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Development of Leasing Operations as a Tool to Fund Innovative Activities in Housing and Public Utilities

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Development of Leasing Operations as a Tool to Fund Innovative Activities in Housing and Public Utilities

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Abstract. Housing and public utilities is of socio-economic significance. It determines the conditions and quality of population life. The article deals with investment methods of innovative activities financing in housing and public utilities sector. Authors suggest that development of leasing transactions through public-private partnership is a priority tool for reforming the industry. An analysis of terminology allowed defining the term of leasing operations of housing and public utilities innovative activities with public-private partnership mechanism applied. It is worked out an organizational and economic scheme of leasing transaction with public-private partnership involved for innovative activity in the housing and public utilities sphere. It allows tracing interaction stages between the leasing participants with the state involved. An innovative technique to calculate leasing payments in operational leasing is worked out. It allows innovative housing and public utilities organizations to vary both payments sums and the residual value of the leased property. The authors suggest directions for state incentives necessary for the effective leasing operations in the housing and public sector. Thus, the study showed it's necessary to develop leasing operations with public-private partnership involvement. It will influence investment and innovation activities of the housing and public utilities sector favorably.

1. Introduction

Housing and public utilities (HPU) is an area that involves more than thirty activities, ensures steady functioning of housing and public services, and constitutes quality indicators of human environment.

Nowadays the HPU sector faces problems (high housing stock and utility networks deterioration, low quality of services, ineffective HPU management) to be solved immediately as the level of HPU development hampers socio-economic development of the state. So it's necessary to develop and apply effective management and modern financing tools for innovative HPU development.

2. Organizational and economic process of leasing transaction with public-private partnership pattern for innovative HPU development

Leasing pattern with the state involved is, in our opinion, one of the most efficient tool of HPU financing.

The concept of state-private partnership (SPP) to solve the problems of socio-economic development of the country is now widely used.

The term "public-private partnership" is defined differently in Russian scientific literature. Authors consider V. Varnavskii suggested the most accurate and comprehensive one: "State-private partnership



is legally regulated (usually for a certain period), relations that involve the co-investment and risk sharing between the state and municipalities, on the one hand, and citizens and legal entities, on the other. The subject of these relations is the objects of state and/or municipal ownership, as well as services performed and provided by state and municipal bodies, organizations, institutions and enterprises" [20].

SPP in HPU sector should function as a special socially-oriented market economy [22] tool that facilitates the effective HPU innovative activities [15]. The conceptual basis for the notion includes the interaction of the various HPU management levels, the separation of their powers and responsibilities, development of innovative and investment processes for innovation-oriented HPU [19] companies aimed at synergies from adjustment of interests, coordination of efforts and consolidation of resources of the parties concerned when socially significant projects in HPU area are realized.

An analysis of foreign practice in innovative HPU services shows the willingness of private businesses to cooperate with state enterprises to be an important factor influencing the effectiveness of the measures held [14].

Leasing is a contractual form of SPP. It is a type of investment activity which combines the elements of lease and loan [1], with ownership of the leased asset transferred to the lessee after all payments [17].

Leasing should be defined as a system of property relations [21] in which property rights between the participants transformed [3].

Nowadays HPU directions open to leasing operations are leasing of specialized technical equipment and machineries, high-efficiency equipment, automated control systems, etc.

Leasing operations in innovative HPU activities through the SPP is a social and economic institution of modern economy development in the form of institutionally-organized constructive alliance due to the lease agreement for innovative activity development of the most important industry in the country (HPU), the authors consider.

Let us consider the leasing scheme for innovative HPU activities development with SPP.

A lessee, a lessor and a seller (property supplier) *are the participants (subjects) of this mechanism.*

According to the SPP scheme a lessee is HPU companies or a State, which accepts the leased objects for a certain period of time for the innovative HPU activities.

A lessor is a person or legal entity which buys the property for innovative HPU development at the expense of borrowed or own funds and shares that property as a leasing object against payment and on certain conditions and for a certain period of time in accordance with the terms of the lease agreement with the right of ownership for the leased asset transferred to the lessor [16].

