

Solvency Management in the Financial Security System of Housing and Communal Services

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Abstract

The problem of financial security of housing and communal services enterprises from the point of view of avoiding the threat of insolvency is studied, which confirms the need to choose the optimal conditions for ensuring the solvency of production and economic systems that affect the efficiency of their financial and economic activities. The main reasons for creating a system of financial security of housing and communal services are identified. The set of factors influencing the organization of the financial security system determined the organizational and financial mechanisms for managing the financial security system of housing and communal services. To increase the solvency in the system of financial security of housing and communal services, a system of indicative assessment is proposed, which includes an assessment of the organizational and financial activities of housing and communal organizations by the owners of municipal housing and communal services. The expediency of applying a cluster approach to the reform of housing and communal services, which will allow the most effective market transformations based on the interests of all agents of the market of housing and communal services and justify tariff policy while maintaining their solvency. The modeling of solvency management in the system of financial security of housing and communal services, which provides ample opportunities for the introduction of market and innovative mechanisms that will inevitably lead to increased financial security of enterprises, regions through streamlining of housing and communal relations between entities and consolidation of competencies.

Keywords

Financial security, solvency management, indicative solvency assessment, cluster approach, housing and communal services.

1. Introduction

An entity's financial security system is a complex, multifaceted concept that is influenced by many internal and external factors. Ensuring an appropriate level of financial security is possible if the company develops and implements an interconnected process of managing its solvency. Solvency depends on the effectiveness of management of liabilities, assets of the enterprise and risks. In the context of global and domestic financial crises, there is an urgent need to form the optimal capital structure of the enterprise, assess its impact on the financial condition of the enterprise, which leads to management decisions that can violate its solvency, financial stability and threaten financial security.

Ensuring the appropriate level of financial security of housing and communal services is not only a basic factor in their effective functioning and strategy for their medium-term development, but also a guarantee of safe functioning of municipalities, regions and the country as a whole. The analysis of scientific achievements on solvency management in the system of financial security of housing and communal services determines the logical-structural concept, the purpose of which is to improve the solvency of enterprises in this sector and increase their level of financial security.

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The importance of financial security of housing in ensuring the stability of the real sector of the national economy and the need to form a comprehensive approach to solvency management, taking into account current trends in doing business and determine the relevance of this study.

2. Analysis of Research and Problem Statement

The study of the main strategic directions of development of the Ukrainian economy in modern conditions, as well as methods of overcoming the crisis and ensuring its economic security, as a strategic component of national sovereignty, in the complex geopolitical conditions of today is extremely relevant. The state of economic security and economic development of the state are inseparable. The ability of the economy to meet the needs of society and innovative economic development, including the competitiveness of its products, is the basis of economic security of the state.

One of the main components of economic security is financial security at both the macro and micro levels. The absence or low level of financial security of enterprises makes it impossible to achieve and maintain an adequate level of financial security of the state.

The dynamics of market relations is accompanied by an insufficient level of management, which leads to a deterioration in the financial condition and overall functioning of enterprises. The specifics of managing modern enterprises are that they are forced to work in the absence of clearly defined industrial policy priorities, low adaptability to unstable operating conditions or market needs; variability of social and political orientations and dynamic innovative development. This is reflected in the level of economic security of the enterprise. At the same time, in these conditions, the successful operation of the enterprise is possible by ensuring proper solvency [1]. After all, solvency is an important characteristic of the enterprise and is the ability to maintain an equilibrium, competitive state today and in the future, constantly responding and adapting to exogenous and endogenous factors in current market conditions.

The works of many scientists are devoted to the study of the problems of the solvency of enterprises. In particular, M. Sagitova, A. Zorina, Y. Iremadze analyzed the solvency and forecast the net profit of enterprises [2], I. Zub studied the factors influencing the liquidity and solvency of enterprises [3], V. Shilo analyzed the financial condition of production and commercial activities of enterprises [4], aspects of creditworthiness management of enterprises were studied by R. Goncharuk [5], G. Bulat, I. Bulka [6]. Despite these achievements of scientists, in modern conditions of business entities the issue of the impact of external and internal factors on the level of solvency of enterprises and, accordingly, compliance with the appropriate level of financial security of the enterprise based on its survival or adaptability remains important and relevant.

Thus, the study of financial security of the enterprise in terms of avoiding the threat of insolvency confirms the need to choose the optimal conditions for ensuring the solvency of production and economic systems that affect the efficiency of their financial and economic activities. Such solvency conditions minimize the risk of deterioration of the financial security of the enterprise. In this regard, the justification of the directions of increasing solvency in the system of financial security of housing and communal services (hereinafter—HCS) is of particular importance.

