

FINANCIAL ANALYSIS OF THE STRUCTURE, COMPOSITION AND EFFECTIVE USE OF PUBLICLY OWNED REAL ESTATE

**Daniela M. Feschiyan, Assoc. Prof., PhD
Department of Accounting and Analysis
University of National and World Economy, Sofia**

Abstract: The research presents the structure and content for a system of indicators for financial analysis of publicly owned real estate. The aim is to clarify the logic, significance, numerical values and methods of use of the proposed indicators for financial analysis and evaluation of the effective use real estate. Potential approaches of examining their comparability and compatibility with other indicators, as well as opportunities for clustering of similar performance and time tracking analysis of objects are discussed. The methodology for deriving the indicators and their meanings enables the study of the effectiveness of the functioning of publicly owned real estate. The proposed system of indicators will improve the effective decision making in the management of publicly owned real estate. Developed by the author, a system of indicators of financial analysis of municipal property was piloted in 6 municipalities in South-Eastern Europe - the Municipality of Tirana, Municipality of Bucharest, Sofia Municipality, Municipality of Athens, City of Zagreb, and Municipality of Cajetina

Key words: Real estate, Financial analysis, Financial indicators, Analysis of the structure and composition, Analysis of services provided by real estate assets, Effectiveness analysis of the use of property.

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ФИНАНСОВ АНАЛИЗ НА СТРУКТУРАТА, СЪСТАВА И ЕФЕКТИВНОСТТА ОТ ИЗПОЛЗВАНЕТО НА ОБЩИНСКАТА НЕДВИЖИМА СОБСТВЕНОСТ

**Доц. д-р Даниела М. Фесчиан
катедра „Счетоводство и анализ“
УНСС, София**

Резюме: В настоящето изследване се представя структурата и съдържанието на система от показатели за финансов анализ на общинската недвижима собственост. Целта е да се изясни логиката, значението, цифровите стойности и начините за използване на предлаганите показатели за финансов анализ и оценка на ефективността от използването на общинската недвижима собственост. Представят се начините за сравнимост /съпоставимост/ с други показатели, както и възможностите за групиране на еднородни показатели и проследяването им във времето и по обекти на анализа. Методологията за извеждането на показателите, както и техните значения правят възможно изследването на ефективността от функционирането на общинската недвижима

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собственост. Чрез използването на предлаганата система от показатели могат да се вземат управленски решения, които ще доведат до повишаване на ефективността от мениджмънта в публичния сектор в позицията управление на общинската недвижима собственост.

Разработената от автора система от показатели за финансов анализ е апробирана в шест европейски общини, а именно Тирана, Букурещ, София, Атина, Загреб и Кажетина.

Ключови думи: Общинска недвижима собственост, финансов анализ, показатели, анализ на структурата и състава, анализ на осигуреността с недвижими активи, анализ на ефективността от използването на недвижимата собственост.

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1. Introduction to the analysis of municipal property

The dynamically changing economic conditions on a global scale and the need to reconsider a number of issues in economic theory and practice call for changes in the field of economic analysis. In this respect the analysis of the enterprise's financial condition has acquired a primary relevance. It ranks first in terms of relevance, because its results largely reflect the efficient use of the available resources and the financial results achieved thereby. The analysis of the financial condition and property status must not only provide an objective assessment of the achieved results, but must also outline the most adequate trends and directions of the enterprise's further functioning and development, as well as its prospects for prosperity¹.

The economic uncertainty and instability and free-market trends require that more attention is focused on financial management, financing vehicles, and the price of the financial resources and their efficient use. These problems are particularly topical today in the public sector². They bring to the foreground the issue of the efficient use of municipal property, based on the analysis of its structure and composition.

The efficient use of municipal property cannot be straightforwardly defined in terms of a single value or indicator. This is why after clarifying the essence and content of immoveable municipal property, it is essential that a certain system³ of economic indicators be defined. Such a system must provide for meeting the information needs of a number of internal and external consumers and is of primary significance in the analysis of municipalities' overall financial condition. The following may be pointed out as the major aspects of the practical analysis:

- The analysis of the municipality's provision with immoveable property;
- The analysis of the efficient use of certain categories of immoveable municipal property.

