requirements imposed by investors and creditors. The article presents current trends in improving the organization's cash flow controlling system. It offers methodological approaches to the organization of cash flow monitoring and justification of the system of analytical indicators for evaluating the effectiveness of cash asset management.
It justifies the sequence of implementation of the mechanism for rationing the need for funds to ensure the permanent solvency of the organization.

Keywords: cash flows, controlling, management of monetary assets of the organization, analysis and optimization of cash flow

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INTRODUCTION

Cash flow management is undoubtedly the main component of internal controlling and financial management of any organization. The introduction of modern financial controlling mechanisms into management practice, including analysis, planning, rationing, operational monitoring and strategic forecasting of cash flows, is the key to successful business operations. Achieving effective enterprise performance is possible thanks to a balanced financial policy aimed not only at using financial resources to meet current needs, but also at coordinating the volume of cash flows of enterprises and their structure, sources of receipt and directions of use over time (Ohlin, 2019; Vu, 2019). Improving the methods, forms and organization of controlling cash flows, creating a reliable information and analytical base is an urgent task of an integrated business management system, the successful solution of which determines its effectiveness, both in the current activities of the company and the achievement of strategic goals (Tarman, 2016, 2017; Robbins et al., 2019; Kuzmin et al., 2018, 2020).

The purpose of the study: substantiation of methodological approaches for controlling the organization's cash flow management.

Research objectives: a critical review of existing systems for controlling cash flows; justification of the system of indicators for analyzing and evaluating the effectiveness of cash asset management, the formation of methods for optimizing cash for current and investment activities.

MATERIALS AND METHODS

To substantiate the scientific and methodological hypothesis, establish the sequence and content of analytical procedures for controlling and evaluating the effectiveness of cash flow management within the scope of research and development of practical recommendations, General scientific and economic methods, as well as methodological tools for controlling and financial management are used.

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RESULTS

Cash flow mediates the movement of any resources of the enterprise, and the growth of business activity contributes to an increase in cash turnover, so the characteristic of cash flow as a process reflects the forms and volumes of operation of the enterprise.

The controlling system in terms of cash flow analysis should be provided with high-quality information, a significant part of which is presented in the "Cash flow report", logically divided into three types of activities (current, investment and financial) (Order of the Ministry of Finance of the Russian Federation of 02.02.2011 № 11n «On approval of the Regulations on accounting «Statement of cash flows» (PBU 23/2011)»; International accounting standard (IAS) 7 «Statement of cash flows» (entered into force on the territory of the Russian Federation by Order of the Ministry of Finance of the Russian Federation of 28.12.2015 № 217n).

This makes it possible to objectively assess the effectiveness of cash flow management, determine the sources and volumes of cash receipts and the structure of their use, and determine the riskiness of investments by increasing the share of borrowing in a situation where net cash flow from operating activities does not cover the needs of long-term investments (Saenko et al., 2019).

Particularly relevant and quite complex one is the problem of rationing the volume of cash reserves, the optimal level of which should ensure current solvency, minimize the risk of late or incomplete repayment of payment claims of suppliers and creditors (Cheremisina et al., 2015; Zaripova et al., 2019; Puryaev et al., 2019; Saenko et al., 2020). The optimal cash management policy in each enterprise has features due to the nature of economic activity, its scale, the stage of the life cycle, the influence of market factors of seasonality and fluctuation in demand for products (goods, services), etc.

Consideration of cash flow as an interval time process described by cost, relative dynamic and coefficient characteristics in the framework of controlling is inextricably linked with the influence of risk factors, which must be taken into account in the process of evaluating the effectiveness of cash flow management, as well as in the development and monitoring of the implementation of cash flow budgets (Caplinska and Tvaronavičienė, 2020; Gapsalamov et al., 2020; Jafarpour et al., 2019). Cash flow regulation is a direct tool that ensures the optimal structure of the relevant asset groups and the level of liquidity of the enterprise as a whole. Through cash flows, the functions of money as means of circulation and payment are realized, being a tool for mutual settlements of the enterprise with the subjects of business relations (Sayakhova, 2014; Bukharina et al., 2014, 2018; Dunets et al., 2019, 2020; Admas, 2016).

It should be noted that the prevailing method in the enterprise's information system for calculating income and expenses recognized as products (goods) are sold and resources are used, regardless of the corresponding cash receipt or disposal, sometimes leads to significant differences in the financial result (profit) and net cash flow.