The seller is an organization [8] which provides the property for the innovative HPU activities within the time stipulated and under the agreement with the lessor.

Figure 1 shows the organizational and economic relations between the leasing transactions parties when SPP for the development of innovative HPU activities is applied.

Where 1 is consideration of lease object; 2 is HPU companies applying to authorities (approval of innovative business plan); 3 is the conclusion of the lease agreement; 4 is the state guarantees; 5 is a credit agreement; 6 is an insurance contract; 7 is the conclusion of the purchase agreement; 8 is an advance payment; 9 is supply contract; 10 is property delivery; 11 is lease payments; 12 is the transfer of ownership.

The scheme enables the participants to exercise relationships consistently at every stage of the organizational and economic process when investing the *innovative HPU activities*.

1. *The consideration of the leased asset (the property) is an essential provision for the leasing transaction.* Buildings, vehicles, equipment including enterprises [18] and other property complexes and other movable and immovable property for modernization [4], maintenance and services, etc. as well can be leased by innovative HPU companies.

2. *Consideration of application for innovative HPU project by government.* The HPU company applies to the executive state authorities to have its application for the development of innovative activities approved and provides innovative project business plan and other documents (feasibility study,

notary verified copies of constituent documents, balance sheets, bank's statement of accounts, tax records, etc). The state authorities examine the information provided as to qualitative, political and social and economic criteria and legal feasibility of the project. Then it makes a decision with respect to the possibility of the innovative HPU project.

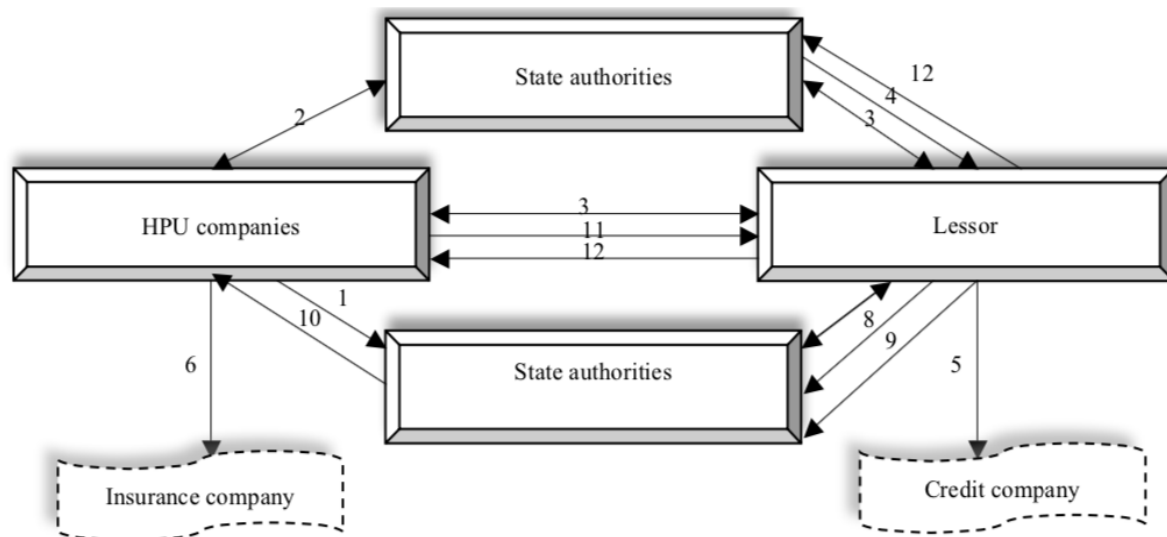


Figure 1. Organizational and economic process of leasing transaction with SPP mechanism for innovative HPU activities.

