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**BUSINESS VALUATION**

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**OVERVIEW**

Assessment activity is the most important factor in successful property management, search and practical implementation of a system of measures that allow an enterprise to achieve the best economic performance.

The tutorial reveals methods for assessing the value of an enterprise, taking into account its financial position, as well as the cost of premises. The assessment of the cost and investment attractiveness of the company's share capital is given. The methodological approach to assessment is stated.

The book also reveals the organizational, managerial and legal aspects of the regulation of valuation activities. A feature of the book is that it is written on the basis of real work experience and therefore can be used as a practical guide for employees of state bodies for property management, specialists in valuation activities and auditors.

**peer review:** doctor of economic sciences, professor Janshanlo R.E.

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**INTRODUCTION**

Like any commodity, an enterprise must be useful to the buyer, i.e. use value. The complexity of the product-enterprise itself, as well as the goals of its reproduction, gives rise to features and the most use value. The enterprise, first of all, must meet the needs of the buyer, the goals of future consumption.

The utility of an enterprise is manifested in the process of use or consumption. Consequently, if the enterprise does not operate, does not bring income to the owner, then it loses its utility for this owner and is subject to sale. But if someone else sees new ways of using this enterprise, new opportunities to generate income, then such an enterprise becomes a commodity. Over time, the forms of using this product may change - it begins to generate income for the buyer, and, therefore, regains utility. Today this enterprise satisfies social needs; tomorrow it can be completely or partially replaced by another similar product, or even another, more demanded product.

The basis of the utility of an enterprise is the ability to reproduce, the ability to form another specific economic system (use of land, material factors of production, labor, etc.); the ability to create a product that has a sustainable consumer, qualitatively improve its activities and generate income.

The utility of an enterprise determines the price on the demand side, and the cost of reproducing a similar enterprise dictates the price on the supply side. As a result of the interaction of these forces, *the market price* is formed. This is a special kind of product. Let's dwell on some of its features.

First, an enterprise is an investment product, i.e. a commodity, investment in which is carried out in the hope of a return in the future. Cost and return are decoupled in time. Moreover, the size of the expected profit may be unknown, has a probabilistic nature, and the investor has to take into account the risk of possible failure. If future income, taking into account the time of their receipt, turns out to be less than the cost of purchasing an investment product, then it loses its investment attractiveness. Thus, the present value of future income that the owner can receive from the enterprise is the upper limit of the market price of the enterprise from the side of the buyer.

Secondly, an enterprise is a system, but both the system as a whole and its individual subsystems and even elements can be sold.

Thirdly, the need for this product depends on the processes that occur both inside the product itself and in the external environment. Moreover, on the one hand, instability in society can lead an enterprise to instability, and on the other, such instability leads to a further increase in instability of both the enterprise itself and society.

Fourth, given the particular importance of the sustainability of enterprises to ensure stability in society, it is necessary to regulate the conditions and mechanism of the processes of purchase and sale of enterprises, as well as direct participation of state structures in the formation of market prices for enterprises and in their assessment.

**Chapter one**

**PRINCIPLES OF BUSINESS VALUATION**

**1.1 VALUATION PURPOSES AND TYPES OF COST**

*VALUATION PURPOSES*

The purpose of the assessment is to calculate and justify the market value of the enterprise. Evaluation of an enterprise is not an end in itself, it is subordinated to the solution of a specific, specific problem. The evaluator needs to know the task for which the assessment is made, only then he will be able to correctly choose the necessary methodological tools.

The most typical cases when there is a need to assess the value of an enterprise:

1) Sale of the enterprise;

2) Sale of part of the property of the enterprise (land plots, buildings, structures);

3) Reorganization (merger, division, takeover, etc.) and liquidation of the enterprise, carried out both by the decision of its owners and by the decision of the arbitration court in case of bankruptcy of the enterprise;

4) Purchase and sale of shares of an enterprise on the securities market (purchase of an enterprise or part of it, which are in joint-stock ownership);

5) Purchase and sale of a share (contribution) in the authorized capital of a partnership or limited liability company (the share is estimated in monetary units);

6) Transfer of the enterprise for rent. Estimation of the cost is important for the appointment of rent and for the subsequent purchase by the tenant (if it is provided for in the lease agreement);

7) Implementation of an investment project for the development of an enterprise, when for its justification it is necessary to know the initial value of the enterprise;

8) Obtaining a loan secured by the property of the enterprise (mortgage);

9) Insurance of the company's property;

10) Determination of the tax base for calculating property tax;

11) Revaluation of fixed assets.