Evaluation of the effectiveness of cash flows management in the enterprise within financial controlling has features for each company due to its activities, legal structure, life cycle stage, the conditions of the external and internal environment. The main directions of cash analysis and their corresponding indicators for assessing the quality of the management system and methods for identifying the impact of factors and reserves for increasing the effectiveness of the monetary assets use of the enterprise are shown in **Fig. 1**.

Through the use of optimal methods for analyzing and evaluating the effectiveness of enterprise cash flow management, it simplifies the process of making managerial decisions to accelerate cash flow and accelerate the turnover of assets and capital on this basis, as well as ensuring the financial stability and solvency of the enterprise.

One of the important and complex functions of controlling cash flows is to develop a cash budget based on the operating needs for the upcoming year, and in the longer term, if there is a need to implement a long-term investment project (Puryaev, 2020; Prischepa et al., 2020; Gorovaya et al., 2017; Kuznetsov and Suprun, 2017).

A high-quality forecast of cash flows allows you to optimize their volumes, balance the ratio between positive and negative cash flows by type and segment of activity, responsibility centers, as well as minimize financial expenses for servicing borrowed funds, smooth out both negative and positive cash gaps.

Table 1 shows the company's planned cash flow indicators based on operating budget data, as well as forecast indicators of the need for investment costs.

As can be seen from the budget calculations for the upcoming year, positive net cash flow from operating activities (RUB 1,339 million), as well as long-term borrowings for the acquisition of non-current assets (RUB 8,500 million) allow the company to have no cash gaps.

At the same time, quarterly net cash flows reflect insignificant cash gaps. So, in the first and fourth quarters, there will be a temporary slight shortage of funds, and in the second and third quarters – an excess of them. At the end of the year, the total net cash flow (RUB 1,119 million) will increase the free cash balance and increase the level of absolute liquidity. This situation will help to strengthen the financial stability, solvency and investment attractiveness of the company, which in turn will positively affect the ability to obtain borrowed