¹ Fama and French, K., 2000. Forecasting Profitability and Earnings. *Journal of Business*, 73, p.161-175.

² Nissim, D., Penman, S., 2001. Ratio Analysis and Equity Valuation: from Research to Practice. *Review of Accounting Studies*, p.6.

³ Statev Staty, Daniela Feschiyan, Tatyana Daskalova, Stela Raleva; *Municipal Property Management In South – Eastern Cities; Developing of financial tools to evaluate the economic performance of properties*, Gree 2011, p. 67

The financial analysis is an intermediate stage in the management process, coming in-between information collection and a single making decision⁴. Also the analysis not only provides the basis for making a management decision, but also lies at the heart of the business strategy, which will be implemented in a certain period. The analysis is an integral part of public sector management.

This research aims at clarifying the major moment in the analysis of the structure, composition, and effective use of immoveable municipal property, the determination of definite indicators to be applied to this analysis oriented towards its implementation. The determined major indicators aim at improving the municipality's performance and at improving the immoveable municipal property management in particular.

The classification of municipal property /ownership/ was made considering the compliance with the criterion of ownership of the property. From this perspective municipal property falls under two major categories:

- First group – Public-law MRP;
- Second group – Private-law MRP.

The first group encompasses two major types of assets – administrative buildings and properties with social function. The second group represents private-law MRP. With regard to that, it has been established that the assets falling under the first group represent public goods and as such they do not bring revenues in the meaning of the definition of revenues under the IAS and the IFRS, but the municipality is rather in charge of running this property, which leads to a leak of economic gains and accordingly to incurring costs in the meaning of the definition of revenues under the IAS and the IFRS⁵. In seeking ways to construct a model of the financial analysis of such assets we will adopt a cost-oriented approach. We have chosen this approach because it is widely used in such analysis in the conditions of an economic and financial crisis and because this approach has proved its usefulness with regard to effective public sector management⁶. In applying such an approach the attention is focused on tracking the effective use of municipal property /assets/ with a view to the reduction of the expenditures incurred upon their maintenance and use. This is topical in the modern economic environment and creates conditions for effective management decisions⁷.

In presenting the model of the financial analysis of the assets belonging to the second group, which bring revenues that comply with the conditions for the recognition of a cost in the meaning of the definition of revenues under the IAS and the IFRS, we will apply the methods of business analysis and outline indicators to

⁴ Fridson, M.S., 1993. *Financial Statement Analysis: A Practitioner's Guide*. New York: John Wiley, p. 346

⁵ IAS /International Accounting Standards/ and IFRS /International Financial Reporting Standards/. In the meaning of the International Accounting Standards / annex to decree № 21 of 4 February 2003 of the Council of Ministers on the approval of the IAS, adopted by the IAS Board /, promulgated in State Gazette, No. 13 of 2003 Revenues are the gross inflows of economic gains during the period, created in the course of the enterprise's ordinary business, as these inflows bring an increase in equity other than the increase related to owners' contributions.

In the meaning of the same regulatory act Expenditures represent the reduction of economic gains in the accounting period in the form of leak or decrease of the assets and the accumulation of liabilities, which results in a decrease of the own capital, except for what should be distributed among capital owners.

⁶ Penman S., 2004. *Financial Statement Analysis and Security Valuation*, Second Edition. New York: Irwin/McGraw-Hill, p. 259

⁷ Siegel, J., 1991. *How to Analyze Businesses, Financial Statements, and the Quality of Earnings*. 2nd Edition, New Jersey: Prentice Hall., p. 279

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establish the state and performance of the respective activity related to the asset's use. The separate groups of indicators are applicable both to the group and to the specific municipal property category.

The goal of determining the indicators of the financial analysis of municipal property is to achieve its more efficient management with the help of contemporary methods of financial and accounting management⁸ of the public sector.

The following will be used as models of financial analysis of the assets in the first group:

A. Model of analysis of the municipality's provision with assets /real estate property/ from the category of public-law MRP:

- The analysis of the price value of assets. This analysis involves determining the average value of fixed tangible assets /FTA/. The average value of FTA not only gives an idea of the overall value of the assets that the municipality has at its disposal over a definite period of time. It is also used to measure a number of indicators, which describe another aspect of the provision with FTA and their efficient use. Sometimes it is necessary to know the average value of FTA by the separate types and groups of immoveable municipal property;
- The analysis of the structure and composition of assets. The analysis of the structure and the analysis of the composition of assets are not identical in meaning. The composition of FTA may be assessed and analyzed by the method of grouping FTA. Grouping may be made along different features – according to the specific purpose of the FTA, according to their useful life, according to their area of use, and other. This is how municipal property may be classified according to physical composition /availability/ and according to composition by age /according to time of acquisition/. The structure analysis has a different meaning. The structure of FTA represents the relative share of the separate asset groups and the different asset types within the overall value of FTA;
- Analysis of the dynamics of the portfolio;
- Analysis of wear and tear / depreciation⁹ ;
- Analysis of the fitness of assets;
- Analysis of the costs for the repair of assets.
- Analysis of the energy provision of activity.

B. Model of analysis of the use of assets from the category of public-law MRP:

- Analysis of the extensive use of the assets;
- Analysis of the intensive use of the assets;
- Analysis of the efficiency of the use of the assets;

C. What concerns the financial analysis of the private-law MRP, the following models could be applied:

⁸ Ou and Penman, 1989a. Financial Statement Analysis and the Prediction of Stock Returns. Journal of Accounting and Economics, p. 11

⁹ As to date there is a decision of the Council of Ministers not to deduct depreciation charges in the budget activity. This is a problem in the organization of the accounting system, and is also a deviation from the principles laid down in the IASPS /INTERNATIONAL ACCOUNTING STANDARDS FOR PUBLIC SECTOR/ of the International Federation of Accountants. The Accounting Act envisages that depreciation charges in public enterprises are deducted on a decision by the Council of Ministers. As the latter is not to make such a decision, such charges will not be deducted. Such a deviation from the representation of assets under the model of acquisition price. The IAS, however, suggest that this is a recommendable model. The indicator is essential in the study of the renewal of municipal property.

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1. Analysis model of the costs for the repair of assets belonging to private-law MRP
 - Classification of expenditures;
 - Overall valuation of expenditures in Income statement;
 - Analysis of expenditures;
2. Analysis model of the revenues generated by assets belonging to private-law MRP:
 - Classification of revenues;
 - Overall valuation of revenues in Income statement;
 - Analysis of revenues;
3. Model of analysis of the financial results;
4. Model of analysis of profitability:
 - ROTA - RETURN ON TOTAL ASSETS - Indicators of economic profitability /Profitability based on assets/:
 - ROR - RETURN ON REVENUE - Indicators of commercial profitability / Profitability based on revenues/:
 - ROEX – RETURN ON EHPENS - Indicators of expenditure-related profitability / Profitability based on expenditures/;

2. Model of analysis of the municipality's provision with assets /property/ belonging to the category of public-law MRP

The analysis of the municipality's provision with fixed tangible assets belonging to public-law MRP is made with the purpose to establish, assess and analyze their price values, their composition and structure, as well as to trace the trends in their dynamics, physical and technical state, movement, etc. As it has been mentioned above, the analysis of the municipality's provision with fixed tangible assets belonging to public-law MRP is made in the following directions:

Analysis of the price value of the assets

As an information source this analysis draws upon the balance sheet and the note about the fixed tangible assets, which is an annex to the municipality's Annual financial statement, as is the case with all enterprises in the EU member states. This note provides good information opportunities to establish the carrying value of the municipality's fixed tangible assets /property/ at the end of the reporting period, and to trace its dynamics during this period, and to establish the increase or decrease of assets /their dynamics/ and to trace their movement. To assess the need to revalue the assets and specify their depreciation quota, as well as the formation of the property's carrying value, the following indicators are used in this analysis:

- *The reporting value of Fixed Tangible Assets at the end of the year:*

$$RVe = RVb + RVay - RVdy,$$
 RVe – reporting value of the FTA at the end of the year;
 RVb – reporting value of the FTA at the beginning of the year;
 RVay – reporting value of the FTA acquired during the year;
 RVdy – reporting value of the FTA disposed of during the year.
- *Revaluation¹⁰ of the FTA at the end of the year :*

¹⁰ One of the approaches that accounting theory uses to present the FTA is that they be reported according to the original recognition by acquisition price, reduced by the deducted depreciation charges and the accumulated losses from depreciation. The current version of the IAS the term approach has

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$$Re = RVe + I - D$$

Re – revaluation of the FTA at the end of the year;

RVe – reporting value of the FTA at the end of the year;

I – an increase in the reporting value of the FTA as a result of the revaluation made;

D – a decrease in the reporting value of the FTA as a result of the revaluation made;

- *Depreciation of the FTA at the end of the year:*

$$De = Db + DCy - DCdy$$

De - depreciation of the FTA at the end of the year;

Db – depreciation of the FTA at the beginning of the year;

DCy – depreciation charges on FTA throughout the year;

DCy - depreciation charges on the FTA disposed of during the year.

- *Revaluated depreciation of FTA at the end of the year :*

$$RDe = De + Ir - Dr$$

RDe - revaluated depreciation of FTA at the end of the year

De - depreciation of the FTA at the end of the year;

Ir – an increase of the depreciation of FTA as a result of revaluation;

Dr – a decrease of the depreciation of FTA as a result of revaluation.

- *Carrying value of FTA at the end of the year:*

$$CVe = Re - RDe$$

CVe - carrying value of FTA at the end of the year;

Re - revaluation of FTA at the end of the year;

RDe - revaluated depreciation of FTA at the end of the year.

- *Average residue of FTA during the year :*

$$FTA_{av.} = (FTAb + FTAe) : 2$$

FTA_{av} – average residue of FTA during the year ;

FTAb – price value of FTA at the beginning of the year;

FTAe – price value of FTA at the end of the year;

been replaced by models /The model of the acquisition price or the depreciation model/, as each model is of an equal standing. The depreciation model is applied only when the fair value is reliably determinable. If this is observed, the enterprise /municipality/ may report its assets only by its revaluation, which is the fair value as of the date of revaluation, reduced by the subsequent depreciation and the accumulated loss from depreciation. The revaluation of land, buildings and terrains is made according to the asset's market price. Such a revaluation is made by a certified valuator. In case the value of the FTA has risen as a result of revaluation, this increase is indicated as a reserve from subsequent valuations, or as a revaluation reserve, respectively. In case the increase in value has been preceded by a previous decrease from the revaluation of the same asset, which has been recognized as a loss, the current increase in value is recognized as a revenue up to the amount of the previous reduction. In case the value of the FTA has decreased as a result of revaluation, this reduction in value is recognized as an expenditure. B In case a revaluation reserve from the same asset's previous revaluations has been formed, this reduction is used to rectify the revaluation reserve. This rectification is made up to the amount of the revaluation reserve. Every increase beyond this amount is recognized as an expenditure.

The revaluation ratio is formed as the relation between the asset's fair value and its carrying value. For instance, if the fair value of a building is 15,000 euro, while its carrying value is 12,000 euro and its reporting value is 20,000 euro and the depreciation charges to date stand at 8,000 euro, then the revaluation ratio is $1,25 \times 15\,000 / 12,000$. Hence the formed revaluation reserve will be 3,000 euro, the building's price will appreciate by 5,000 euro, while the depreciation charges will increase by 2,000 euro. It is namely this that the revaluation indicator of FTA and the revaluated depreciation of FTA examine and analyze.

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This model of determining the indicator as an ordinary average value is appropriate to be applied in the cases when there have been insignificant in terms of value acquisitions or disposals of FTA during the year

We must point out that the average value of FTA may be determined also as an ordinary average chronological value and as a weighted average chronological value. The determination of the average value as an ordinary average chronological value is estimated in the cases when the acquisition of FTA during the year is constant. Then this is how the average value of FTA is determined:

$$FTA_{ave} = \frac{\left(\frac{FTAb}{2} + FTA1 + FTA2 + \dots + \frac{FTAe}{2} \right)}{D-1}$$

FTA_{av} – average remain of FTA during the year;

FTAb – price value of FTA at the beginning of the year;

FTA_e – price value of FTA at the end of the year;

FTA1+ FTA2+... – price value of FTA at the end of each month;

N – numbers of periods.

In the cases where the FTA dynamics is characterized by irregularity during the accounting period, it is appropriate for the average value of FTA to be determined as a weighted average chronological value:

$$FTA_{av} = \frac{FTAb + FTA_{ay} \times Ta}{12} - \frac{FTA_{dy} \times Td}{12}$$

FTAv – average remain of FTA throughout the year;

FTAb – price value of FTA at the beginning of the year;

FTA_{ay} – price value of FTA acquired during the year;

FTA_{dy} – price value of FTA disposed of during the year;

Ta – the time (in months), during which the acquired assets have been used throughout the year;

Td – the time /in months in which the disposed of assets have not been used.

The indicators of the average amount of FTA are of a central importance in determining the absolute price value of the FTA, the provision with FTA and the efficiency of their use.

Analysis of the composition of assets

The composition of the FTA can be valued and analyzed through the method of grouping of the FTA. This is how the municipal property can be classified according to the feature of physical composition /availability/ and according to the feature of age /in terms of periods of acquisition/. Depending on the purposes of the analyst, FTA can be classified along the following criteria

By purpose – for instance:

- *Relative share of FTA used in budgeting in the FTA composition*¹¹:

¹¹ Financial analysis and reporting in municipalities is carried out in three reporting groups /in three directions/, namely:

- Reporting group of budget accounts and activities – this groups includes the immoveable municipal property which is financed from the budget and requires no co-financing;

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$$FTAbc = FTAb / FTA$$

FTAb – FTA used in budgeting

FTA – all FTA;

- *Relative share of FTA used in extra-budget activities in the FTA composition:*

$$FTAeb / FTA$$

FTAeb – FTA used in extra-budget activities

FTA – all FTA;

- *The share of FTA used in the business activity in the composition of FTA:*

$$FTAbA / FTA$$

FTAbA – FTA used in the business activity

FTA – all FTA;

By time of use – for instance

- *The share of FTA with a useful life of more than 10 years in the composition of all FTA:*

$$FTA \text{ more than 10 years of use} / FTA$$

Analysis of the structure of assets

The structure of assets reflects the share of the separate groups of assets and the specific types of assets in the overall price value of the FTA. The changes in the structure of the assets at the end of the year compared to the beginning of the year may be studied.

- *Share of buildings in the structure of FTA = Buildings / FTA;*
- *Share of the administrative buildings in the structure of FTA = Administrative buildings / FTA ;*
- *Share of the administrative apartments in the structure of FTA = Administrative apartments / FTA;*
- *Share of the schools in the structure of FTA = Schools / FTA;*
- *Share of the kindergartens in the structure of FTA = Kindergartens / FTA;*
- *Share of the social care centers in the structure of FTA = Social care centers / FTA;*
- *Share of the libraries and community centers in the structure of FTA = Libraries and community centers / FTA;*
- *Share of sport facilities in the structure of FTA = Stadium, sport playgrounds and children playgrounds / FTA;*
- *Share of parks and gardens in the structure of FTA = Parks and gardens / FTA;*
- *Share of graveyards in the structure of FTA = Graveyards / FTA;*
- *Share of household waste storage facilities in the structure of FTA = Household waste storage facilities / FTA;*
- *Share of arable land in the structure of FTA = Arable land / FTA;*
- *Share of tourist properties in the composition of FTA = Tourist properties / FTA;*

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- Reporting group of extra-budget accounts and funds - this groups includes the immoveable municipal property which is financed from the budget and is co-financed by the development of extra-budget activities;

- Reporting group of other accounts and activities – this group includes immoveable municipal property which is not financed by the budget, but is self-sustained by the development of business activities;

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- *Share of forests in the composition of FTA = Forests / FTA;*
- *Share of waters in the composition of FTA = Water areas, beaches and quarries / FTA;*
- *Share of technical infrastructure in the composition of FTA = Technical infrastructure / FTA;*
- *Share of public-law MRP in the composition of FTA = Public-law MRP / FTA;*
- *Share of private-law MRP in the composition of FTA = Private-law MRP / FTA.*

Analysis of the dynamics of assets

- *Ratio of replacement of FTA.* It shows to what an extent the municipality renovates and has the opportunity to acquire new property. Its tracking in time reveals the municipality's ability to renovate its portfolio of assets. This is an indicator of financial stability and management expertise.

$$Rr = FTAa / FTAb$$

Rr – ratio of renovation;

FTAa – price value of FTA acquired throughout the year;

FTAb – price value of FTA at the beginning of the year;

This ratio may be calculated by groups of FTA and by specific types of FTA of municipal property.

- *Ratio of decommissioned FTA.* The trend of its increase in the course of time reveal an ageing lot of municipal property:

$$Rd = FTAd / FTAb$$

Rd – ratio of decommissioned FTA;

FTAd – price value of decommissioned FTA;

FTAb – price value of FTA at the beginning of the year;

- *Ratio of intensive replacement of FTA.* This ratio reveals relations and dependences between the before mentioned two indicators:

$$Rir = Rr / Rd$$

Rir - ratio of intensive replacement of FTA;

Rr – ratio of renovation;

Rd – ratio of decommissioned FTA.

This ratio gives the management information of the price value of the commissioned FTA /acquired property/, per unit of the FTA disposed of during the year/ property scrapped/.

Analysis of use / depreciation/ of assets

- *Ratio of depreciation /use/.* This ratio reveals the level of wear-and-tear of assets. Its tracking in the course of time reveals sustainable trends for the physical condition of municipal property:

$$Rd = D / RV$$

Rd – ratio of depreciation;

D – sum of depreciation charges;

RV – reporting value of FTA.

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Analysis of the fitness of assets

- *The ratio of fitness of the assets.* This ratio complements the previous indicator, as the decrease of the assets' reporting value as a result of the accumulated wear and tear. In this sense their "fitness" shows whether they could be used:

$$Rf = CV / RV$$

Rf – ratio of fitness of FTA;

CV – carrying value of FTA;

RV – reporting value of FTA.

Analysis of the costs for the repair of assets

- *Ratio of the repair of FTA.* This ratio provides the opportunity to track in time and within the asset groups their maintenance costs:

$$Rra = Cr / FTAav.$$

Rra – ratio of the repair of FTA;

Cr – value of repair costs of FTA;

FTAav – average residual value of FTA.

Analysis of the energy provision of operation of assets

- *Ratio of actual energy provision of operation of assets /property/:*

$$Raer = E / Avwop \text{ or } E / Wmh$$

Raer – ratio of actual energy provision of operation of assets;

E – consumed electricity /in kilowatts/ as a condition for operation of the asset;

Avwop – average number by payroll of workers and officials serving of the activity;

Wmh – working manhours ratio of real energy provision of the activity.

3. Model of the efficient use of assets belonging to the public-law MRP

The analysis of the efficient use of assets belonging to public-law MRP may boil down to the determination of two basic ratios: Profitability of property ratio and Expense ratio. With the use of these two ratios, we can track the efficient use of assets belonging to public-law MRP in the course of time and seek the factors determining any possible negative trends. This will help management in developing a general strategy for raising the efficient use municipal property.

- *Profitability of property ratio:*

$$Rpp = Vav / Rav$$

Rpp – profitability of property ratio;

Vav – average value of rendered social services and their impact on the community;

Rav – average remain of public-law MRP;

This ratio reveals the value of rendered social services and their effect on the community with the use of 1 euro of public-law MRP.

- *Expenses ratio*

$$Er = Rav / Vav$$

Er – expenses ratio;

Rav - average remain of public-law MRP;

Vav – average value of rendered social services and their impact on the community.

The above ratio reveals the value of public-law MRP used in the rendition of 1 euro worth of social services and their impact on the community.

4. Models of the financial analysis of assets /property/belonging to private-law MRP

4.1. Model of analysis of maintenance costs per private-law MRP:

- Classification of maintenance costs per private-law MRP:

The purpose of this classification is to establish the major categories of the economic gains that have been reduced during the accounting period generated by the maintenance and management of this municipal property.

- Overall evaluation of expenditures in the municipality's income statement;
- Analysis of expenditures:

The analysis of the expenditures related to this property's maintenance and functioning requires that the composition and structure of these expenditures are tracked. The analysis must include the analysis of the dynamics and structure of costs by economic elements. The changes in the costs during the current period compared to those during the base /previous/ period provide information of the dynamics of costs. On the basis of such information the analyst can reveal the reasons behind the existing negative trends in the dynamics of costs. The changes in the share of costs in the current period compared to those during the base /previous/ period provides information of effective management effects with a view to optimizing the structure of costs on the maintenance of private-law MRP.

Table 1

Costs by economic elements	Value in current period	Value in base /previous/ period	Change in absolute value	Change as share (percent)	Share in current period	Share in base period	Change in Share
Costs on consumables							
Costs on external services							
Depreciation charges							
Costs on salaries and related pay							
Costs on social security contributions and other social benefits							
Other costs							
Total							

On this basis the ratio of cost efficiency may be determined:

- *Cost efficiency ratio:*

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$$Rce. = OSc / Osr$$

Rce – ratio of cost efficiency;

OSc – overall value /sum/ of costs by specific properties or elements;

Osr – overall value /sum/ of revenues by specific properties or elements.

4.2. Model of analysis of revenues generated by private-law MRP:

- Classification of revenues generated from rent, sales and transactions with private-law MRP:

The purpose of the classification revenues from rent, sales and transactions with the property of the category of private ownership is to study, establish or assess the major sources of the increase of economic gains from the transactions with private-law MRP.

- Overall assessment of the revenues from the municipality's income statement;
- Analysis of revenues :

The analysis of the revenues from the transactions with this property helps trace the changes in the composition and structure of these revenues. The analysis must include the

The changes in the value of revenues in the current period compared to the base /previous/ period provides information about revenues' dynamics. On the basis of this information the analyst may reveal the factors determining the negative trends in the revenues' dynamics. The changes in the share of revenues in the current period to the base /previous/ period provides information to make effective management decisions with a view to optimizing the structure of revenues generated by private-law MRP.

Table 2

Revenues from property of private municipal ownership	Value in current period	Value in base /previous/ period	Change in absolute value	Change as share (percent)	Share in current period	Share in base period	Change in Share
Revenues from rent, including revenues from the mantling of advertising facilities and information boards							
Revenues from sales							
Revenues from the creation of servitudes							

Revenues from dividends							
Revenues from concession fees							
Other revenues							
Total							

On this basis the ratio of revenue efficiency may be determined:

- *Ratio of revenue efficiency:*

$$Rre = OSr / OSc$$

Rre – ratio of revenue efficiency;

OSr – overall value /sum/ of revenues by specific properties or elements;

OSc – overall value /sum/ of costs by specific properties or elements;

4.3. Model of analysis of the financial result / performance:

The financial result of the possession and use or the sale of private-law MRP can be defined as the difference between the revenues and expenditures from the operations with these assets /property/. The financial result can be determined by different properties by comparing the revenues generated by the property and the costs incurred by its maintenance. For instance:

- *The financial result from the lease of the studios, garages, parking lots, points of sale owned by the municipality /FR1/:*

FR1 = Revenues from rent paid on studios, garages, parking lots, points of sale owned by the municipality – costs on the maintenance of this property;

- *The financial result from the sale of the studios, garages, parking lots, points of sale owned by the municipality / FR2/:*

FR2 = revenues from the sale of the studios, garages, parking lots, points of sale owned by the municipality – Carrying value of sold property – Sale costs;

- *Revenues from the sale of regulated land lots owned by the municipality /FR3/:*

FR3 = Revenues from the sale of regulated land lots - Carrying value of sold land lots – Sale costs;

- *The financial result from the lease of regulated land lots owned by the municipality / FR4/:*

FR4 = Revenues from the lease of regulated land lots owned by the municipality – Maintenance costs of such property;

- *The financial result from the granting of concession for the construction and exploitation of sport properties and facilities / FR5/:*

FR5= Revenues from the granting of concession for the construction and exploitation of sport properties and facilities – Costs on the granting of concession for the construction and exploitation of sport properties and facilities;

- *The financial result from moveable property and facilities of an advertising and information nature /FR6/:*

FR6 = Revenues from the rent paid on the mounting of billboards and advertising boards – Costs on the maintenance and lease of this property.

The suggested indicators can be analyzed in the course of time also by property to establish, value and manage the operations in this category /group/ of municipal property. It may be established whether it is more efficient for the municipality to lease out or sell this property. To make this analysis it is necessary to assess the specific purchase offer and compare it to the alternative financial result of a lease out.

4.4. Model of analysis of profitability

The profitability indicators reflect the yield (return on) revenues, expenditures, assets, capital, etc. Usually profitability is calculated by relating the financial result /profit or loss/ to some base.

- *ROTA - RETURN ON TOTAL ASSETS* - Indicators that reveal the economic profitability /Profitability based on assets /:

$ROTA = \text{Reporting value of property} / \text{Financial result from property} /;$

- *ROR - RETURN ON REVENUE* - Indicators that reveal the commercial profitability / Profitability based on revenues/:

$ROR = \text{Revenues from property} / \text{Financial result from property};$

- *ROEX – RETURN ON EXPENSE*- Indicators that reveal the cost-related profitability /cost-based profitability/:

$ROEX = \text{Expenses related to property} / \text{Financial result from property}.$

If these indicators are negative values or show a negative growth in the course of time, this reveals losses or negative trends in the use of private-law MRP.

5. Other financial indicators

- *Present value¹² of a series of regular cash flows:*

$$PV = \frac{a \left[1 - (1 + r)^{-n} \right]}{r}$$

a – the annuity (for instance, rent);

r – the interest rate;

n – the length of the time period. The

The indicator has to be taken into account in the decision making process concerning the municipal property's disposal. For instance, if the municipality owns a building for economic usage, which could be sold on the free market, it has to compare the above indicator and the market price. Under the *ceteris paribus* assumption the building will be sold if the market price exceeds the present value of the regular rent payments;

- *Equivalent yield model* – it is used for a valuation of the municipal property for economic (investment) usage.

$$V = \frac{a}{y} + \frac{R - a}{y(1 + y)^n},$$

a – the current annuity (rent) up to its next review;

R – the value of rental income occurs at the review;

¹² Brown, G., G. Matysiak, 1999, Real Estate Investment: A Capital Market Approach, Financial Times/Prentice Hall, Part 2, pp. 13-28

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n – number of years to the next review;

y – the equivalent yield, derived from a similar recently sold property;

The equivalent yield model assumes that there is a change in the rental income over time and that there is an equal yield applied to both incomes. The model comprises a fixed term, representing a ratio of current income to the equivalent yield, and a present value of a rental income after the change.

- *Return on investment (1)*

$$RI(1) = \frac{\text{Profit}}{\text{Investment}} \cdot 100$$

Return on investment is one of the most commonly used indicators for the assessment of the profitability of real estate investments. It measures the annual percentage yield on the initial amount of investment. Profit is defined as a difference between an income that would be received from renting out or leasing the property, and total expenses on real estate.

The investment is considered to be acceptable if the return on investment $RI(1)$ is greater than a given target return. The second version of the return on investment is based on the rental income. The investment will be acceptable if the return on investment $RI(2)$ is higher than the yield used for income capitalization.

- *Return on investment (2)*

$$RI(2) = \frac{\text{Rental income}}{\text{Investment}} \cdot 100$$

The second version of the return on investment is based on the rental income. The investment will be acceptable if the return on investment $RI(2)$ is higher than the yield used for income capitalization¹³.

Conclusion

In this study presented the structure and content of the indicators of economic and financial analysis of the municipal real property. The estimation (values) necessary to determine the indicators, the indicators themselves and their meaning make it possible to study the effectiveness of the operations (functioning) of the municipal real property in terms of description of its physical condition, structure, content, purpose and functions, which generates revenues or brings expenditures to the municipality. The system of indicators provides for decision making with a view to boosting the efficiency of public sector management and more specifically– the management of municipal real property.

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