Thus, the validity and reliability of the assessment of the value of the property complex largely depends on how correctly the area of ​​use of the assessment is determined: purchase and sale, obtaining a loan, insurance, taxation, etc.

*TYPES OF COST*

The value of any property can be determined in two closely related ways: firstly, as a certain amount of any other property (meaning the monetary equivalent), for which this property can be exchanged, and, secondly, as the current value of income, which the owner of the property expects to receive in the future.

It is important to distinguish between the concepts of cost, cost and price. Cost is a measure of how much the buyer (investor) will be willing to pay for the property being valued. Cost is a measure of the cost required to create a property that is similar to the property being valued. These costs may not differ from the amount that the potential buyer will be willing to pay. Depending on a number of factors, including the buyer's needs, the existence of an equivalent item and the activity of other buyers, these costs may be higher or lower than their value at the valuation date.

Cost and price are equal only in a perfect market. As applied to property, value is the expected price that should result from specific conditions. Price is an accomplished fact that reflects how much has been spent on the purchase of similar items in past transactions. Only after making an analysis can the appraiser assert whether the current paid or received price is a reflection of the value of the property.

There are four main conditions under which value arises: demand, utility, scarcity, and the ability to transfer property rights.

1. **Demand**. Demand - the amount of goods (services) or property that can be bought on the market for a certain period of time. An increase in demand leads to an increase in prices.

2. **Usefulness**. Utility is the ability of goods (services) or property objects to satisfy certain human needs. The more needs a given thing is able to satisfy, the more demand for it will be. An increase in utility is usually accompanied by an increase in price.

3. **Scarcity**. Despite high demand and high utility, no property will have value until it is in short supply.

4. **Possibility of transfer of ownership**. Any thing only then becomes a commodity (and, accordingly, acquires value) when there is a possibility of transferring ownership of it. So, for example, if, in accordance with the current legislation, the sale of certain types of land is not allowed, then they will have no value, although the market value of the rights to lease these lands can be estimated.

Property valuation, as noted earlier, is always carried out with a specific purpose (determining the sale price, obtaining a mortgage, property insurance, etc.). This goal is called the assignment of the estimate, which determines the choice of determining the desired value. The same property will have different values ​​when using different definitions of value. For example, valuation for fire insurance purposes is different from valuation for mortgage purposes. In the first case, the value of the cost is determined by the cost of restoring the elements of structures that are subject to the corresponding risks, and in the second – by the most probable price at which the object can be sold on the market in the event of termination of payments on the mortgage loan.

Thus, the same property may have different values depending on the purpose of the assessment.

Due to the various needs and functions performed in practice, the appraiser uses the following main types of value.

**Fair market value** - the price typical for a given type of property in a competitive and open market. It involves free competition, when both the buyer and the seller act economically rationally and consciously, having the necessary information and not experiencing any external coercion in the transaction. This value is used in cases related to the alienation and transfer of property rights.

In practice, the prices of specific transactions differ from the justified market value under the influence of such factors as special financing conditions, forced purchase and sale circumstances, lack of awareness of the parties, market deformation, sale under pressure, etc. An example of non-market value is reference value.

Normally calculated value - the value of a property complex, calculated on the basis of methods and standards approved by the relevant governing bodies. In this case, uniform scales of standards (rates, coefficients, unit prices) are applied for the types of property complexes under consideration. An example of a statutory calculated value is the taxable value of an enterprise's property. The tax base for calculating the property tax of an enterprise is the average annual residual value of fixed assets, intangible assets, inventories and costs. To calculate the taxable value, the balances reflected in the balance sheet asset on the corresponding property accounts of the accounting company are taken. Another example of a normatively calculated value is the determination of the value of a land plot for calculating land tax. There are approved tax rates per square meter and adjustment factors that take into account different characteristics of land or plots.

