

Methodological Approaches to Investment Management at Small Businesses

Yury A. Doroshenko*, Sergei N. Glagolev, Irina V. Somina, Aleksandr Ya. Arkatov and Petr I. Ospishchev

Belgorod State Technological University named after V.G. Shukhov, Belgorod - 308012, Russian Federation;
ROGOVA@intbel.ru, rector@intbel.ru, irasomina@yandex.ru, su402@bk.ru, nich@intbel.ru

Abstract

Background/Objectives: The article deals with theoretical and methodological aspects of estimation of efficiency of innovation investment management at small businesses. **Methods/Statistical Analysis:** We have defined the essence of social and economic efficiency of innovative activity at small innovative business entities. We have also defined peculiarities of estimation of efficiency of own capital and borrowed capital, and dependence of estimation of investment efficiency on the type of innovation it is injected in. **Findings:** Study of management of investment processes at small business entities from the point of view of estimation of innovation investments revealed following:

1. From the point of view of a small company it is possible to talk about investment efficiency as well as about efficiency of investment management. At this, social and economic efficiency of investment activity of a small entity is significantly wider than positive indicators of monetary flows, as it assumes establishment of new enterprises and jobs, engagement of entrepreneurs into investment activity, increase of general level on investment activity of all business units. 2. Efficiency of participation of own capital in the project and borrowed capital can be different – this should be taken into account upon forecasting of parameters of innovation investments at a small business entity. 3. From the point of view of innovation investment management, management innovations are crucial, as all the other innovations are associated with them. Efficiency of management of investments into each innovation depends on the structure of innovation investment and share of investment into management innovations. **Applications/Improvements:** May be applicable in order to increase efficiency of decisions on management of innovation investments.

Keywords: Capital Structure, Investments, Innovation, Parameters, Parameters of Investments into Innovations, Small Business

1. Introduction

One of the crucial aspects of establishment of management system for innovation-investment processes at small businesses is forecasting of efficiency of investment into innovation. In general, the problem of efficiency is always the focus of researches studying operation and development of economic systems of different levels. However, for small businesses this problem is even more crucial due to their peculiarities and specific character¹⁻⁷. At this estimation of efficiency of all the aspects of a small business activity can be performed on the basis

of its current financial and operational activities, as well as its innovation-investment component. The latter is the subject of our research^{8,9}. As to innovation-investment activity of a small business according to allocated types of innovations, we, on the one hand, may talk about efficiency of investments into technological, production, scientific, informational, management, marketing and other innovation, and, on the other hand, about efficiency of management of abovementioned investments^{10,11}. All of this requires studying of several modern approaches to definition of efficiency.

*Author for correspondence

2. Materials and Methods

In Russian investment practice there are two basic approaches to definition of investment efficiency – of general economic efficiency as a ratio of the effects to the investments that caused them in comparative economic efficiency, revealing advantages of one investment variant over another. It is calculated as the ratio of savings, obtained from decrease of current expenses upon change of one variant with another, to additional investments¹⁰. Making a synthesis of both approaches, it should be noted that generally speaking efficiency is a ratio of a certain result to certain expenses, or change of probable results in relation to change of probable expenses. Thus, investment efficiency is a ratio of some investment result to some investment expenses or change of probable investment result in relation to change of probable investment expenses.

In modern Russian economic literature the majority of scientists hold to differentiation of methods of estimation of investment efficiency into statistical ones (payback method and return on innovation method (ROI) and dynamic ones (method of net present value (NPV), method of profitability index (PI), method of internal rate of return (IRR), method of modified internal rate of return (MIRR)¹¹. There are also opinions, according to which a method of estimation of economic efficiency includes the ratio of economic performances of work to labour costs¹². We think that taking into account basic principles of global investment knowledge, both investment results and investment expenses should be identified in the category of net present value, correlating corresponding positive and negative monetary flows.

In several works authors note that investment activity of a business assumes both regarding of general efficiency of an investment project, and efficiency of participation of an investor. At this, efficiency also includes public (social and economic) efficiency and commercial efficiency. Public efficiency requires cost estimation in monetary flows of project implications in other sectors of national economy, in social and economic spheres. Commercial efficiency assumes efficiency of participation of a company in the project¹³. This view of efficiency reflects existing ideas of investment projects efficiency. In the meantime, differentiation of project efficiency and efficiency of participation in a project is methodologically important, as well as allocation of public (social and economic) efficiency. From the point of view of a small

business entity – as we noted before – it is possible to talk about investment efficiency as well as about efficiency of investment management. At this time social and economic efficiency of investment activity of a small business is significantly wider than positive indicators of monetary flows, as it suggests solution for at least three tasks: establishment of new enterprises and jobs, engagement of entrepreneurs into investment activity, increase of general level of investment activity of all business units.

Some researchers single out budget efficiency of investment projects, which reflects influence of project realisation upon income and expenses of federal, regional or local budget. At this, incomes include budget revenues associated with implementation of a project (licensing revenues, tax revenues, contributions to public non-budgetary funds etc.), and expenses, in their turn, are public funds allocated for direct financing of a project (non-reciprocal investment lending, reimbursement to persons lost their job etc.)¹⁴. It appears that small business, though at first generate negative budget efficiency with its innovation-investment activity, may later form positive budget efficiency through tax benefits, preferences and subsidizing of interest rates. It is explained by the fact that creation of favourable conditions for operation of small entities leads to increase of volume of investment into innovations, increase of scale of output of innovative products, increase of number of jobs and other positive effects.

Certain authors characterise criteria of estimation of efficiency of investment projects with one the main criteria to be the improvement of company value. Among the factors of this there can be: growth in company incomes, mitigation of production and financial risk, correct management decisions¹⁵. Indeed, establishment of corresponding organizational structure of management and estimation of investment business risks, as well as increase of net present value, would certainly produce positive effect upon value of a small business.

Under modern economic conditions investments of all the market participants, including small business entities, are as a rule allocated for innovations. Nevertheless, taking into account non-innovative character of a part of innovation investments, we should differentiate between innovation and non-innovation investments in order to calculate efficiency of investment management in innovations. We consider it interesting to define level of innovativeness by calculating a share of R&D in the total scope of work, share of costs for R&D in total of expenses,

shape of income from innovations in the total of company income¹⁶. According to this principle estimation of efficiency of investment management in innovations at a small business should take into account, on the one hand, gain of share of investments into innovations, and, on the other hand, gain of share of management innovations in the total of innovation investments.

Developing an idea of differentiation between efficiency of an investment project in general and efficiency of investor's participation in it, some scientists suggest additional estimation of efficiency of own capital, invested into the projects, and borrowed capital consisting of resources from credit organisations, loans etc¹⁷. Indeed, a participant of an innovation-investment project may achieve a certain level of efficiency through establishment of a certain structure on participation (a ration of own to borrowed capital in the project), however the efficiency of participation of own capital in the project and efficiency of borrowed capital can be different. This should be taken into account in order to forecast parameters of investments into innovations in a small business entity. It is especially important for small businesses as limited own capital – including capital for investment – is one of the main limiting aspects of small businesses.

3. Results and Discussion

In order to generate objective indicator of estimation of efficiency of investment management in innovation at a small business we shall state following. On the basis of our definition of efficiency as a change of probable result in relation to chance of probable expenses, it should be noted that in the most general representation a change of result of investment management in innovation can be a gain (decrease) of corresponding investments, and change of probable expenses – a gain (decrease) of investments into management innovations. Then base formula for calculation would be as follows (1):

$$E_y = \frac{I_2 - I_1}{I_{y2} - I_{y1}} \quad (1)$$

where E_y – indicator of efficiency of investment management in innovations in a small business, RUB/RUB;

I_2 – value of investments into innovations at a small business after implementation of management solutions upon management of innovation investment, RUB;

I_1 – value of investments into innovations at a small business before implementation of management solutions upon management of innovation investment, RUB;

I_{y2} – value of investments into management innovations at a small business after implementation of management solutions upon management of innovation investment, RUB;

I_{y1} – value of investments into management innovations at a small business before implementation of management solutions upon management of innovation investment, RUB.

Logic of estimation of efficiency of innovation investment management at a small business lies in following. Initially, a small business entity possesses a certain amount of innovation investments upon existing level of innovation investment management within basic organisational structure. In the result of adjustment of management system, for example, by way of change of basic organisational structure, talent management, use of services of investment advisors etc. (and this is a management innovation on its own, requiring investments), general scope of innovation investment at a small business changes (increases or decreases). Comparison of changes in total volume of innovation investments and investments into innovation management gives a value of indicator of efficiency of innovation investment management at a small business.

In order to illustrate suggested methodical approaches, let us consider following example. Assuming, a small business entity during a zero period invested 1,000,000 RUB into innovations, at that investments into management innovations amounted to 100,000 RUB. In the result of implementation of investment management solution, innovation investments at a level of 500,000 RUB were provided, which required investments into innovation management at a level of 50,000 RUB. The value of indicator of innovation investment management at a small business in this example, calculated by the formula (7), was 10 RUB/RUB. Further, assume that investment into innovations were provided in the amount of 500,000 RUB, while investments into management innovations were at a level of 25,000 RUB. In this case value of E_y would be 20 RUB/RUB. Therefore, in the second variant a small business entity would be more successful in its innovation-investment activity with significantly higher efficiency in comparison to the first variant.

Obtained value of E_y may be interpreted taking into account the structure of participation of own and borrowed capital of a small business in management of innovation investments. In this case an indicator of efficiency of innovation investment management at a small business entity by means of own capital is calculated by following formula (2):

$$E_{yc} = E_y \times D_{ck}, \quad (2)$$

where E_{yc} – an indicator of efficiency of innovation investment management by means of own capital of a small business, RUB/RUB;

D_{ck} – share of own capital of a small business in innovation investments, units.

Therefore, efficiency of innovation investment management at a small business by means of borrowed capital is calculated by formula (3):

$$E_{yz} = E_y \times D_{zk}, \quad (3)$$

where E_{yz} – an indicator of efficiency of innovation investment management at a small business by means of borrowed capital of a small business, RUB/RUB;

D_{zk} – share of borrowed capital of a small business in innovation investments, units.

It is typical that indicators of efficiency of innovation investment management by means of own and borrowed capital of a small business can be different. This should be taken into account under consideration of alternative variants of innovation investments in respect of efficiency of management. Thus, in our example $E_y = 10$ RUB/RUB could be obtained, in one case, under structure of financing source of innovation investments of $D_{ck1} = 0.5$ and $D_{zk1} = 0.5$, in other case – $D_{ck2} = 0.1$ and $D_{zk2} = 0.9$. Thus, in the first case E_{yc1} would amount to 5 RUB/RUB, $E_{yz1} = 5$ RUB/RUB, in the second case – E_{yc2} equals to 1 RUB/RUB, $E_{yz2} = 9$ RUB/RUB. It is obvious that the sum of indicators of efficiency of innovation investment management by means of own and borrowed capital is an indicator of cumulative efficiency of innovation investment management of a small business. However, independent calculations of E_{yc} and E_{yz} allow to define which capital – own or borrowed – is the reason behind efficient innovation investment management. In the case when E_{yz} prevail, we may talk of more efficient management, because here the management provides innovation investments from borrowed funds, which is very relevant for a small business entity due to limited sources of investment finances.

It should be noted that aggregate value of E_y is formed on the basis of intermediate values of separate indicators E_{yj} by types on innovations. Within our research we differentiate technical, technological, production, scientific, informational, management, marketing and other innovations. From the point of view of innovation investment management, management innovations are crucial, as all the other innovations are associated with them. Then,

efficiency of investment management of any kind of innovations at a small business can be calculated by following formula (4):

$$E_{yj} = \frac{I_{2j} - I_{1j}}{I_{y2} - I_{y1}} \quad (4)$$

where E_{yj} – indicator of efficiency of management of investments into j^{th} innovation at a small business, RUB/RUB;

I_{2j} – value of investments into j^{th} innovation at a small business after implementation of management decisions on innovation investment management, RUB;

I_{1j} – value of investments into j^{th} innovation at a small business before implementation of management decisions on innovation investment management, RUB.