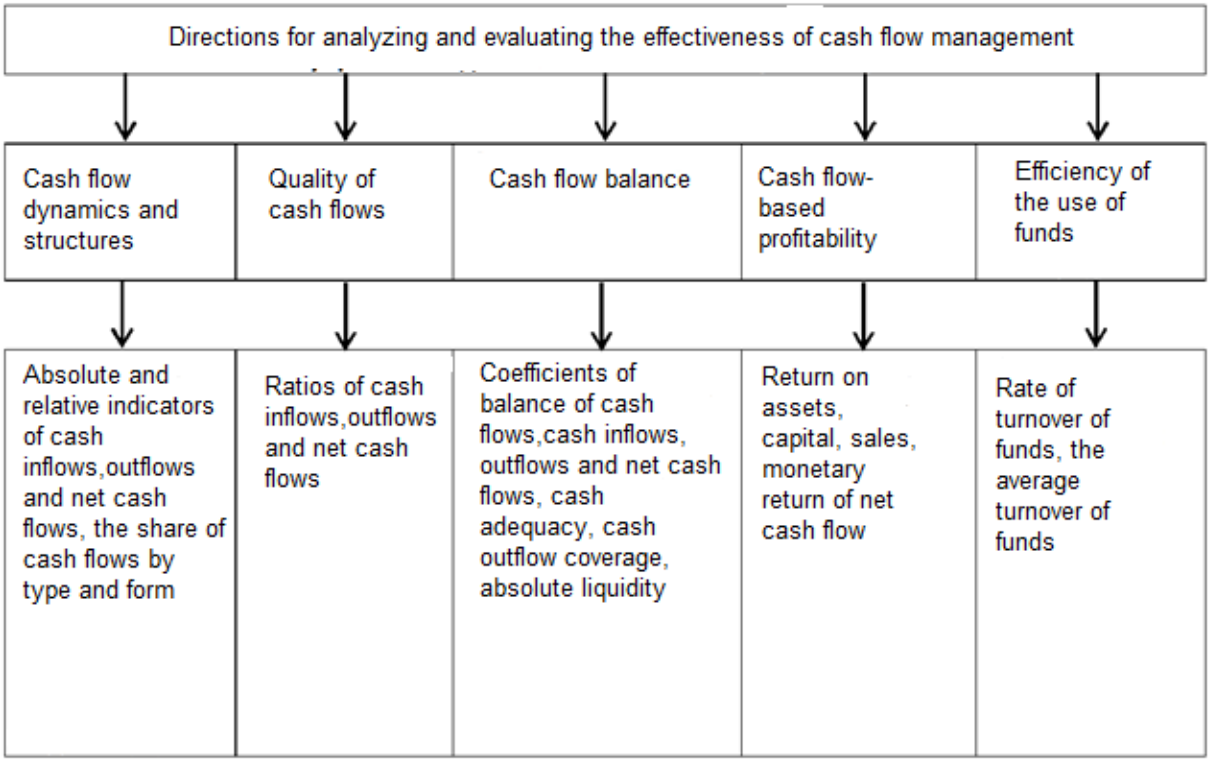

Fig. 1. Scheme for analyzing the effectiveness of an organization's cash flow management

Table 1. Planned indicators of cash flows of the production enterprise for the upcoming budget period // mln.rub

Indicator	Quarters				Total per year
	I	II	III	IV	
1. Operating profit	2 958	5 962	5 124	4 569	18 613
2. Depreciation	1 173	1 173	1 173	1 173	4 692
3. Income tax expense profit	493	994	854	761	3 102
4. Operating expenses	17 285	36 874	32 264	28 808	115 231
5. Cash inflows from operating activities	25 303	53 545	46 736	41 721	167 305
6. Cash outflow from operating activities	-25 157	-52 996	-46 311	-41 502	-165 966
7. Net cash flow from operating activities	**146**	**549**	**425**	**219**	**1 339**
8. Sale of non-current assets	-	-	1 000	-	1 000
9. Acquisition of non-current assets	-	-7 260,00	-	-	-7 260
10. Net cash flow from investing activities	**-**	**-7 260**	**1 000**	**-**	**-6 260**
11. The receipt of borrowed funds	-	8 500	-	-	8 500,00
12. Repayment of borrowed funds	-615,00	-615	-615	-615	-2 460
13. Net cash flow from financing activities	**- 615,00**	**7 885**	**-615**	**-615**	**6 040**
14. Total net cash flow	**-469,00**	**1 174,33**	**810,00**	**-396**	**1 119**

funds, if the company plans to develop production and implement new investment costs to update its own production base (Borodina et al., 2019).

To assess the level of synchronization and uniformity of positive and negative cash flows for the coming year, the corresponding statistical indicators are calculated, they are correlation coefficients of cash flow variation. The correlation coefficient of positive and negative cash flows was 0.9996, which indicated a high level of their balance in the quarterly section. The coefficient of variation of positive cash flows (0.2980) and the coefficient of variation of negative cash flows (0.2999) have fairly low values, and therefore, the spread of values over quarters within a year can be considered insignificant.

One of the tasks of cash flow management is to optimize the rolling free cash balance. To solve this complex problem of rationing the need to maintain an optimal free money supply, you can use a simplified, but not precise enough mechanism that is averaging historical data on daily cash balances. A more complex, but at the same time scientifically justified method is to optimize the average free balance of monetary assets using models of Baumol, Miller-Orr (Blank, 1999).

Baumol's model is based on a condition for determining free cash balance, in which the total costs of owning cash and the costs of short-term operations of investing free money in securities should be minimal. On the other hand, the optimal amount of monetary assets must constantly meet the need for regular payments, even during periods of relative decline in sales under the