The indicator of the normatively calculated value of the property complex is used in practice, both by tax authorities and state property insurance authorities. This indicator can also be used by the judiciary to assess damages in claims.

*From the point of view of the accounting system, the book value is distinguished, divided into initial, replacement and residual.*

**Book value** - the cost of construction or acquisition of an element of the company's own fixed assets, recorded on its balance sheet.

**Initial cost** is reflected in the accounting documents at the time the facility is put into operation at this enterprise. A property in operation is accounted for at its original cost, either until it undergoes reconstruction or modernization, or until the officially appointed revaluation of assets.

**Replacement value** - the cost of reproduction of previously created fixed assets in modern conditions. The appraiser calculates the full replacement cost of the elements of fixed assets by the replacement method, that is, at the current market value of similar objects.

**Residual value**. If the depreciation amount accumulated over the period of operation is subtracted from the book value, we get the residual value. The residual value can be of a market nature if it is valued at secondary market prices.

*Depending on the order of assessment, the cost of reproduction and the cost of replacement are distinguished.*

**The cost of reproduction** - the cost of an exact copy of the property being valued, currently acquired or reproduced at current prices and from the same or very similar materials. Determining the cost of reproduction is very often impossible due to changes in technology, materials, raw materials, standards, etc. Therefore, in practice, replacement cost is used.

**The cost of replacement** - the present value of production of a similar property, which is equivalent in utility to the property being valued.

Distinguish between the value of the property complex, which continues to function, and the liquidation value.

**The cost of a property complex** that continues to function is the cost of such an object of purchase and sale, which, after the transaction is completed, will continue to function and generate income. For example, an investor, purchasing shares of an enterprise and evaluating their value, usually proceeds from the assumption that the issuing enterprise is an efficiently functioning object, and it will generate income in the future.

**The liquidation value** is the price that the owner is forced to accept when selling the property at a time less than reasonably acceptable to the market. The assessment of the liquidation value of an enterprise takes place, for example, during its forced liquidation due to bankruptcy and an open sale at an auction.

*Depending on the assessment situation, several types of value are also distinguished: investment, consumer, insurable, utilization.*

**Investment value** - the value of a property complex if it is considered as an investment contribution to the implementation of any investment project. Unlike the market value, the investment value is more specific and associated with a specific project and its investor. Investment value is understood as an increase in the market value of a property complex as a result of investments in this investment complex. The investment value is used in the implementation of reorganization measures and the justification of investment projects.

**Consumer value** (value in use). It reflects the value, or importance, of a property to a particular owner, who may or may not intend to display it on the open market. Cost in use is defined as the value of an economic good for its owner-consumer and is based on the efficiency of its use (in the form of income, utility, convenience).

The value in use does not necessarily reflect market value. Information about the value in use is necessary when it is necessary to compare the estimated property complex with analogues having different quality and utility.

**Insurable value** - the market value of the object, determined for insurance purposes and reflected in the insurance contract (policy). Insurable value is calculated by elements, which is necessary for assessing insurance compensation. Usually, the insured value is defined as the replacement cost, since after an insured event the policyholder has to restore his property by purchasing new one.

**Scrap value** - the value of recyclable tangible assets that have reached their limiting state due to complete wear and tear or an extraordinary event and have lost their original usefulness. Recycling value is the secondary value of the mass of materials that make up the valued object.

**1.2 VALUATION PRINCIPLES**

The science of valuation is based on a set of principles that guide any valuation assignment.

Let's list the basic general economic principles that must be observed when assessing the value of the property complex of an enterprise. They can be systematized into three groups of principles related to:

the owner's perception of the property;

market environment;

maintenance of property.

*PRINCIPLES RELATING TO THE OWNER'S PERCEPTION OF THE PROPERTY*

 This group includes the principles of utility, substitution, expectation.

**The principle of utility**. A property object cannot have value if it does not cause a desire to own it, therefore the property complex has value only when it is useful to a potential owner, that is, it is able to satisfy his needs for a certain time.

Definition of the principle: utility is the ability of a property to satisfy the owner's need for a given place and for a given period of time.