Sum of efficiency indicators of management of investments into each j^{th} innovation at a small business gives a common value of E_y . In its turn every E_{yj} depends on the structure of investments into innovations and a share of investments into management innovations. In the Figure 1 we present a variant of breakdown of investments into innovations of different types ($I_{2j} - I_{1j}$).

In the Figure 2 we present results of calculation of efficiency indicators for management of investment into each j^{th} innovation at a small business. Preliminary analysis of possibilities of efficient management for innovation-investment activity allows drawing certain conclusions.

In the first place, increase of efficiency of management of innovation investments requires maximum total volume of investments along with minimum value of investments into management innovations, adverse change of value of innovation investments at a small busi-

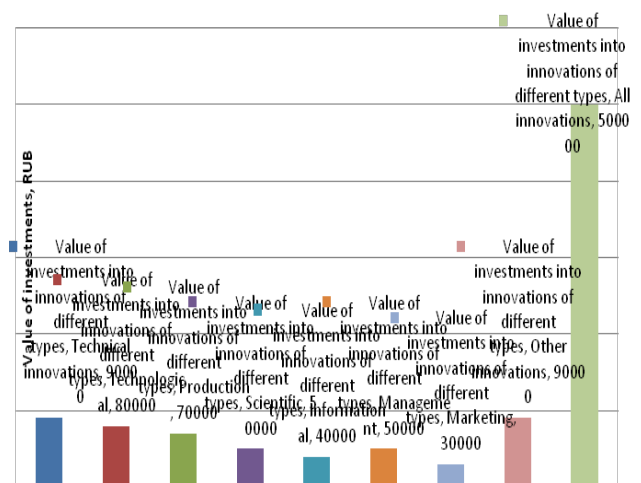


Figure 1. A variant of breakdown of investments into innovations of different types.

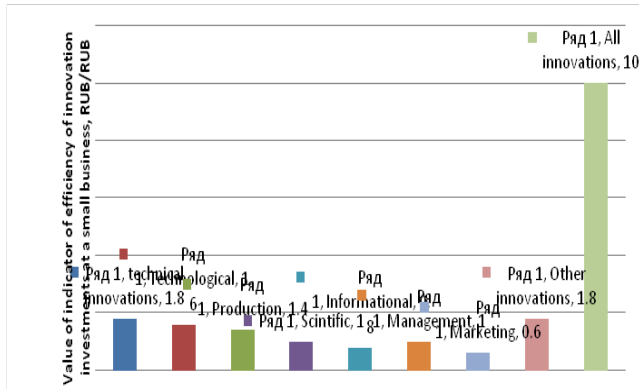


Figure 2. Results of calculation of efficiency indicators for management of investment into innovations of different types at a small business.

ness after implementation of management solutions mean negative efficiency. In the second place, when investments into management innovations tend to zero, E_y would tend to infinity. In the third place, under the condition that all the innovation investments are directed into management innovations, E_y equals to 1. In the fourth place, there is a possibility of different combinations and relations in the structure of innovations of different types, which influences efficiency of innovation investment management. In the fifth place, it is necessary to generate and realise balanced proportions between innovation investments and investments into management innovations.

As it has been noted before, limited innovation-investment activity inherent to small business entities, allows at once to realise certain advantages, as well in the process of innovation investment management, which positively influences its efficiency. As owners of small businesses are usually their top-managers and often employees, increase of innovation investments does not require investments into management innovations, which are realised without obvious funding (in fact – by means of brain capital of the owners). However, at this in any case there is a minimum level of investments into management innovations in the form of investment costs for increase of educational level, career enhancement, purchase of invisible assets promoting management solutions etc.

Management of innovation-investment processes of a small business, including efficiency of decisions on innovation investments management, are influenced by business risks. With regard to estimation of efficiency of innovation investment management at a small business we may say that forecasted change of result of innovation investment management in the form of gain of all the

types of innovation investments may not succeed because of different factors, as well as gain of investments into management innovations. In this case taking into account existing business risks, the abovementioned formula (1) would be changed as follows (5):

$$E_{yr} = K_{pr} \frac{I_2 - I_1}{I_{y2} - I_{y1}} \quad (5)$$

where E_{yr} – indicator of efficiency of innovation investment management at a small business taking into account business risk, RUB/RUB.

Economic values of E_{yr} lies in the fact that forecasted efficiency of innovation investment management at a small business entity can vary from 0 to 1, depending on cumulative business risk, associated with sources of funding on investment processes and objects of innovations. Arising from realisation of risk of funding source of innovation investments of a small business entity, the fact of investment funding does not occur or occur partially. This decreases efficiency of innovation investment management of the whole small company. The same risk associated with purchase of innovation objects influences efficiency of investment management. In this case even if there is a source of funding, no technological, technical, production or other innovations are implemented. Economic substance of E_{yr} lies in the fact that a small entity, implementing a process of innovation investment management, in any case bears investment expenses for organization of the management process. However, at this neither source of innovation investment funding, nor an object of investments (innovations of different types) are established.

4. Conclusions

The research allows us drawing following conclusions.

1. It is necessary to differentiate between efficiency of investments and efficiency of investment management at small business entities. At this efficiency of participation of own capital in the project and borrowed capital can be different – this should be taken into account upon forecasting of parameters of innovation investments at a small business entity.

2. From the point of view of innovation investment management, management innovations are crucial, as all the other innovations are derived and secondary.

3. Efficiency of decisions on management of innovation investments is influenced by business risks. Forecasted change of result of innovation investment

management may not succeed because of different factors, as well as gain of investments into management innovations.

5. Acknowledgements

The article was published with the financial support of the Ministry of Education and Science of the Russian Federation within the framework of state assignment to the project No. 26.1511.2014K "Theory and methodology of managing innovational and investment processes in small business enterprises".

6. References

1. Dean J. Capital budgeting. Colombia University Press: New-York, 1951.
2. Markowitz H. Mean-Variance Analysis in Portfolio Choice and Capital Markets. Basil Blakwell: New-York, 1987.
3. Miller M. Debt and taxes. *Journal of Finance*. 1977; 32 (16-18):261 –75.
4. Modigliani F. Corporate income tats and the cost of capital: a correction. *American Economic Review*. 1963; 93(3):443 –53.
5. Ross SA. The arbitrage theory of capital asset pricing. *Journal of Economic Theory*. 1976; 13(3):341–60.
6. Terborgh G. Dynamic equipment policy. McGraw-Hill: USA. 1949; 4(1):290.
7. Tsybikdorzhieva OM, Belomestnov VG. The problems of import phase-out in the process of formation of a new economic development policy in the Russian regions. *Indian Journal of Science and Technology*. 2015; 8(10):1–6.
8. Doroshenko YA, Somina IV, Komissarov SA, Doroshenko SY. The essence and characteristics of investment processes in small innovative enterprises. *Asian Social Science*. 2015; 11(6):185–91.
9. Kondrashova EA, Veretennikova II, Taburchak AP, Ospishchev PI, Leonova OV. Innovative development of companies as a basis of innovation systems of Russia. *Biosciences Biotechnology Research Asia*. 2015; 12(1):789 –99.
10. Mescon MH, Albert M, Khedouri F. Management. Delo: Moscow, 1992.
11. Fatkhutdinov RA. Innovative Management. Piter: Saint Petersburg, 2012.
12. Guskova ND, Krasovskaya IN, Slushkina YY, Makolov VI. Investment management. KNORUS: Moscow, 2010.
13. Kiseleva NV. Investment activity. KNORUS: Moscow, 2005.
14. Dezhkina IP, Potacheva GA. Innovative potential of a unity system and its estimation (methods of estimation). INFRA-M: Moscow, 2012.
15. Bocharov VV. Investments. Piter: Saint Petersburg, 2009.
16. Ivanova NN, Osadchaya NA. Economic estimation of investments. Feniks: Rostov-on-Don, 2004.
17. Podshivalenko GP. Investments. KNORUS: Moscow, 2008.