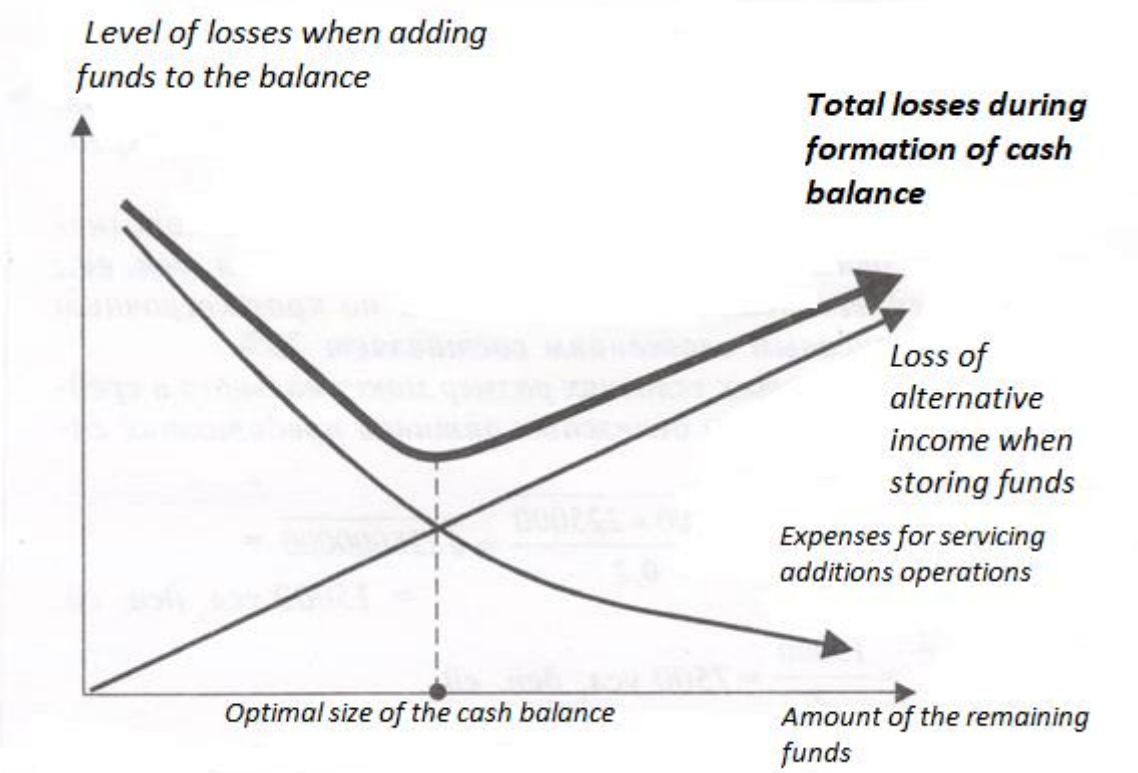

Fig. 2. Graphical determination of the optimal size of the average cash balance

influence of market factors, such as seasonality of demand. Thus, it is necessary to determine the optimal average rolling cash remainder, as much as possible smoothing the peaks of excess accumulation, which leads to their depreciation from inflation and lost benefits, but also not getting into a situation with postponing the repayment of monetary obligations due to lack of cash.

Graphically, Baumol's model looks like this (**Fig. 2**).

Algebraically, the Baumol's model for determining the optimal size of the balance of monetary assets in an enterprise is represented by the following formula (Mnatsakanyan, 2008):

$$Q = \sqrt{\frac{2 \times V \times c}{r}}, \quad (1)$$

where *Q* - optimal size of the maximum balance of monetary assets in the enterprise; *V* - the projected cash requirement; *C* - the costs on converting cash into securities; *r* - the average interest rate on short-term financial investments (or the level of loss of alternative income when storing funds).

Therefore, the average stock of monetary assets will be half of the optimal size of the maximum balance of monetary assets in the enterprise. Based on the planned indicators of cash receipts and expenditures (**Table 1**), the projected need for cash will be 2,256 million rubles. The estimated cost of converting cash into short-term financial assets with a projected annual return of 12.1% will be 903 million rubles. Thus, the optimal average cash balance for this enterprise will be:

$$Q = \sqrt{\frac{2 \times 2256 \times 903}{0{,}121}} = 5803 \text{ mln. rub.}$$

In contrast to the Baumol's model, the Miller-Orr model allows to answer the question of how an enterprise should manage its cash if you provide for daily receipts and expenditures of cash (Blank, 1999). The formula for calculating the optimal amount of cash using Miller-Orr method has the following form:

$$S = 3 \times \sqrt[3]{\frac{3 \times C \times \sigma^2}{4 \times L}}, \quad (2)$$

where *S* – spread of minimum and maximum values of cash balances; C – specific average maintenance costs for a single cash asset replenishment operation; σ^2 - variance of daily values of monetary turnover; - specific average level of lost profit from storage of funds (alternative income from investments of free balance of funds).

Based on the calculation of the optimal amount of cash flows, their upper limit, the point of return, and the average size of the balance of monetary assets are determined:

$$\Gamma A_{max} = \Gamma A_{min} + S \quad (3)$$

$$\overline{\Gamma A} = \Gamma A_{min} + \frac{S}{3}, \quad (4)$$

where ΓA_{max}, ΓA_{min}, $\overline{\Gamma A}$ – the maximum, minimum and average limits of the cash reserve accordingly.