**Substitution principle**. All properties, despite their diversity, are comparable in terms of their ability to meet the specific needs of the owner or generate income for him. No one will pay more than the cost of restoration for a property. And if two properties have the same advantages, we buy the one with the lower price.

Definition of the principle: the maximum value of a property is determined by the lowest price or value at which another property of equivalent utility can be acquired.

Thus, the principle of substitution makes it possible to establish an upper limit on the value of the property being valued.

**The expectation principle**. An investor invests in a property today because they expect the property to generate a stream of future income. Estimated value is the present value of all future income.

Definition of the principle: expectation - the establishment of the present value of income or other benefits that can be obtained in the future from the ownership of property.

*PRINCIPLES RELATED TO THE MARKET ENVIRONMENT*

This group includes the following principles: correspondence between supply and demand, competition, changes in value.

**The principle of correspondence between supply and demand**. Changes in property prices depend on changes in demand and supply.

Main patterns:

* if demand is constant and supply increases, then prices decrease;
* if demand is constant and supply decreases, then prices increase;
* if supply is constant and demand is growing, then prices are rising;
* if supply is constant and demand decreases, then prices decrease;

Price is stable when a match is established between supply and demand in the market.

Definition of the principle: supply - the number of goods available at certain prices; demand - the amount of goods desired at certain prices. The interaction of supply and demand determines the price.

**The principle of competition**. Competition in the real estate market arises among buyers, sellers, tenants and landlords who enter into a property sale or lease agreement. Each property competes with other properties with similar functionalities. Profits breed competition, and excess profits tend to stimulate destructive competition. Profit is defined as the portion of the net income generated by the property in excess of the costs of labor, capital, management and land (i.e. factors of production). Lack of competition creates a monopolistic situation.

Definition of the principle: when profits in the market exceed the level required to pay for factors of production, competition in this market intensifies, which, in turn, leads to a decrease in the average level of net income.

**The principle of change in value**. Properties are constantly changing. They wear out, equipment, technology, and raw materials change. Land use patterns are changing under the influence of the state and the private sector. Economic conditions open up new opportunities, money supply and interest rates fluctuate. Human tastes and aspirations are changing. The site's environment goes through phases of growth, maturity, decline and renewal. All these and many other changes can affect the degree of usefulness of the property in a given location.

Definition of the principle: the value of properties usually does not remain constant, it changes over time.

*PRINCIPLES RELATING TO THE MAINTENANCE OF PROPERTY*

This group includes the principles of production factors, residual productivity, contribution, balance, the most efficient use.

**The principle of factors of production**. The property complex is a production system, the profitability of which is determined by four factors: management, labor, capital and land. Net income is the result of all four factors, and therefore the value of the entire system is determined based on the assessment of income. To assess the property complex, you need to know the share (contribution) of each factor in the formation of the income of the entire system.

**Residual productivity principle**. The value of land is based on its residual productivity. Any type of economic activity requires (as was discussed earlier) the presence of the following factors: management, labor, capital and land. Each factor must be paid for from the net income generated by this activity. Since land is physically immovable, labor, capital and entrepreneurship must be attracted to it. This means that three factors must first be paid, and only then the rest of the income is paid to the landowner as rent. Land has any value when there is a balance after all other factors of production have been paid.

Thus, residual productivity is defined as the net income attributed to the land after the management, labor and capital exploitation costs have been paid.

**Contribution principle**. The contribution is the sum of the increase in the value of an economic object as a result of the introduction of a new factor, and not the actual costs of this factor itself. Some factors increase the value of the property complex of the enterprise by more than the associated costs, and some reduce. For example, re-painting the outside of a house improves the appearance, and if the paint color does not meet market standards, the value of the house may drop.

Definition of contribution: this is the amount by which the value of an economic object or net income from it increases or decreases due to the presence or absence of any element.

Thus, the inclusion of additional assets in the property complex is effective when they increase the market value of the property complex. Any additional elements to the property complex are justified when the resulting increase in the value of the property complex exceeds the cost of acquiring these elements.

**The principle of balance (proportionality)**. The maximum value of the property is achieved or maintained (maintained) when the factors of production are economically balanced. The value of a property object depends on the balance of four elements: rent, labor (wages), capital (investment, contribution), coordination of management (management). There is a theoretical equilibrium point for each property that generates the highest income. An imbalance occurs when a property is underdeveloped or refurbished in nature.

Definition of the principle: any property object corresponds to the optimal amount of various factors of production, when combined, the maximum value of the property is achieved.

Thus, the constituent parts of the property complex must be coordinated with each other according to various characteristics. Adding any element to the property complex in violation of this principle does not lead to an increase in its value.

**The principle of the most effective use** is a synthesis of all three groups of principles that have been considered. Of the possible options, the option of the best and most effective use of the property complex is selected, which is physically possible, sufficiently justified and financially feasible, in which the functionality of the property complex is most fully realized, which leads to the highest cost of the object. It is this option that is used to estimate the cost.

The listed principles are, in general, universal and applicable to all types of property. Their content may vary depending on the specifics of the object.

questions for self-control

1. Explain the nature and purpose of business assessment based on assignment and assessment schedules.
2. Formulate the functions and principles of business valuation by analyzing the collected data.
3. Identify the similarities and differences in the methods of preparing information for the formation of the assessment report.
4. Explain the main conditions for the emergence of property value when comparing different types of enterprise value.
5. Name the objects of civil rights arising in the process of carrying out assessment activities.
6. What are the main cases of mandatory assessment.
7. Point out the differences between the concepts of "market value" and "investment value".

Test tasks

1. The main objects of valuation activity -

a. only tax-exempt property

b. movable and immovable property

c. only sold property

d. only mortgaged property

e. bank property only

2. The estimated value for which the property is supposed to change hands on the date of valuation as a result of a transaction between the seller and the buyer is called:

a. market price

b. investment value

c. liquidation value

d. cadastral value

e. book value

3. Market value may be expressed as a negative value in case of valuation:

a. intangible assets

b. worn out equipment

c. rental property

d. obsolete properties, the cost of demolition of which exceeds the value of the land

e. environmentally unfavorable objects

4. What document is the basis for business valuation?

a. license

b. treaty

c. Act

d. certificate

e. order

5. Consumers of the evaluation results may be:

a. only customer evaluation

b. any participant in the valuation activity

c. executive agencies

d. owner of the property being valued

e. tenant of the property being valued

6. In a balance sheet or accounting valuation, the assets of a firm are equal to:

a. the sum of intangible assets, liabilities and equity

b. amount of liabilities and net equity

c. net equity

d. the sum of the cost: guarantees, licenses and insurance

e. net operating income

7. If the calculation of the value of the business is carried out for the purpose of concluding a purchase and sale transaction, then the following is calculated:

a. investment value

b. cost of replacing the subject property

c. market price

d. liquidation value

e. book value

8. What approach are the net asset method and the salvage value method?

a. costly

b. profitable

c. comparative

d. net operating income

e. investment

9. The practice of business valuation in Kazakhstan shows that the following finds the greatest application:

a. income approach

b. comparative approach

c. cost approach

d. net operating income

e. investment

10. What approach are the method of capitalization of income and the method of discounted cash flows?

a. costly

b. profitable

c. comparative

d. net operating income

e. investment

11. The amount of costs in market prices that exist on the date of valuation, necessary to create an object identical to the object of valuation, is:

a. normative cost

b. market value

c. cost of reproduction

d. investment value

e. book value

12. What approach to business valuation is based on the principle of substitution?

a. costly

b. profitable

c. comparative

d. net operating income

e. investment

13. What approach to business valuation is based on the principle of expectation?

a. costly

b. profitable

c. comparative

d. net operating income

e. investment

14. What assessment method should be used if the meeting of creditors makes a decision to introduce bankruptcy proceedings at the enterprise?

a. discounted cash flows

b. income capitalization

c. salvage value

d. net assets

e. investment income

15. What is the probability that the income from investments in the evaluated business will be more or less than the predicted

a. risk

b. lesion

c. profit

d. deficit

e. excess

16. "The more an enterprise is able to satisfy the needs of the owner, the higher its value" is the principle:

a. expectations

b. foresight

c. utility

d. contribution

e. residual productivity

17. