

## SECTION 1. Macroeconomic processes and regional economies management

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### Investment provision of innovative development in Ukraine

#### Abstract

The paper analyzes potential for innovative growth in Ukraine, determines the major problems during the transition to innovative development, researches the present state of investment provision of innovative activities in Ukraine for every source of financing.

**Keywords:** innovative development, investment provision, scientific and technical potential, bank financing, models of economic development.

**JEL Classification:** E22, O32, G21.

#### Introduction

Ukraine's aspiration to build a competitive economy should be based on the world trends of forming the postindustrial society, in which a country's scientific and technical potential determines its position in the world. However, the economy's transition to innovative development requires considerable investments in the production of highly technological and competitive goods, purposeful financing of new technologies, etc. According to the estimates of specialists, in order to increase the competitive production by 5 per cent it is necessary to invest 25 per cent of the GDP into innovative process, scientific research and technological development. The size and structure of investments, the quality and speed of their realization are decisive in the process of technical and technological renovation, which ensures the country's technological safety and the strategic success of economic development in general.

The purpose of this article is the analysis of potential for innovative growth in Ukraine and determination of major problems of investment provision for every source of financing.

#### 1. Analysis of the latest publications

Some aspects of investment provision for innovative development in Ukraine are explored by the renowned Ukrainian economists such as O. Amosha, M. Arefyev, Y. Bazhalo, Y. Vasylenko, O. Vasyurenko, Y. Halushko, A. Halchynsky, V. Heyetz, A. Hrynyov, B. Danylyshyn, H. Dobrov, H. Zavlin, M. Krupka, A. Kuznyetsova, T. Kosova, S. Onyshko, A. Peresada, P. Pererva, M. Chumachenko, A. Yakovlev and others. Despite significant number of scientific investigations in the sphere of investment and innovative process management, there are many complex issues, which need further development. One of such issues is the formation of a complex mechanism for the financial provision of Ukrainian economy's innovative development.

#### 2. The main part

It should be noted that Ukraine as part of the national economy of the former USSR had a considerable innovative potential. According to UNESCO, the share of Ukraine in the world engineering and scientific potential was almost 7 per cent. The Ukrainian science achieved high international levels in such spheres as cell engineering, solid state physics, physical and chemical basis of metallurgy, physiology and mathematics. In the traditional industrial and raw material branches of the economy there is a considerable reserve for long-term fundamental and applied research. Ukraine is one of the eight countries possessing the necessary production and scientific positions for the creation and production of the modern aircraft. According to its size and potential, the scientific and technical complex of Ukraine remains one of the biggest in Europe and the second (after Russia) among the CIS countries. The economy of Ukraine has the following advantages: good geopolitical position, developed basis of raw materials and transportation infrastructure, considerable scientific and technological potential of civil and defense industries, high level of engineering science and education.

Unfortunately, Ukraine – a state with enormous innovative potential in the past – today is unable to realize it in the competitive environment of the open market, lagging behind in economic development after the recently less powerful Poland, Hungary, Slovakia and even Romania. If, in the beginning of the 1990-ies Ukraine confidently positioned itself as a country of the second world, in the end of the 90-ies the ratings of respectful international agencies rated it as a third world country. Today, the most dynamically developing countries are China, India and even Brazil, while Ukraine runs the risk of finally losing its competitiveness in the world market.

The traditional export-oriented industries providing the bulk of the national budget (the economy of

Ukraine is extremely dependent on exports) soon may face financial crisis because of its inflexibility. The indicator of the national innovation index of scientific research and engineering, which reflects the relative share of Ukraine in a group of other countries is 1,75, while the indicator, which describes the expected effect from innovations and includes the labor force quality is 3,32. Similar indices for Germany are 43,23 and 40,18 respectively, and for Russia – 7,83 and 11,44.

From the viewpoint of technological and structural development the peculiar feature of Ukraine's economy is its technological diversity dating back to the model of "sustainable industrialization" in times of the Soviet Union. The reason for the low competitiveness of Ukraine in the world market is the so-called "restoration model" for the development of Ukraine's economy, incompatible with the transfer of profits into hi-tech segments of the market.

Experts point out that even the availability of financial resources for improvements in the traditional industries would not give the desired effect, or improve Ukraine's positions in the world market, instead they would cause the so-called "quasimodernization", i.e. the traditional industries would remain low competitive, low profitable and vulnerable to economic conditions even with their modernization.

Today the achievement of success can be based only on structural changes and development of both industrial and postindustrial segments of the economy. The relations between these two segments must be mobile, and the segments themselves mutually supplementing. Industrial branches prevail only on the first stage until knowledge is deepened and postindustrial segments gather momentum and compensate the declining profitability of traditional industries.

The technological diversity of the Ukrainian economy, the presence of different techno-economic sectors as well as market and branch segments have formed the peculiar features of transitional mixed economy. The use of the model of sustainable development has caused the mixed character of techno-economic model of the Ukrainian economy with sectors of different levels of competition: low competitiveness of industries and technologies of mass consumption, considerable potential of fundamental and applied research in a number of industries, and, considerable export possibilities in the traditional industrial and raw materials branches.

The mixed character of Ukraine's techno-economic model manifests itself in the fact that the branches have significant differences in their indices of competitiveness, with the max consumption branches having the lowest index. The electronic industry, IT and fiberglass engineering, computer software, tele-

communications, information services and robot building also have a low level of development.

Long ago the industrially developed countries established the norms and technological standards for these branches and achieved substantial advantages over Ukrainian manufacturers in terms of quality and cost, this fact gives advantage to foreign technologies in the internal market and hampers the development of the national scientific and technical complex and applied sciences, threatening the country's technological in dependence on foreign technologies.

Table 1 provides information regarding the compliance of separate parameters of Ukrainian economy with the technological modes.

Table 1. Compliance of parameters of Ukrainian economy with the technological modes

Parameters of Ukrainian economy	Distribution among technological modes, per cent		
	Third	Fourth	Fifth
Manufacturing of products	58	38	4
Financing of scientific and technical development	-	70	23
Investment in innovative projects	30	60	8,6
Trends of general investment	75	20	4,5
Investment in technical retooling	83	10	-

In 2004-2005, the period when the restoration model had already exhausted itself, in conditions of increased financial stability the country could comparatively easily go to the innovative model of development and growth. However, political events and following imbalances in reproductive processes, resulted in losing a chance for a large-scale modernization was lost, and the country seemed to be thrown back. In such situation the innovative breakthrough was impossible, because the main task of the government was to restore the control of economic and political processes.

For innovative development Ukraine needs the transition from the model of restoration (1999-2004) and the model of investment-imitation (from 2004) to the innovative type of economic growth, the formation of conceptual, institutional and legislative bases for the introduction of the modern system of relationship in the sphere of science and innovations between the state, scientific sector, industrial and financial sectors. The main attention should be directed to realization of quantitative and qualitative changes in the investment provision of innovative development.

The innovative activity must be inseparably linked to investment. Experts say that at least 70-80 per cent of investments must be innovation oriented. The correlation of the major sources of investment provision of innovative development in Ukraine is represented in Figure 1.

Unfortunately, banks only fragmentary participate in the investment provision of innovative development, which is explained by the short-term character of their resources, imperfection of banking laws and a high risk level of such operations. In some Eastern European countries the general volume of crediting of the economy's real sector is 90 per cent of the GDP, while in Ukraine it is only 20 per cent. If we study the share of credit resources in the general structure of financing in its dynamics, then as it's seen from Figure 1, it is insignificant and characterized by the tendency of growth and decline (grows from 6,1 to 18,0 per cent in 2002-2004 and declines to 7,1 per cent in 2006). The low level of bank activity in relation to investment in innovations is caused by the fact that most Ukrainian banks have a small size of capital (the capital level of all Ukrainian banking system corresponds to the level of capital of one middle-sized bank in California or one big bank in Central Europe. The financial potential of Ukrainian commercial banks is five times smaller than the potential of commercial banks in Russia and 200 times smaller than in Japan.

Regarding specialized innovative banks, there is only one such bank functioning in Ukraine. It is the Ukrainian Bank for Reconstruction and Development. In 2004 its authorized capital totaled 200 million hryvnias. Therefore, it is highly unlikely for UBRD to finance large-scale economic innovative projects, because according to the National Bank of Ukraine norms, the maximal size of credit to one customer must not exceed 50 million hryvnias if an authorized capital is 200 million hryvnias. At the moment the Ukrainian Bank for Reconstruction and Development is experiencing a wide range of problems. For example, in 2007 the National Bank of Ukraine prohibited the bank to take deposits of physical and legal persons because of the failure to meet liquidity requirements. Banks that were founded as innovative ones ("Ukrinbank", "Intellect-bank") no longer function as such.

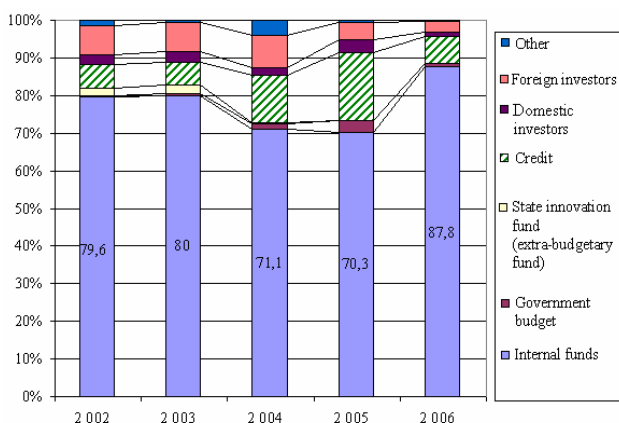


Fig. 1. The structure of financial provision of innovative activity in Ukraine

*The object of this paper is to investigate the possibilities of the state in relation to investment provision of the economy's innovative development.* Although the Law of Ukraine "About the foundations of the state policy in the field of science and technology" stipulates the norms of the budgetary financing of science, during the years of the country's independence the amount of such financing has declined more than 6 times – from 2,5 per cent to 0,41 per cent of the GDP.

In 2004, the state financing of scientific developments totaled 0,35 per cent of the GDP. Especially problematic was the financing of fundamental research: it held the last position in the rating of the state policy priorities. In 2005 the state budget financed only 1,4 per cent of innovation expenses, in 2004 – even less – 0,5 per cent, the resources of the local budgets – 1 per cent.

According to leading Ukrainian experts, the main source of investment provision of innovative development is the resources of enterprises themselves – in 2004 their share totaled 77 per cent of the general amount of expenses on innovations. But considering the resource shortage at most enterprises, the low level of profitability (over 40 per cent of industrial enterprises are unprofitable. Enterprises participating in the innovative activities spend only 1 million hryvnias a year for these goals, which is highly insufficient according to international standards), high level of assets depreciation (on average the rate of depreciation in 2003 reached 45 per cent), it is possible to make a conclusion about the limited capacity for investment provision of innovative development of the Ukrainian economy from the resources of enterprises.

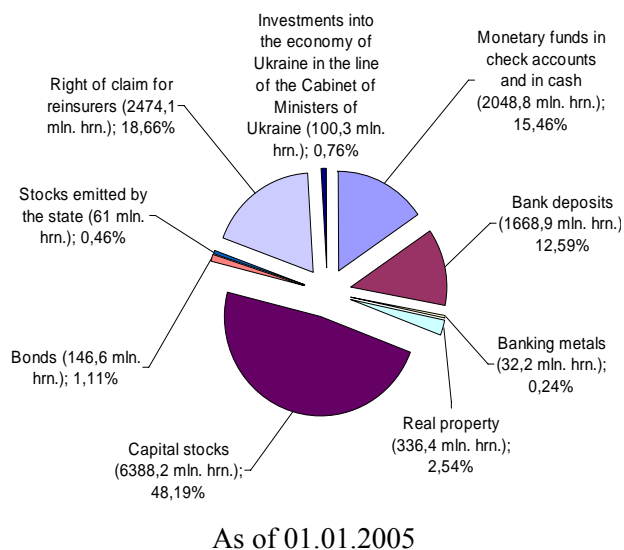
Another form of financing investments and innovative activities in Ukraine is by means of financial and industrial capital. Since the introduction of the first normative documents in Ukraine, which allowed the creation of financial and industrial groups, none were registered in the country. According to the Law of Ukraine "About financial and industrial groups" such group can include only one bank, however, the capitalization of most Ukrainian banks is not adequate to ensure the financing of production by financial and industrial groups in the equivalent set by the Ukrainian Law at 100 million US dollars. It is quite difficult to estimate the efficiency of financial and industrial groups in investment provision of innovative development in Ukraine because of the nontransparency of such structures, the lack of statistical check of their activity, incomplete and fragmentary data.

We will study the participation of nonbanking financial institutions in the investment provision of innovative development of Ukrainian economy.

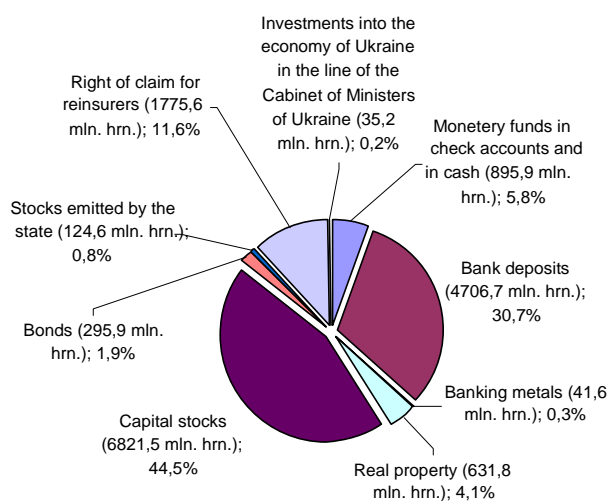
Although in many developed countries nonbanking financial institutions play an important role in the economic development and in financing of innovative activities, in Ukraine the influence of nonbanking financial sector on the formation of credit flows is insignificant – less than 2 per cent.

The main source of financial and credit resources for innovative activities in the industrially developed countries are **pension funds**. But in Ukraine the total assets of all private pension funds do not exceed the assets of one big commercial bank. The majority of these assets are not used for investment purposes.

Regarding **insurance companies**, in Ukraine they have not yet become an active institutional investor in the financial market. While in many world countries insurance companies invest capital in converted bonds, Ukrainian insurance companies prefer to invest in high-risk securities, in particular, shares as shown in Figure 2.



As of 01.01.2005



As of 01.01.2007

Fig. 2. The structure of insurers' assets determined by the article 31 of the Law of Ukraine "On insurance"

On the whole, in spite of the good prospects of Ukrainian insurance companies in the share market, the volume of such investments still remains relatively small. Moreover, there is no statistical data about the share of insurance companies investing in the economy's innovative sector.

Here are the factors explaining the low level of insurance companies' activity in investment provision of the economy's innovative sector: reduction of resource base caused by the low quality of services and reduction of insurance payments; low quality of assets of insurance companies, poor quality of investment instruments.

Regarding **investment funds** it should be noted that most of these funds founded in the process of voucher privatization, do not perform the function of accumulating resources for their subsequent investment in innovations. A considerable part of these funds possess mostly non-liquid shares of privatized enterprises and do not conduct big operations. Those investment funds with liquid shares are often re-registered into investment companies or create commercial banks on the basis of their assets.

The promising area of investment provision of innovative activity in the world is the use of resources of **credit unions**, while in Ukraine this form of financial services of non-banking sector is underdeveloped (only 0,1 per cent of the population participate in credit unions, their assets amount to only 10 million hryvnias).

Theoretically, **leasing companies** must be the leading suppliers of investment resources for innovative activity (in Ukraine the potential demand for leasing services is estimated at 12-50 billion US dollars). There are 22 operating leasing companies in Ukraine. According to the estimates of "Ukrleasing" association, the volume of leasing agreements in 2003 amounted to 326,5 million hryvnias, which is 0,18 per cent of the GDP. From this sum the leasing of equipment totaled to 297,8 million hryvnias. By estimates of the leasing companies only one in 50 leasing applications is satisfied, as most businesses are insolvent. By the end of 2005 the State Commission regulating the market of financial services had registered 24 companies intended to provide the services of financial leasing.

**Non-budget funds** as the source of investment resources for innovative activity are also the subject of our investigation. The State Innovation Fund began its activity in 1993, but in 1999 its resources constituted only 3,2 per cent of the total volume of innovative activity financing. 93 per cent of innovative projects to be financed by the resources of these funds, were not realized. This led to the creation of the Ukrainian State

Innovation Company in 2007 renamed as the State Innovation Credit Institution. There are also the Fundamental Research Fund and the Ukrainian Fund for the Support of Entrepreneurship. However, the statistical information shows that today the financing of innovative activity in Ukrainian industry through non-budget funds is at low level: it amounts to only 1,2-1,9 per cent of the general volume.

Considering **venture funds** as suppliers of investment resources for innovative development, it should be noted that in Ukraine venture business as a new form of resource provision for innovative activity is underdeveloped, the formation of institutions of venture financing began only in 1990-ies and has proceeded rather slowly. According to the leading analysts, the processes taking place in this segment of Ukrainian market can be compared with the situation in Europe in 1970-1980-ies: on the one hand, there are some examples of risk projects financed with the use of venture schemes, on the other hand, a fully-fledged market of venture financing has not been developed yet.

