THEORY AND PRACTICE OF THE FINANCIAL REGULATION RELEVANT TO INNOVATIVE DEVELOPMENT OF HIGH SCHOOL

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ABSTRACT
The consensus in the high school is valued by how much we invest in human capital which is determinant of efficiency. High school is a pillar contributor to productivity growth. There is evidence that innovation is a key player in nurturing technology change. In today’s knowledge based economy, it becomes more evident that investing in human capital has greater return for university and corporation which is more effective than that of physical assets. Simultaneously, the conceptual fundamental of human capital is based on knowledge, skills, competencies, and tools that are developed through coaching and learning activities provided by the concerned institution. This paper intend to tackle and to develop separate positions of the theory and practice of financing the innovative development of higher education (IDHE) toward the formation and development of the national economy of knowledge. Furthermore, it examines the retention of the increased globalization of higher education, while state financial obligation is in decrease, which leads to greater distinction among universities in respect of financial support and security. Financial support should be a priority to support the innovative development of higher education.

Key words: Competency, Development, Human Capital, Innovative Development, Learning.

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1. STATEMENT OF THE PROBLEM
The effectiveness of modernization of the economy and education is directly determined by the adequacy of the financial support, and the development of innovative potential of the domestic higher education. The insufficient level and deconsolidation of the financial resources of the state and private investments are the core of the implementation of major science and technology projects which has shown that commercialization are the results of university research and development. Thus, it prevents the increase portion of intellectual assets in the economy. In addition, it intensifies the relevancy of a fast and efficient solution of the theoretical and methodological problems of financing the innovative development of higher education, which are: support of the conceptual approaches, theoretical, and the formation of mixed proportions of the financial support of the innovative development of higher education. Needless to state that this is to diversify sources of funding and implementation of market-based mechanisms for the purpose of raising funds; to create a system of the financial management and the measurement of results of financing innovation of modern universities, and the definition of performance indicators of financial investments in in regard of university science and innovation.

2. ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS
Theoretical basis of the formation of the new provisions of the theory of finance, has taken into account the challenges of the innovation, has reflected in the writings of such representatives of economic science as (Musgrave, Peacock, 1980). These developments are devoted to the most common problems of the economic modernization of higher education and the formation of the new instruments for financing educational institutions. The subject of study is the phenomenon of the socio-economic efficiency of the “knowledge economy”, which is based on the quality of human capital.

The practical aspects of the creation of elements of the innovation infrastructure, the development of the innovative potential of educational institutions and related companies are studied in the works of some authors. The theoretical basis for financing of high school, guidelines, presented on certain aspects of the resource of ensuring its development, is laid in the fundamental research works. However, the economics did not work out coherent theoretical and methodological approach to defining the objectives, structure and instruments of the financial support of the innovative development of higher education in terms of their impact on the dynamics of the processes of modernization and competitiveness.

The absence of a holistic approach to the theory and methodology of financing of the innovative development of higher education (IDHE) and the relevance of its development predetermined the choice of goals and objectives of this study.

3. LITERATURE REVIEW
The purpose of the publication is to develop the separate positions of the theory and practice of financing the innovative development of higher education (IDHE) in the formation and development of the national economy of knowledge.

The goal determined the sequence and content of the complex research tasks:

- To examine the theoretical basis and conceptual approaches to financing IDHE;
- To identify the sources of the financial support for the development of the innovation potential of higher education;

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- To establish the criteria for determining the adequacy of the financial resources to IDHE;
- To analyze the variants for the implementation of the state policy in the field of financing of higher education, to identify the financial risks, trends and problems of the financial security of IDHE, as well as the direction and specific tools to neutralize them;
- To substantiate the basic directions and instruments of the financial stimulus of IDHE;
- To determine methodological approaches to the financial management of the innovative universities and to offer the effective methods of the evaluation of the investment attractiveness of university projects and innovations;
- To develop the methodology for the expert review of the effectiveness of the financial securement of IDHE.

The conceptual theoretical basis for the formation of the effective system of financing IDHE, which is used to determine the need for financial resources, sources of financing, the results of their use are the key provisions of scientific developments of S. Myers and R. A. Brealey [1], B. Collass [2], G. Van Horne [3], R. N. Anthony [4].

Market relations in higher education are not unique national issues and should be considered in the context of global trends. For example, American researchers S. Slaughter and Leslie L., summing up the experience of the institutional change in higher education till the last decades of the 20th century, define the market or “market-like” activities of modern universities to attract non-government funding as “academic capitalism” as well as the university community as entrepreneurs, government-subsidized [5]. At the same time, the doctrine of state regulation of social market economy development of knowledge, based on the system approach to financial management and budgeting of the theory of higher education, broadly in line with the specifics of regulation of innovative development of modern higher education.

Increased globalization of higher education, while reducing the financial obligations of the state, institutional destabilization in higher education in most countries leads to a sharp differentiation of universities according to their level of financial security. These phenomena extremely actualize the theory of investment in human capital, in which the intellectual capital of academic staff should be considered as a specific product. Public and private investments in the quality of university intellectual capital of academic staff, which is intended to ensure its ability to generate and reproduce innovations, are investments in the development of the knowledge economy and national innovation systems (NIS).

The dynamic nature of the market relations in higher education and the need to modernize processes due to the need to develop the innovative economy and improve the quality of human capital requires an update of the doctrine of funding higher education. This update is because the need for a high degree of modern universities, along with traditional activities – education and research – to develop innovative activity. Thus state, bearing in minds the social mission and the role of higher education in society, takes over the functions of its strategic investor. This means that in the innovation economy state, interested in the development of the fundamental science, still funded mass higher education in general to the intellectual development of the nation and partially paid training according to the needs of the economy. At the same time, transfer of knowledge, with a view to early implementation and profitable
distribution and related innovative technologies is carried out primarily by private investment. Exactly a private investor in the “Research & Business” becomes a final consumer of the results of research and innovation universities.

A fundamental principle of the update mentioned above doctrine can be process-dynamic approach (PDA) to the understanding of the characteristics of the financing of IDHE, as a specific socio-economic process of functioning of the subjects of the innovative infrastructure of high school, which also is aimed at reproduction of the intellectual potential of the society, as well as on the development and commercialization of the innovations. Thus the material basis of the financing is financial resources of IDHE, defined as a reasonable procedure adopted by the amount of public and private investments to be used for reproduction, and promotion of the innovative processes in high school. In this study, they are presented with the budget, investment, tax, credit, and regulatory financial flows within the Higher School of monetary instruments.

According to authoritative scientists, PDA may be based on the following fundamental principles of the modification of financial support development of higher education:

- firstly, a certain minimum amount of state budget expenditures on IDHE in the condition of the commercialization of the main types of university activities must take place by the scientific substantiation of the volume and structure of budgetary funds, which are able to get their recipients interested in improving the results of their own research and innovation activities;
- secondly, the most effective modern mechanisms of the financial security of IDHE is co-funded research and innovation universities, which is based on the theory of “soft” management, mixed flexible public-market financing education on the basis of the implementation of science-based development programs, taking into account the dynamics of their effectiveness;
- Thirdly, the stimulation of the growth of private investment in IDHE should be done by improving the investment attractiveness of investments in human capital, increasing the rate of profit during the growth of investment in knowledge, understanding and competence, changes in the structural-functional and institutional matrix of higher education, taking into account market-related economic development of the country.

The rates of IDHE in modern conditions are determined by the effective interaction between the society and its individuals, government and commercial organizations, non-government funds over the legislative establishment of proportions of such co-financing.

Since the level of financial support of IDHE is affected with the totality of interrelated, complex interconnected factors, the transition from exclusively and predominantly public funding to diversified multi-channel source is not a guarantee of an optimum level of the financial resources for the innovative development.

In the information society and innovation economy, higher education is not only an unconditional public good, but also a necessary condition for their development. Therefore, public investment in the innovation potential of higher education must, as a minimum, provide training of qualified personnel for the innovation market and the creation of the system integration centers of innovation activity on the basis of the leading universities. Private investment will also actively supplement the costs of social capital only if the benefits and gains from private investment will cover the relevant costs.
Indicators and benchmarks to measure the effectiveness of capital investments in the innovation potential of higher education, a potential regulator of the proportions of state subsidies and private investment are the indicators of commercial attractiveness of university research and innovation, the competitiveness rankings of intellectual academic staff activities in the domestic and international innovation market.

In order to ensure the necessary level of fitness during the use of a system of indicators (criteria for competitive selection and rating) has to be universal enough. To do this, it must meet the general requirements for the compilation of indicators of competitiveness, which are the ability to take into account when drawing up and use of sub-criteria of expediency, functionality, creativity, adaptability, manageability, measuring the speed of the spread and impact of intellectual property. Focusing on the interests of investors, involves the use of methodological tools of the target-oriented budgeting, the indicator and the structural-functional analysis. The system of indicators to measure performance should be integrated with the dynamic simulation methods for the formation of an effective process of transformation investments in Innovation University.

In world practice, as the main indicators of the adequacy of funding of higher education, science and research are used:

- The share of costs on professional education, science and research as a percentage of GDP;
- The structure of the internal costs for research and development by source of funds;
- The part of costs of the entrepreneurial sector on education and science.

The distribution of costs for the development of higher education by the sources of funding and level of the budget system shows significant differences of the domestic financial model of higher education, compared with the global. The main financial instrument to support the innovation in the universities is currently the target financing of the national programs for the development of education and leading universities of the country. The analysis of the implementation of such programs in the past 10 years shows that the result of the low level of funding has been a significant reduction in the effectiveness of their implementation.

The whole innovative sphere of the domestic higher education is exposed to the significant financial risks. These risks arise because of the low level of the financial support by the state of the cooperation of science, education and business. Domestic science continues to operate within the traditional industrial model, characterized by the dominance of the independent research organizations, separate from universities and companies. They account for over 80% of the expenditure on science, while in developed countries financial priority is given to companies and universities. In this case, the main risk is the lack of incentives to optimize the cost of higher education and the creation of funds.

It is necessary to create a unified system of financial incentives of growth of public and private investment in the innovative potential of universities to overcome the negative trends in the financing of the innovative development of higher education and minimize the financial risks.

The instruments of promoting the financial support of the innovative development of higher education, neutralizing the financial risks are: legislative and institutional changes, the development of the tax system, improving the mechanisms for equity financing of the innovative projects of high school, strategic and tactical financial
planning, promoting private investment in science and education, as well as increase budgetary provision universities.

A key tool to link the goals of the innovative development of higher institutions with their financing, the valuation of financial capacity of investors and determining the effectiveness of investment becomes a financial strategy of universities. It should be formed on the basis of principles of alternativeness, taking into account the level of social and economic risks, focusing on the dominant innovation for funding as a priority, positioning the university as a subject of the innovative infrastructure of higher education.

For the practical implementation of the concept of the functionally-oriented financial management of the university can be used the system model of the financial decision for the development of the innovation infrastructure subjects of high school, which is a set of functional, information and dynamic models of the processes of management of the financial resources of high school [9].

The elements of the model are a lot of investors with financial resources for innovations, aimed at implementing the goals by solving problems. Making the final commercial product is achieved by the financial support of the innovation by connecting the functional subsystems of the institution, the algorithms of their activities, institutional arrangements of options, and the implementation of the available technologies of decision-making.

The financial model of the infrastructure of the innovative university is based on the information portal and systematically links the following parameters of its activity: the resources of the university, the fund of the innovative development, foreign investments, the total costs of the development and commercialization of innovations, as well as the indicators of the measurement: the intellectual and creative potential of scientific and teaching staff, the assets of the innovation infrastructure, the planned profitability, revenue, tax, financial performance.

The instruments to promote the efficiency of the university, which allows to influence actively for the separate action of the complex and multidimensional process of the innovation financing, may be the algorithm of formation of funds of the financial support of the creative collectives of the centers of the financial responsibility of the institution.

Expert research of the effectiveness of the financial investments in the innovative development of higher education involves the following steps:

- Making a choice of the expert evaluations;
- Defining the criteria for the effectiveness of using of the financial resources;
- Defining the indicators of the integral and comparative assessment of the efficiency;
- Fulfiling the complex analysis of the implementation of the innovative processes at high school and their financial security;
- Analyzing the financial and non-financial results from the investments in the innovation.

Complex technique of the expert evaluation of the effectiveness of funding innovation activities of universities combines process-oriented methods of cost accounting and profitability analysis with the method of calculating the estimated effectiveness. The purpose of the examination in this case is not only the analysis of the actual fulfillment of the innovative university budget (separate entity), but the
evaluation of the adequacy of the level of investment resources for the development of its innovative infrastructure.

The criteria of cost-effectiveness of investments in the innovation can be used: net assets of the innovation infrastructure of the university and their profitability. Adequacy, transparency, intended use and effectiveness of the financial resources are characterized with the system of the evaluative indicators, which are established in the framework of their normative values and weight the importance of each indicator. When calculating efficiency the coefficients of sufficiency of the financial resources are of primary importance, then up to the importance the coefficients of the objective use, the coefficients of the profitability and transparency.

The result of the measurement of the indicators of the effectiveness of the investments in the innovation of universities is the formation of the experts’ opinions on the level of the innovation potential of the institution, the ability of the financial support of the future directions of its development, the socio-economic viability of the financial investments in the development of the intellectual and creative potential of the academic staff.

4. METHODOLOGY AND RESULTS

A study of the complex problems of the theory and methodology of financing for innovative development of the national high school in the conditions of the formation of the NIS allows to prove the principles, models and tools of the financial support of subjects of innovative infrastructure of high school, as well as make recommendations to improve the effectiveness of funding university research and innovation.

Implemented PDA to the funding of IDHE defines as a universal component of the financial entities to ensure the dynamic development of innovation infrastructure of high school in order to ensure the highest level of processes of transformation of public and private investment in the university research and innovation, to increase profits from the growth of investment in knowledge, information and expertise;

The development of the conceptual apparatus of the financing of IDHE allows reflecting its specifics, the special role of the financial relationship between the state as a strategic investor and private investors interested in the resource provision of IDHE in the medium and short term.

The methodological approach to the legislative division of powers and obligations of public and private investors in the financial supply of IDHE is based on determining the level of funding that is derived from the proportion between the socially necessary level of public funding of higher education and private investment in the development of the university research and innovation.

Comparative analysis of the financial provision of higher education in Ukraine and the countries of the OECD makes it possible to identify the financial risks of IDHE that are connected with a low level of funding for this field of activity, negative trends in fiscal policy, poor NIS, which together exert a moderating influence on the development of investment and innovative activity of higher school. The main areas of neutralizing the financial risks that ensure competitiveness and IDHE are defined: the introduction of public and non-public regulators of the structure of income and expenses of high school, taking into account the priorities of the funding university research and innovation, as well as the concentration of financial resources in the large research and innovative universities.
Process-oriented approach to assessing the investment attractiveness of the subjects of IDHE which is to develop the concept of functionally-oriented financial management of the innovative universities, includes methods of the financial risk management, the processes of the financial innovation and performance measurement financing of IDHE by the introduction of quantitative and qualitative indicators for assessing the investment attractiveness of the results intellectual property and innovative educational programs.

Economic and mathematical models (EMM) of functionally-oriented financial management of innovative high schools can be used to determine the economic advisability, the adequacy and effectiveness of public and private investment in the university innovation, and for the redistribution of the financial resources for activities and structural units of universities with regard to their financial strategy and innovation development program. The characteristic of the designed EMM acts the formalization of the procedures and algorithms for quantitative evaluation of the effectiveness of the financial management of the innovative universities, including the results of the specific actions of performers.

Complex technique of the expert evaluation of the effectiveness of funding of IDHE includes tools of the process-oriented cost accounting, the development of indicators to measure the return on investment in innovation of the university, the methodology of calculating the effectiveness of financing innovation processes in high school and university ranking by the level of development of their innovation potential.

BIBLIOGRAPHY