According to the company's data, the minimum amount of the cash balance is fixed at the level of 36 million rubles, and exceeding the maximum limit at the level of 3647 million rubles will indicate an irrational use of monetary assets. In this case, it will be rational if part of the money is converted into short-term securities. In a situation where the cash balance will be at the level of 1240 million. according to the logic of Miller-Orr model, it is necessary to convert cash into short-term securities in order to achieve a normal level of cash reserves. Then, when the minimum limit is reached, the company can sell them in order to restore its cash reserve.

CONCLUSION

The proposed methodological approaches and practical calculations have shown that optimization of the company's cash balances will allow, on the one hand, to avoid excessive accumulation of free cash assets, on the other hand, thanks to constant monitoring to maintain a constant solvency. At the same time, the presented optimization models, being highly efficient and fairly accurate, require constant monitoring of deviations and adjustments to analytical calculations of cash flows. The main effect of using optimization models in the financial controlling system of an enterprise is to improve the quality of money management. The use of modern computer programs and technical means for automating routine calculations will optimize the cost of performing managerial functions, reduce financial expenses for servicing reduced amounts of borrowed funds, and increase the profitability of short-term financial investments in securities.

REFERENCES

Admas, S. (2016). Review of Biological Impacts of Genetically Engineered Crops and Neonicotinoid Treated Seed Use on Staten Island. The International Journal of Biotechnology, 5(4), 62-68.

Blank I. A. (1999). Fundamentals of financial management. Vol. 1. K.: Nika-Center. 592 p.

Borodina, T., Sibgatullina, A., & Gizatullina, A. (2019). Developing creative thinking in future teachers as a topical issue of higher education. Journal of Social Studies Education Research, 10(4), 226-245.

Bukharina, I. L., Kuzmina, A. M., Zaripova, R. S., & Kuzmin, P. A. (2018). The influence of anthropogenic environment on tannin content and activity of polyphenol oxidase in leaves of woody plants (with naberezhnye chelny as an example). Journal of Pharmaceutical Sciences and Research, 10(4), 958-961.

Bukharina, I. L., Zhuravleva, A. N., Dvoeglazova, A. A., Kamasheva, A. A., Muhametnagimovna, S. A., & Kuzmin, P. A. (2014). Physiological and biochemical characteristic features of small-leaved lime(tilia cordata mill.) in urban environment. Advances in Environmental Biology, 8(13), 79-83.

Caplinska, A., & Tvaronavičienė, M. (2020). Creditworthiness place in credit theory and methods of its evaluation. Entrepreneurship and Sustainability Issues, 7(3), 2542-2555. doi:10.9770/jesi.2020.7.3(72)

Cheremisina, O. V., Sergeev, V. V., Chirkst, D. E., & Litvinova, T. E. (2015). Thermodynamic investigation into extraction of cerium(III) by tributyl phosphate from phosphoric acid solutions. Russian Journal of Non-Ferrous Metals, 56(6), 615-621. doi:10.3103/S1067821215060036

Dunets, A. N., Vakhrushev, I. B., Sukhova, M. G., Sokolov, M. S., Utkina, K. M., & Shichiyakh, R. A. (2019). Selection of strategic priorities for sustainable development of tourism in a mountain region: Concentration of tourist infrastructure or nature-oriented tourism. Entrepreneurship and Sustainability Issues, 7(2), 1217-1229. doi:10.9770/jesi.2019.7.2(29)

Dunets, A. N., Yankovskaya, V. V., Plisova, A. B., Mikhailova, M. V., Vakhrushev, I. B., & Aleshko, R. A. (2020). Health tourism in low mountains: A case study. Entrepreneurship and Sustainability Issues, 7(3), 2213-2227. doi:10.9770/jesi.2020.7.3(50)

Gapsalamov, A. R., Merzon, E. E., Kuznetsov, M. S., Vasilev, V. L., & Bochkareva, T. N. (2020). The education system in the context of socio-economic transformations. [O sistema educacional no contexto das transformações socioeconômicas] Periodico Tche Quimica, 17(34), 874-883.

Gorovaya, M. M., Khanmurzina, R. R., Malakhova, L. A., Tagirova, N. P., Saenko, N. R., Shnyakina, E. Y., & Zatsepina, M. B. (2017). Didactic principles of university information educational systems designing. Eurasian Journal of Analytical Chemistry, 12(7), 1201-1210. doi:10.12973/ejac.2017.00245a

International accounting standard (IAS) 7 «Statement of cash flows» (entered into force on the territory of the Russian Federation by Order of the Ministry of Finance of the Russian Federation of 28.12.2015 № 217n).