The first venture fund called "Ukraine" was founded in 1999. So far it has provided investments to more than 30 domestic companies for a total sum of about 10 million dollars. The Western NIS Enterprise Fund (with a capital of 150 million dollars) launched its activities in 1994, and in 1998 the Black Sea Fund (part of the asset management company Global Finance) with a capital of nearly 60 million dollars also began functioning in Ukraine. The Euroventures Ukraine Company (with a capital of 30 million dollars) began its operations the same year. A considerable part of financing by these funds (with the exception of the Western NIS Enterprise Fund) is carried out by the European Bank for Reconstruction and Development. In addition, the following companies have their representatives in Ukraine: Commercial Capital Enterprise, Societe General Emerging Europe, Baring Vostok Capital and New Century Holdings (though the last two companies are not purely venture companies they are also engaged in such activities). Moreover, the well-known venture companies operating in Ukraine are the "INEKO" investment company and the "DNIPRO" Fund. Some experts estimate the amount of capital invested by these funds at 200-300 million dollars, however, in reality less than 100 million dollars were invested (about 2 dollars a person). This indicator for Western Europe is 50-60 dollars a person, in Russia – 13 dollars a person, and in Israel – 185 dollars a person. The size of resources invested by venture funds in Ukraine is less than 1 per cent of the annual receipts of European venture funds. Only 1-2 per cent of private enterprises receive venture financing.

The volume of venture funds investments in the hi-tech sector of the domestic economy is insignificant and does not exceed 5 per cent of the general volume of direct investments. In 2002-2005 Ukraine began to develop its own national model of venture investments, which accumulates the national capital. The distinguishing feature of the model is the formation of venture funds mainly by big financial and industrial groups, concerns and holdings within big companies. A substantial deficiency of this model is the fact that the number of technological companies capable of getting support from the venture capital is very small as only innovative projects of large corporations are financed. Some international organizations support the development of venture enterprises in Ukraine, especially the European Bank for Reconstruction and Development.

Speaking about non-banking intermediaries in the investment market, one should mention their new type – **asset management companies**. From 2006 to 2007 their number has grown by 43 per cent (from 159 to 228). The number of joint investment institutions has increased by 82 per cent (from 284 to 519), including venture companies – an increase to 410 (106 per cent). Unfortunately, in spite of the growth of this type of financial intermediaries there is no reliable information to determine which part of their investment resources goes directly into the sphere of innovations (analysts say this part is extremely small).

Exploring the possibilities for investment provision of the economy's innovative development with the resources of foreign investors it is important to consider the fact that, as a rule, only direct strategic foreign investments possess certain elements of innovativeness, when investors are interested in the effective production process and provide not only financial resources but also investments in the form of new technologies, know-how, business organization, scientific research, etc. Regarding foreign portfolio investments, the level of their innovativeness is considerably lower, because portfolio investors, while analyzing the priorities and supporting the most profitable industries, in most cases do not control production and research processes.

Foreign economic agents demonstrate certain interest in entering the Ukrainian investment market. However, the real volume of foreign investments in the form of new technologies is low. They are directed mainly into branches with a rapid return on capital. In 2003 the resources of foreign investors accounted for 8,8 per cent of the general volume of innovative activity's financing, and only 2 per cent (or 112,4 million hryvnias) in 2004. 44 per cent of these resources were spent on innovations in the chemical and petrochemical industry. Considerable

resources of foreign investors were invested in the innovative activity of food industry and machine-building (their share accounted for 23 per cent and 22 per cent of the volume of resources provided by foreign investors). In other words, foreign investors try to invest resources into those sectors of the economy, which require minimal investments, bring rapid paybacks with high rates of profits and low risks. The share of foreign investors in the financing of domestic innovations makes up only 18 per cent.

International credit and financial institutions provide long-term credits to Ukrainian enterprises on a very limited scale: only 0,2 per cent of the total number of granted credits, which corresponds to 0,6 per cent of the general amount of crediting. The conditions of credit provision make them practically inaccessible for enterprises engaged in innovative activities. For example, the main requirements for the allocation of a credit is a successfully operating business (these institutions do not provide credits to starting business), monthly redemption of credit in even installments, which does not contribute to investing in the

development of innovative production that needs time for achieving the minimal level of profitability.

## Conclusions

Recently considerable changes have taken place in Ukraine. In spite of successful economic growth in the last five years, the national economy sustains significant losses because of the absence of favorable conditions for innovative development. The introduction of innovative strategies can not be carried out without solving the problem of their financial provision. For this reason considerable attention should be paid to the formation of effective innovative policies, as the future development will be determined by the level of innovative activity and its financial provision. Today there are no simple solutions for the creation of a system of investment provision for innovative development of the Ukrainian economy. The problem of providing financial resources needed for realization of innovative activity can only be solved when various sources of financing (state and free market of capital) are used.

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