The aim of the authors' research is to improve the methodological tools and substantiate scientific and practical recommendations for conducting an integrated assessment of the organizational and financial condition of public utilities and harmonize its results with the level of their solvency in the financial security system.

The article is designed to analyze the mechanism of increasing the level of solvency of housing and communal services in the system of their financial security on the basis of solving the following tasks: to explore the conceptual aspects of the financial security system of housing and communal services; to determine an indicative assessment of the solvency of housing and communal services as a prerequisite for ensuring their financial security; to build an economic and mathematical model of solvency management in the system of financial security of enterprises on the basis of a cluster approach.

3. The System of Financial Security of HCS on the basis of Managing Their Solvency

3.1. The Concept of Financial Security of HCS

The instability of the global financial system, the crisis in the national economy, the uncertainty of financial and economic prospects of housing confirm the need to create an effective solvency management system and the formation of its own financial security system that can protect them from various financial threats and risks.

Creating a system of financial security of housing based on managing their solvency involves taking into account a set of objective and subjective phenomena of public life. The main reasons for creating a system of financial security of housing and communal services can be:

- 1) the need for timely identification, prevention and neutralization of financial threats and risks;
- 2) management of factors and conditions that affect the level of financial security;
- 3) ensuring financial stability in the long run;
- 4) increasing the volume of operating activities and expanding the scale of management;
- 5) effective management of financial support of economic activity;
- 6) increasing the level of solvency and reliability;
- 7) increasing the level of profitability and profitibility of financial and economic activities;
- 8) increasing the level of capitalization and value of housing and communal services [7].

The above in the aggregate affects the need to create a system of financial security of housing and communal services on the basis of managing its solvency. The basis for the creation of any management system, including the system of financial security of enterprises, is a system-structural approach, which takes into account the various elements and components that characterize the financial system of the enterprise. The system-structural approach assumes that the creation of a system of financial security of enterprises should be based on the formation of a general concept of financial security.

The purpose of creating a financial security system is realized through a number of tasks, among which the most important are: a) the formation of the regulatory framework for the organization of the financial security system; b) development of a system of indicators to identify financial threats and risks; c) creation of an organizational structure for the implementation of the financial security system; d) development of a set of measures aimed at maintaining a given level of financial security [7].

The set of factors influencing the organization of the financial security system determines the mechanisms and groups of methods for managing the financial security system of housing and communal services. The creation and operation of the financial security system requires the development and implementation of two main mechanisms, namely: a) organizational mechanism for managing the financial security system of enterprises; b) the financial mechanism of management of the financial security system of enterprises.

The organizational mechanism for managing the financial security system includes:

- a) methods, methods and techniques of organizing the financial security system;
- b) legal support for the organization of the financial security system;
- c) regulatory support for the organization of the financial security system;
- d) staffing of the organization of the financial security system;
- e) information support of the financial security system.

The financial mechanism for managing the financial security system includes:

- a) methods and techniques of influencing the financial condition and financial support of economic activity of enterprises;
- b) levers of influence on the financial condition and financial support of economic activity of enterprises;
- c) norms and standards of financial activity of enterprises;
- d) legal support of financial activity of enterprises;
- e) information base of financial management of enterprises.

The content of mechanisms and groups of methods of financial security management of the enterprise is as follows.

First, the mechanism of financial security management is influenced by external and internal factors that primarily affect the management process.

Secondly, the management mechanism involves the existence of a management process, under the control of which are all the mechanisms and methods of influencing the financial security system.

Third, the management process involves the availability of appropriate methods and tools for managing financial security.

Fourth, the financial security management mechanism includes an organizational and financial mechanism, which together make it possible to manage the financial security system more effectively.

Fifth, as part of the mechanism for managing the financial security system, groups of methods that are directly used by the financial security system must be distinguished.

For most medium and small utilities, the solvency management mechanism cannot be implemented due to the need to create appropriate organizational structures, attract staff of financial managers, spend additional funds on its creation and permanent operation.

However, for large and large housing companies, such a management mechanism allows to significantly increase the efficiency of their own financial system, timely prevention of financial threats and risks. Large and large utilities will benefit significantly from the implementation of such a mechanism due to the fact that the ratio between the cost of creating such a mechanism and financial losses from various financial threats and risks are incomparable.

3.2. Indicative Assessment of the Solvency of HCS as a Prerequisite for Financial Security

To increase the solvency in the system of financial security of housing and communal services, it is advisable to use a system of indicative assessment, which includes an assessment of organizational and financial activities of housing and communal services. It is the object of comparison, formed from the quantitative and qualitative characteristics of organizational and financial activities of housing and communal services, allows the most complete assessment of their activities, and the involvement of owners of municipal housing and communal services creates a system of mutually beneficial cooperation [8; 9].