Jafarpour, H., Moghadasi, J., Khormali, A., Petrakov, D. G., & Ashena, R. (2019). Increasing the stimulation efficiency of heterogeneous carbonate reservoirs by developing a multi-bached acid system. Journal of Petroleum Science and Engineering, 172, 50-59. doi:10.1016/j.petrol.2018.09.034

Kuzmin, P. A., Bukharina, I. L., & Kuzmina, A. M. (2018). The reaction of woody plants to growing conditions in the man-made environment. International Journal of Civil Engineering and Technology, 9(11), 878-887.

Kuzmin, P. A., Bukharina, I. L., & Kuzmina, A. M. (2020). An investigation of the biochemical composition of norway maple (acer platanoides l.) in the conditions of technogenic stress. [Investigação da composição bioquímica do bordo da noruega (acer platanoides l.) nas condições de estresse tecnogênico] Periodico Tche Quimica, 17(34), 905-914.

Kuznetsov, V. S., & Suprun, I. K. (2017). Reduction of an adverse impact during well drilling by means of drilling waste usage. Journal of Ecological Engineering, 18(2), 12-15. doi:10.12911/22998993/68211

Mnatsakanyan A.G., & Reshetsky V.I. (2008). Clarification of the Baumol – Tobin model for cash management. Finance and credit. № 47 (335). Pp. 48 – 54.

Ohlin, C. (2019). Information and Communication Technology in a Global World. Research in Social Sciences and Technology, 4(2), 41-57. https://doi.org/10.46303/ressat.04.02.4

Order of the Ministry of Finance of the Russian Federation of 02.02.2011 № 11n «On approval of the Regulations on accounting «Statement of cash flows» (PBU 23/2011)».

Prischepa, O. M., Nefedov, Y. V., & Kochneva, O. E. (2020). Raw material base of hard-to-extract oil reserves of russia. [Matéria-prima base de reservas de óleo de difícil extração da Rússia] Periodico Tche Quimica, 17(34), 915-924.

Puryaev, A. (2020). About the Essence of Categories “Efficiency” and “Efficiency of the Investment Project.” In Smart Innovation, Systems and Technologies (Vol. 172, pp. 643–651). Springer, Singapore. https://doi.org/10.1007/978-981-15-2244-4_60

Puryaev, A. S., Puryaeva, Z. A., Kharisova, A. R., & Puryaev, A. A. (2019). Investigation and explanation of mathematical tooling for accounting non-economic characteristics during the investment project effectiveness’ assessing process. IOP Conference Series: Materials Science and Engineering, 570, 012074. https://doi.org/10.1088/1757-899X/570/1/012074

Robbins, C., Bishop, J., & Tarman, B. (2019). Against Reactionary Populism: Opening a Needed Conversation in Education. Journal of Culture and Values in Education, 2(3), i-vi. https://doi.org/10.46303/jcve.03.02.ed

Saenko, N., Voronkova, O., Volk, M., & Voroshilova, O. (2019). The social responsibility of a scientist: Philosophical aspect of contemporary discussions. Journal of Social Studies Education Research, 10(3), 332-345.

Saenko, N., Voronkova, O., Zatsarinnaya, E., & Mikhailova, M. (2020). Philosophical and cultural foundations of the concept of “nihitogenesis”. Journal of Social Studies Education Research, 11(1), 88-103.

Sayakhova E. V., & Kournikova. S. P. (2014). Management of cash flows of the enterprise. Economy and society. № 2-2 (11). - Pp. 959-962.

Tarman, B. (2016). Innovation and Education. Research in Social Sciences and Technology, 1(1). Retrieved from http://ressat.org/index.php/ressat/article/view/3

Tarman, B. (2017). Editorial: The Future of Social Sciences. Research in Social Sciences and Technology, 2(2). Retrieved from http://ressat.org/index.php/ressat/article/view/329

Vu, T. (2019). Theoretical Constructs and Practical Strategies for Intercultural Communication. Journal Of Curriculum Studies Research, 1(1), 43-53. https://doi.org/10.46303/jcsr.01.01.4

Zaripova, R. S., Ahmetova, M. H., & Kuzmin, P. A. (2019). Ecological and biological features of quickbeam (sorbus aucuparia L.) in the context of an urbanized environment. Journal of Advanced Research in Dynamical and Control Systems, 11(5 Special Issue), 1731-1734.