3. *Conclusion of leasing contract.* The HPU company or executive state bodies apply to leasing company for leasing transactions approval and provide the documents that prove financial health and prospects for HPU company development. Leasing company experts consider the documents submitted and evaluate thoroughly the innovative HPU project, staff qualification and non-payment risks, etc [5, 9]. State authorities, in their turn [10], provide guarantees to leasing companies. If approved leasing transaction is issued as a leasing agreement, and monthly payments are scheduled. If HPU company fails to pay in accordance with the schedule, the lessor is entitled to seize the property which belongs to the lessor and sell it on the secondary market. If client makes lease payments as scheduled and pay off the contract, then the property ownership is transferred to that client at the residual value. All incomes and profits of the client when he explored the equipment are the property of his.

4. Then the leasing company allocates its own resources to finance the transaction [11], if necessary it gets a loan.

5. *Property insurance.* In order to minimize risks, i.e. possible loss (destruction), shortage or damage [6, 7], all the leased property is to be insured for the whole term of the contract. Insurance regulates financial and legal relationships between the parties.

6. *Then the purchase and leased property delivery contracts for innovative housing activities are signed.* The leasing company buys the property from the seller and sign a purchase contract. When the contract signed, the seller under the act of transferring and acceptance is required to transfer the property to the lessor or HPU company. The leasing company and HPU company control the equipment delivery and other related matters. That enables to solve the problems related efficiently and effectively.

A down payment is made the agreement enters into force [12], with a down payment done by state bodies or HPU companies in accordance with provisions by the state.

The HPU company carries out maintenance of the property [13] and ensures its safety and repairmen at its own expense.

The leased object transferred for use to a legal entity for innovative activities is property of the lessor.

7. It should be stressed at the final stage the transaction is completed, i.e. after the lease agreement termination and the purchase by lessee of the leased asset according to leasing agreement. Under SPP system the lessee may be both HPU companies and the state.

All the participants pursue the goals of their own. The state can be subjected to public interests, perform purposive and control functions, act as a participant of economic cycle and ensure commercial effect. The private partner aims at maximizing profits, i.e. commercial interests. So, as to commercial interests the partners can bargain in regard with possible profits and risks, responsibilities and terms they are delegated and used.

3. The leasing payments calculation technique for innovative HPU in operational leasing

The article offers the algorithm of the innovative leasing payments calculation technique for the development of innovative HPU capacity in operational leasing.

It enables to identify the sequence of actions of all contractors in leasing transaction (the state and the private partner) in operational leasing. Besides, the formulas for lease payments calculating are universal as they enable to forecast HPU companies' profits changes of and consequently will define the tax base for the profit tax and the tax on the profit for the entire period of the leased equipment (see Fig. 2).

The innovative technique makes possible calculate how much money the innovative HPU company can afford for vehicle modernization at different times within the entire lease period, and the income tax amount to be paid yearly that eventually will produce the best economic effect, i.e. the budget income tax management.

4. State incentives for the development of HPU companies' innovative capabilities

Despite the advantages, the effective functioning of the leasing mechanism in housing sector requires:

1. Establishment of the State Investment Leasing Fund (SILF) for HPU development.
2. Federal and regional programs for leasing development in innovative HPU activities.
3. Additional tax benefits.
4. Legal framework to ensure legal and property interests of the leasing participants.
5. Recommendations as to partnership in financing innovative projects with the scheme of financial leasing between the State and HPU companies.
6. Evaluation algorithm for HPU companies leasing within SPP.

The proposed measures will enable effective innovative HPU activities which will contribute to the development of technologies for HPU services, modernization of networks and equipment, job places, higher living standards, etc.

5. Conclusions

It can be concluded leasing operations with the state-private partnership for innovative HPU development is useful as this mechanism promotes successful industry reforming.

New innovative approaches and ways of attracting investment resources in Russia will give the economy a chance to overcome obstacles in financing subsidized and non-profitable areas, such as housing and public services, and form a basis for further positive development and effective economy regulation. The measures will improve the living standards and renew core funds through advanced technologies.

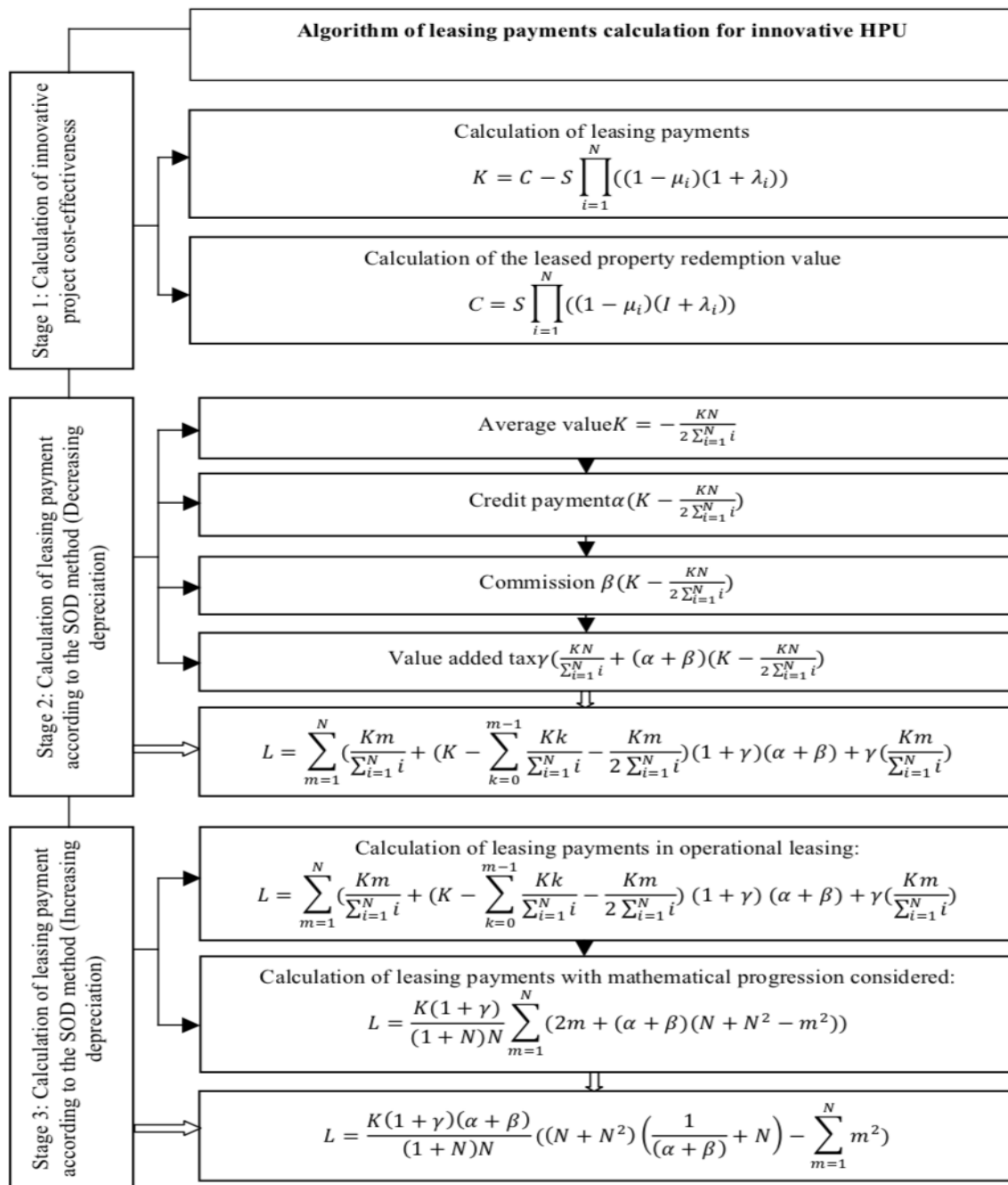


Figure 2. The leasing payments calculation technique for the innovative HPU activities.

S – actual residual value of the leased property as to the initial lease period (the initial cost of the leased property); λ_i – the inflation level (shares) in the i -th year; μ_i – the depreciation level (shares) in the i -th year; C – the market value of the leased property at the end of the operational leasing (the redemption value of the leased property); i – number of the year; N – number of years; L – lease payment; K – the difference between the actual residual value at the beginning of leasing period and the market value of the leased property at the end of the operational leasing (the initial cost); N – number of years; α – the loan interest rate; β – commission rate; γ – the VAT rate; i – is the number of the year.

6. References

- [1] Balapuwaduge I A M, Li F Y, Rajanna A, Kaveh M 2016 Channel occupancy-based dynamic spectrum leasing in multichannel CRNs: Strategies and performance evaluation *IEEE Transactions on Communications* **64**(3) 1313-1328
- [2] Barclay M J, Smith C W 1995 The Priority Structure of Corporate Liabilities *Journal of Finance* **50** 899-916
- [3] Bayless M E, Diltz D J 1988 Debt Capacity, Capital Leasing, and Alternative Debt Instruments *Akron Business and Economic Review* **19** 77-88
- [4] Bayless M E, Diltz J D 1990 Corporate debt, corporate taxes and leasing *Managerial and Decision Economics* **11**(1) 13-19
- [5] Beattie V, Goodacre A, Thomson S 2000 Operating Leases and the Assessment of Lease-Debt Substitutability *Journal of Banking and Finance* **24** 427-470
- [6] Dhaliwal D, Grace Lee H S, Neamtiu M 2011 The impact of operating leases on firm financial and operating risk *Journal of Accounting, Auditing and Finance* **26**(2) 151-197
- [7] Dhaliwal D, Lee H S G, Neamtiu M 2011 The impact of operating leases on firm financial and operating risk *Journal of Accounting Auditing & Finance* **26**(2) 151-197
- [8] Fito M A, Moya S, Orgaz N Considering the effects of operating lease capitalization on key financial ratios *Spanish Journal of Finance and Accounting* **159** 341-368
- [9] Graham J R, Lemmon M L, Schallheim J S 1998 Debt, Leases, Taxes, and the Endogeneity of Corporate Tax Status *Journal of Finance* **53** 131-162
- [10] Jennings R, Marques A 2013 Amortized cost for operating lease assets *Accounting Horizons* **27** 51-74
- [11] Krishnan S V, Moyer C R 1994 Bankruptcy Costs and the Financial Leasing Decision *Financial Management* **23** 31-42
- [12] Lewis C M, Schallheim J 1992 Are Debt and Leases Substitutes? *Journal of Financial and Quantitative Analysis* **27** 497-511
- [13] Miller M, Upton C 1976 Leasing, Buying, and the Cost of Capital Services *Journal of Finance* **31** 761-786
- [14] Myers S C, Majluf N 1984 Corporate financing and investment decisions when firms have information that investors do not have *Journal of Financial Economics* **13** 187-224
- [15] Nikityuk L G, Timchuk O G 2015 Investing innovative activities of the housing and communal services sector on the basis of public-private partnership *Bulletin of the SAGUTU, Ulan-Ude* **5**(56) 101-108
- [16] On financial leasing (leasing): Federal Law of 29.10.1998 No. 164-FZ (as amended on December 31, 2014)
- [17] Sharpe S A, Nguyen H H 1995 Capital Market Imperfection and the Incentive to Lease *Journal of Financial Economics* **39** 271-294
- [18] Smith C W, Wakeman L M 1985 Determinants of corporate leasing policy *Journal of Finance* **40** 895-908
- [19] Timchuk O G, Nikityuk L G, Dykusova A G, Dorzhieva E L 2017 Performance Evaluation Technique of Life Cycle Contracts for Innovation-oriented Companies In: *Published by Atlantis Press. CONFERENCE 2017, Advances in Economics, Business and Management* vol 38 pp 665-670 Trends of Technologies and Innovations in Economic and Social Studies (TTIESS 2017)
- [20] Varnavsky V 2011 Public-private partnership: some questions of theory and practice *World Economy and International Relations* **9** 41-50
- [21] Yan A 2006 Leasing and Debt Financing: Substitutes or Complements? *Journal of Financial and Quantitative Analysis* **41**(3) pp 709-731
- [22] Zavyalova E B, Linev I V 2013 Leasing as a form of public-private partnership *Bulletin of the Moscow State Institute of International Relations* **4**(31) 251-256