The essence of the system of indicative evaluation of housing and communal services is the procedure of assessing the importance of the activities of housing and communal organizations, which contains quantitative and qualitative characteristics. It is advisable to use the following system of indicators for the main areas of activity of housing and communal services:

- 1) the quality of housing and communal services;
- 2) the amount of work aimed at improving the energy efficiency of housing;
- 3) the amount of work performed to maintain the housing stock;
- 4) collection of payments for provided housing and communal services;
- 5) management system in housing.

The model of indicative assessment of organizational and financial activities of housing and communal services allows formulating key performance indicators in the form of a strategic tree BSC (Balanced Scorecard), the implementation of which will increase the solvency and financial security model of housing and communal services (Fig. 1). Thus, the purposes are formed on functional areas: "Finance," "Clients and marketing," "Business-Processes," "Innovations and the personnel."

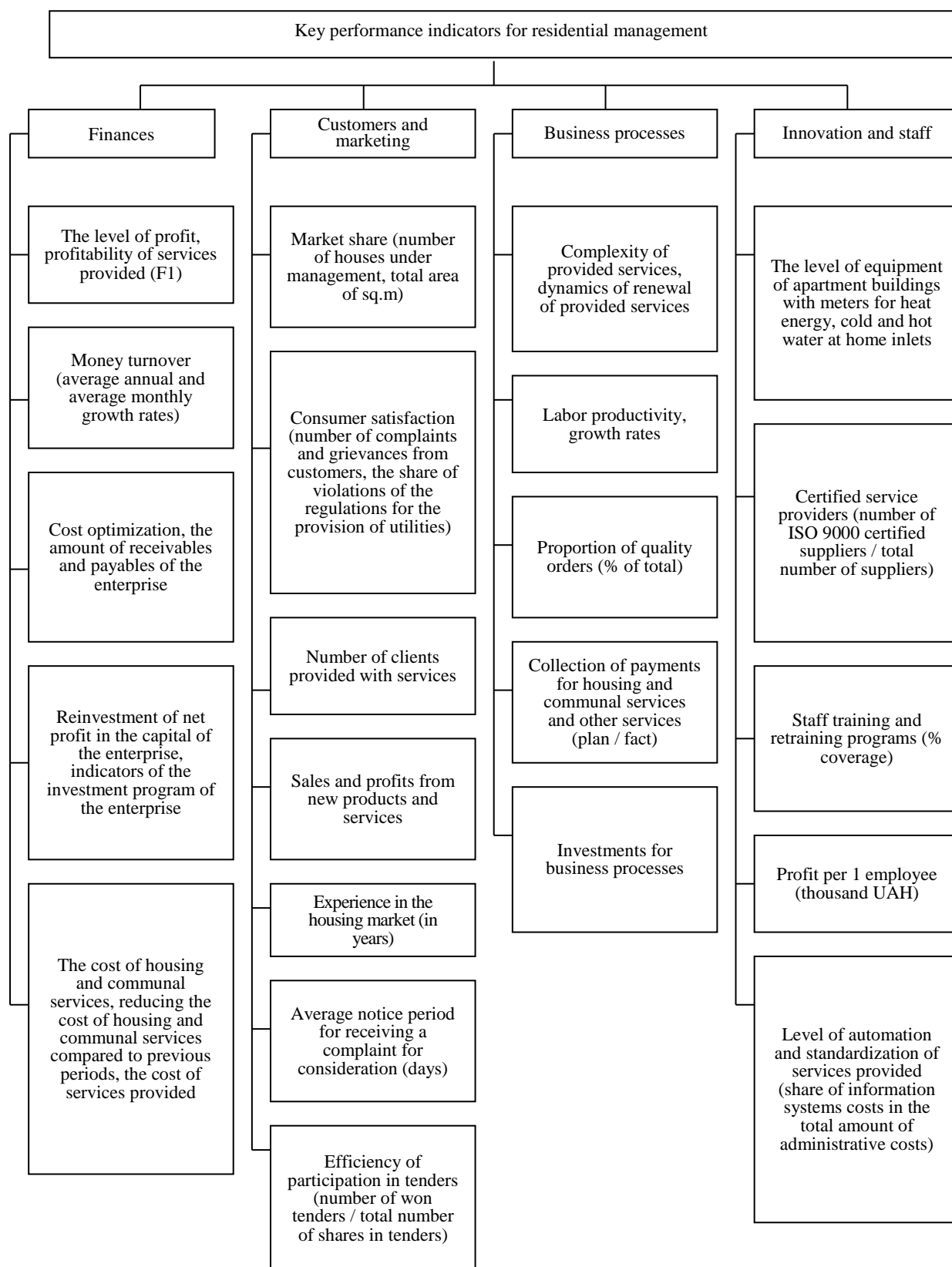


Figure 1: Key performance indicators of the utility company

* Source: developed by the authors

The process indicative model of the management company for housing management allows based on building value chains to identify key business processes and generate indicators of their solvency, control over which allows maintaining the appropriate level of financial security of housing and communal services and high quality services. At the same time, it is possible to control these indicators by third parties—self-regulatory organizations, one of the purposes of which is to monitor and assess the quality of services provided.

3.3. Modeling of Solvency Management in the System of Financial Security of Enterprises based on a Cluster Approach

The market of housing and communal services (HCS) is characterized, first of all, by the ratio of actual consumption of HCS and normative provision of housing and communal services both in a specific managed housing stock and in municipal (city, village, region) HCS as a whole. A feature of the housing and communal services sector in the region is the need to form a system of housing and communal services at a high-quality level, effective management of housing. A key element in the provision of housing and communal services in the management of financial flows, formed based on mandatory payment of citizens for housing and communal services, enshrined in law, which, according to many scholars and practitioners, is most effective within the established municipal cluster.

The cluster of housing and communal services in the region differs in that the clustering of the market of these services is due to the localization of housing and communal services in people's places of residence and is a set of independent organizations for managing apartment buildings of housing and communal complexes contribute to the synergetic effect in the form of quantitative and qualitative growth of housing and communal services provided to consumers by increasing their competitiveness.

In modern housing organizations is assigned an excessive role in the distribution of financial flows. These organizations act as financial administrators for three types of industry enterprises: utilities, housing and construction [10].

The results of studying the main provisions of the theories of cluster development, cluster models formed in world practice, revealed the feasibility of applying to the implementation of housing reform one of these promising approaches, which include clusters. Cluster technology is most in line with the model of housing reform management, which will allow the most effective market transformation based on the interests of all agents of the housing and communal services market, as it involves equal participation of stakeholders in this process.

To clarify the possibility of creating clusters to improve financial security and increase the effectiveness of financial regulation of housing and communal services of Kyiv, it is necessary to confirm or deny the existence of clusters in the financial regulation of housing and communal services in Kyiv and the most significant indicators of their activities. The graph of averages of each of the received clusters is given in Fig. 2.

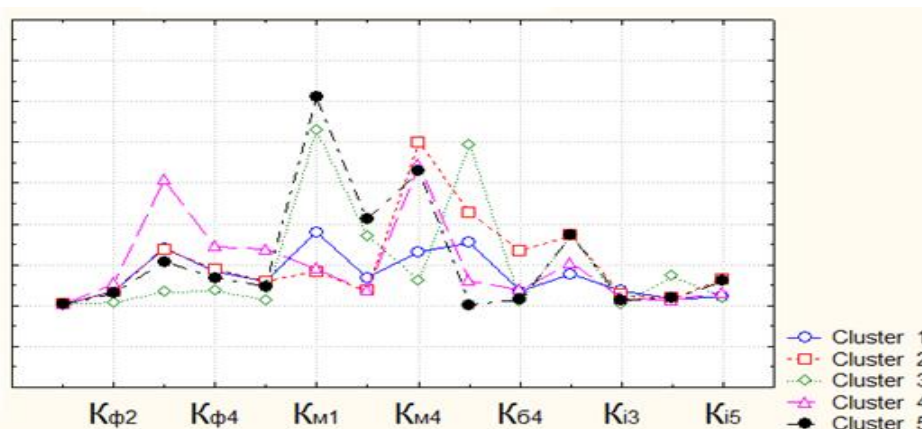


Figure 2: Listing (fragment of the program) - graphs of the middle clusters of the studied municipal districts of Kyiv

* Source: calculated by the authors

The listing shows that the level of efficiency of the organization and the financial return from the provision of housing and communal services, as a result of calculations, revealed the presence of 5 clusters.

The next stage of the algorithm for modeling the areas of financial security of housing and communal services is to determine the degree of correlation between the level of public satisfaction with the quality of housing and communal services and the most influential, determined by factor analysis, indicators. To do this, it is advisable to calculate the degree of correlation using the Pearson coefficient using STATISTIKA7. The results of this calculation are shown in Table 1.

Table 1

Correlation between the organization of the provision and volume of housing and communal services to the population and public satisfaction with the quality of housing and communal services

Indexes	Regression Summary for Dependent Variable: K_{m2} (customer satisfaction)					
	R= ,99999809 R ² = ,99999618 Adjusted R ² = ,99997710 F(5,1)=52399, p< ,00332 Std.Error of estimate: ,00171					
	Beta	Std.Err. of Beta	B	Std.Err. of B	t(1)	p-level
Intercept			2.576479	0.066914	38.5044	0.016530
K_{m6}	-0.384486	0.030604	-0.397583	0.031646	-12.5634	0.050566
K_{63}	-0.620184	0.006970	-0.383972	0.004315	-88.9846	0.071540
K_{64}	0.409906	0.006366	0.164389	0.002553	64.3886	0.009886
K_{i1}	-0.693081	0.024159	-0.936191	0.032633	-28.6882	0.022182
K_{i5}	-0.015844	0.004078	-0.028029	0.007215	-3.88500	0.160386

* Source: calculated by the authors

All five indicators selected from the simulation have a t-test significantly higher than its tabular value. Using STATISTICA 7.0, it was confirmed that five of the 22 indicators were included in the model.

The presented economic-mathematical model allows to estimate the size and level of satisfaction of clients from the basic indicators of activity of housing and communal services on all important parameters and meets the requirements put forward to this type of models. The coefficient of multiple correlation is equal to 0.99999809, the coefficient of determination is 0.99997710, which indicates a high convergence of the calculated and actual values. The actual value of Fisher's test $F_{fact} = 88,863$ is much higher than its tabular value. The standard approximation error is 0.00171, or 3.32%. Given the fact that economic calculations allow for an error of 5–10%, we can conclude that the model describes quite accurately the relationship between customer satisfaction with the main indicators of housing and communal services: the organization and volume of housing and communal services.

The next stage of the methodological approach to creating a cluster of housing and communal services in order to increase solvency in the financial security of housing and communal services is to build discriminant models to identify their belonging to one of the 5 classes of districts on the basis of "Efficiency of organizational and financial activities The level of quality of housing and communal services ". This stage is necessary to determine the most appropriate package of tariffs not only for certain clusters, but also, if necessary, for any housing and communal services of the municipal district (city, town). To conduct a discriminant analysis, the results of clustering are used, according to which each surveyed municipal district is assigned the number of the cluster to which it belongs. Discriminant analysis allows to identify new objects (housing), to identify them to existing clusters in order to determine the achieved level of quality and financial efficiency of housing and communal services and to develop proposals for financial regulation of housing and communal services. The results of a discriminant analysis of the identification of the studied areas by belonging to one of the five clusters are shown in Table 2.

Table 2

Listing of the program—the results of discriminant analysis of the identification of the studied municipal districts by belonging to one of the five clusters

Classification Functions for cluster (data 10 districts of Kyiv)					
Sigma-restricted parameterization					
Effect	1 p= ,3000	2 p= ,3000	3 p= ,1000	4 p= ,2000	5 p= ,1000
Intercept	193.507	206.826	88.8242	128.824	229.442
K ϕ 1	0.096	0.097	0.0677	0.066	0.108
K ϕ 2	-0.002	-0.002	-0.0016	-0.001	-0.002
K ϕ 3	-0.001	-0.001	-0.0006	-0.001	-0.001
K ϕ 4	0.002	0.003	0.0016	0.002	0.003
K ϕ 5	-0.001	-0.001	-0.0009	-0.001	-0.001
K μ 1	0.003	0.002	0.001	0.001	0.001
K μ 3	0.000	0.000	0.0000	0.000	0.000
K μ 4	0.0013	0.0016	0.0013	0.0015	0.0013
K σ 3	0.000	0.000	0.0000	0.000	0.000
K σ 4	0.034	0.038	0.037	0.013	0.038
K ι 1	0.000	0.000	0.000	0.000	0.000
K ι 3	0.027	0.018	0.047	0.018	0.019
K ι 4	0.052	0.021	0.014	0.038	0.028
K ι 5	0.013	0.011	0.019	0.022	0.033

* Source: calculated by the authors

To develop a program for regulating the tariff policy for housing and communal services, it is necessary to determine the districts - type representatives for each of the five clusters, which are selected by building a dendrogram using STATISTIKA7 (Fig. 3). The red vertical line allows defining on each of the received clusters of type representative.

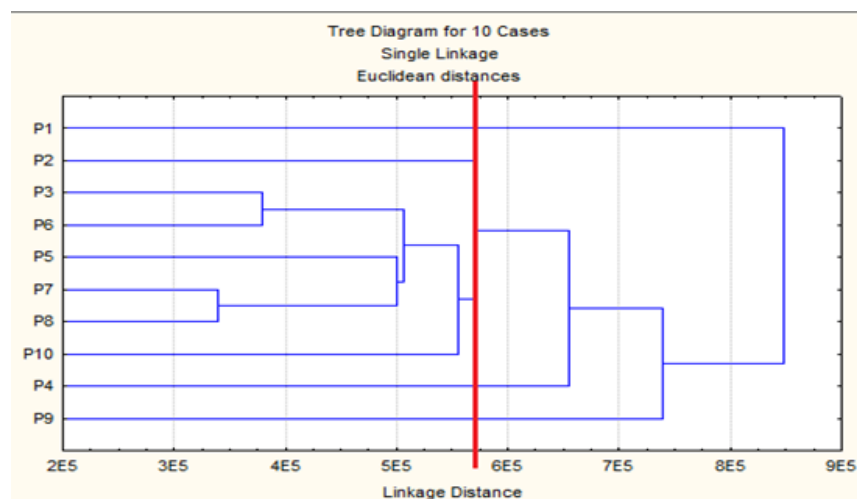


Figure 3: Dendrogram to identify representative areas for each of the five clusters

* Source: calculated by the authors

In order to achieve and maintain the financial security of housing and communal services in the formation of tariffs for housing and communal services, taking into account their social nature and the need for access to all categories of the population of the municipal housing cluster, it is advisable to differentiate them. This approach allows:

- to stimulate utility companies to reduce costs, improve the quality of services provided;
- to promote investment in utilities;
- to improve the solvency of housing and communal services enterprises;

- to provide communal enterprises with financial resources sufficient for the implementation of the tasks set before them;
- take into account the formation of competitive relations in the subsectors of housing and communal services;
- the process of forming a tariff for housing and communal services should consist in finding a compromise between technical capabilities and financial needs of service providers;
- when developing a methodology for setting tariffs, the issue of consumer solvency should not be taken into account, because the source of payment for services is not important for housing and communal services enterprises;
- when determining the economically justified tariff for housing and communal services it is necessary to take into account the real conditions of the housing and communal services enterprise and the state of its production resources;
- to achieve a controlled level of financial security of housing and communal services enterprises;
- the method of calculating the tariff must be accessible and understandable to the user.

To calculate the economically justified basic tariff (T) for housing and communal services, which satisfies the above methodological requirements, it is advisable to use formula 1.

$$T = T_b + (\sum O_j \times P_j \times k_j + I \times rie) / V \quad (1)$$

where T_b is tariff for housing and communal services in the base period, UAH;

O_j is the volume of the j^{th} type of resource consumed for the production of services in the base period, in kind;

P_j is unit price of this type of resource in the base period, UAH;

k_j is price change index for this type of resource;

I is volume of investments in the enterprise for the planning period, UAH;

rie is investment efficiency ratio;

V is the volume of services produced in the base period, in kind.

Regulation of tariffs for utility services should provide:

1) predictability and predictability of tariff changes, tariff setting should be carried out for a certain period (regulatory period), which must be agreed with the period of regulation of gas, electricity and water tariffs set at the regional level. This creates a situation of certainty about the future cash flows of the company, which reduces the risks of investing in it, as well as during the regulated period, the company can take measures to reduce costs, and spend the savings on loan repayments. Establishing the term of the tariff in an unstable economy should be supplemented by the definition of external factors, the change of which should lead to mandatory automatic recalculation of the tariff;

2) publicity of the process of formation of tariffs to achieve trust on the part of consumers of public utilities;

3) systematic audit analysis to identify reserves to reduce the cost of housing and communal services and find the most effective investment and innovation solutions.

According to this approach, it is proposed to calibrate tariffs for housing and communal services depending on the quality of services provided and the level of financial security of public utilities in the district (Table 3).

Table 3

Matrix of the prevailing scenarios for the formation of the system of utility tariffs depending on the level of organizational and financial efficiency and financial security of housing and communal services of municipal districts of Kyiv

Types of districts according to the state of housing and communal services branches	The level of efficiency of organizational and financial activities of the housing cluster		
	<i>organizational and financial / stable</i>	<i>adaptive / satisfactory</i>	<i>maximum allowable / unsatisfactory</i>
<i>developed</i>	market (main), innovative scenarios	market, social and innovation scenarios	market, innovation and evolutionary scenarios
<i>adaptive / satisfactory</i>	market, innovation and evolutionary scenarios	evolutionary (main) market, social, innovation scenarios	market, social, intensive and evolutionary scenarios
<i>crisis</i>	missing	social, innovative and evolutionary scenarios	social, (main) innovative evolutionary scenarios

* *Source: suggested by the authors*

The matrix model (Table 3) shows nine options that reflect the type of municipal district depending on the level of socio-economic development and the state of financial security of housing and communal services. In this case, each option corresponds to its own set of possible scenarios for the formation of a system of utility tariffs.

At the same time, the use of the so-called "diagonal" effect present in the matrix is demonstrated, the essence of which is that the type of districts in the state of housing and communal services and the level of efficiency of organizational and financial activities of the cluster coincide. This allows us to identify the main scenarios for the formation of a system of tariffs for housing services as the most adequate for the above situations. Thus, for the developed type of district the main scenario will be the market scenario, for the adaptive/satisfactory—the main scenario will be evolutionary, for the crisis type of district - the main scenario will be the social scenario. However, in reality the range of possible development scenarios is not limited to the main ones, but other variants of scenarios are possible, which are shown in the quadrants of the matrix.

In order to maintain the unity of the methodological approach, it is necessary to adhere to the compliance of the basic models of housing and communal services management with the developed scenarios for the formation of tariffs for housing and communal services (Table 4). It is proposed to take into account the conditions of use of each of the models in the field of housing, the state of technical development of housing, the possibility of providing quality services.

The social scenario provides for the provision of social living standards in a particular city (urban area). This scenario projects the parameters that ensure the regulatory level and quality of life of the population, and is assessed taking into account the necessary resources and the real possibilities of their provision. In this case, there is a need to develop intermediate options designed not only to increase the level of financial security of the urban economy or housing and communal services, but also to attract centralized investment (investment).

Table 4

Terms of use of management models of housing / communal services of the city

Types of districts according to the state of housing and communal services branches	The level of efficiency of organizational and financial activities of the housing cluster		
	<i>maximum allowable / unsatisfactory</i>	<i>maximum allowable / unsatisfactory</i>	<i>maximum allowable / unsatisfactory</i>
	<i>developed</i>	T11 = T + 0,108 Kφ1 - 0,002 Kφ2 - 0,001 Kφ3 + 0,003 Kφ4 - 0,001 Kφ5+ 0,001 Kм1 +0,0013 Kм4 +0,038 K64+ 0,019 Ki3 + 0,028 Ki4 +0,033 Ki5	T12 = T + 0,108 Kφ1 - 0,002 Kφ2 - 0,001 Kφ3 + 0,003 Kφ4 - 0,001 Kφ5+ 0,001 Kм1 +0,0013 Kм4 +0,038 K64+ 0,019 Ki3 + 0,028 Ki4 +0,033 Ki5
<i>adaptive / satisfactory</i>	T21 = T + 0,096 Kφ1 - 0,002 Kφ2 - 0,001 Kφ3 + 0,002 Kφ4 - 0,001 Kφ5+ 0,001 Kм1 +0,0013 Kм4 +0,0034 K64+ 0,027 Ki3+0,052 Ki4+ 0,052 Ki4 +0,013 Ki5	T22 = T + 0,0677 Kφ1 - 0,0016 Kφ2 - 0,0006 Kφ3 + 0,0016 Kφ4 - 0,0009 Kφ5+ 0,001 Kм1 +0,0013 Kм4 +0,0037 K64+ 0,047 Ki3+0,014 Ki4 +0,019 Ki5	T23 = T + 0,096 Kφ1 - 0,002 Kφ2 - 0,001 Kφ3 + 0,002 Kφ4 - 0,001 Kφ5+ 0,001 Kм1 +0,0013 Kм4 +0,0034 K64+ 0,027 Ki3+0,052 Ki4+ 0,052 Ki4 +0,013 Ki5
<i>crisis</i>		T32 = T + 0,066 Kφ1 - 0,001 Kφ2 - 0,001 Kφ3 + 0,002 Kφ4 - 0,001 Kφ5+ 0,001 Kм1 +0,0015 Kм4 +0,0013 K64+ 0,018 Ki3 + 0,038 Ki4 +0,022 Ki5	T33 = T + 0,097 Kφ1 - 0,002 Kφ2 - 0,001 Kφ3 + 0,003 Kφ4 - 0,001 Kφ5+ 0,002 Kм1 +0,0016 Kм4 +0,0038 K64+ 0,018 Ki3 + 0,021 Ki4 +0,011 Ki5

* Source: suggested by the authors

The latter is possible only when, due to the specifics of the municipal economy, social standards cannot be achieved without appropriate financial participation from the budget system [11]. In developing this scenario, the affiliation of housing and communal services to the social infrastructure of the respective district is emphasized. The social model of forming a system of tariffs for housing and communal services is recommended for use in typical and crisis areas, where the level of social and economic development is quite low, the population is weakly involved in housing, and the housing stock is characterized by high depreciation. This model allows to maintain at the minimum necessary level the provision of the population with the necessary housing services, regardless of the level of household income. The social model of city utilities management takes into account two circumstances regarding utility tariffs: first, economically justified tariffs and prices; secondly, the level of household

income in the city is formed. In case of discrepancy between these circumstances, it is proposed to use budget support: either to subsidize households or directly to utility producers (in these cases it is necessary to involve expert organizations that must ensure the accuracy of calculating the required amount of subsidies and tariffs).

The market scenario focuses on the possibilities of the market infrastructure of the municipal economy. The use of this scenario involves: assessment of the current market situation and effective demand of the population; study of opportunities for the development of a competitive environment in housing and communal services; analysis of conditions for penetration into the local market of housing and communal services of management companies and investors from other regions and cities - the possibility of demonopolization of the markets of housing and communal services; determination of tendencies, dynamics of prices and tariffs in the market of housing and communal services taking into account the level and rates of inflation, prices for energy and construction materials; study of the impact of mechanisms of state and municipal regulation on the market of housing and communal services.

The market model of forming a system of tariffs for housing and communal services can be used in developed areas according to the level of socio-economic development and the state of housing and communal services, where the participation of municipal authorities is limited to compliance with legal and regulatory rules. The market model of municipal utilities management provides for the transition to a system of contractual relations between producers and consumers of public utilities. Alternatively, this could be a model where the management of utilities is carried out by the municipality or where the management of enterprises is concentrated in the hands of private business (concession agreement), or combined management with outsourcing companies, which assumes part of the management functions [12]. At the same time, the presence on the utility market of small and medium-sized private generating utility companies is allowed, which can focus on the production of any type of utility services in a decentralized (local) way.

In the presence of adequate conditions (high level of socio-economic development of the city), such a scenario can be considered a priority. In cities where there are social tensions and/or depressed economy, such a scenario is impractical, and its artificial implementation can lead to irreversible consequences, namely: a sharp deterioration in solvency and falling financial security of utilities, disorganization and destruction of the housing system.

The evolutionary scenario assumes that the restructuring of the management structure of housing and communal services of the city is carried out through the reconstruction, modernization and restructuring of existing industries. Within the framework of this scenario, options are developed to increase the efficiency of using the existing economic and technical potential of the city's housing and communal services industries, as a result of which the solvency of housing and communal services enterprises is improved and the planned level of financial security is achieved. Thus, the qualitative (intensive) development of housing and communal services within the chosen baseline scenario is provided. This scenario can be considered as an intermediate stage at the stage of radical changes in the management structure of housing and communal services. Its application is associated with limited resources, insufficient development of housing and self-government institutions and low technical level of engineering and communal infrastructure.

The innovation scenario envisages the innovative development of housing and communal services, taking into account the identification of additional financial and production and technical capabilities of housing and communal services enterprises. Within this scenario, it is possible to use several options for the development of housing and communal services, which may differ in the depth of technological and technical renewal of production of housing and communal services, provided by the investment and economic potential of the city. Within the framework of the innovation scenario, it is possible to move from one technological level to another, if there are sufficient funds to update the resource potential, while at the same time moving to fundamentally new forms and mechanisms of housing and communal services management. This scenario can be successfully combined with the evolutionary scenario and allows increasing the intensity of HCC management processes.

Thus, the effects of the application of each of the presented models can be obtained as a difference: between the current situation in the housing and communal services, the socio-economic situation and reach the limit value of indicators; between the values of indicators in the base period and the required (planned) values of indicators, with limited (fixed) resource provision in both cases. The results of calculations for the group of municipal districts of Kyiv indicate the possibility of implementing market,

evolutionary and innovative scenarios of financial development models of housing and communal services, as these models provide ample opportunities for market and innovation mechanisms that will inevitably lead to increased financial security. regions through the streamlining of the system of housing and communal relations between the subjects and the consolidation of competencies for the relevant institutions. At the same time, the intensive development of housing self-government as an effective basis for the success of the implementation of selected models becomes possible.

4. Conclusions

The leading role among the functional components of the appropriate level of economic security is assigned to the financial one, as finance is a leading and integral element of every economic system in a market economy. At the same time, the viability and stability of the enterprise in terms of the financial component is determined by the analysis of solvency. Therefore, there is a need to develop a new approach to assessing the solvency of the enterprise from the standpoint of economic security.

Based on the results of the analysis of the practice of financial management of housing and communal services enterprises and theoretical concepts of their development, it is expedient to form a sequence of indicative assessment of the potential for ensuring a certain level of financial security of enterprises. The essence of the indicative model for assessing the organizational and financial activities of housing and communal services is to apply a combined procedure for assessing the proportionality and optimality of the distribution of financial resources. The process indicative model of housing and communal services allows to allocate key business processes on the basis of construction of value creation chains and to form indicators of their solvency which control allows to keep the corresponding level of financial safety of the housing and communal enterprise and high quality of rendered services.

The results of studying the main provisions of the theories of cluster development, cluster models formed in world practice, revealed the feasibility of applying to the reform of housing and communal services one of such promising approaches, which include clusters. The presented matrix model demonstrates nine options that reflect the type of municipal district depending on the level of socio-economic development and the state of financial security of housing and communal services.

5. References

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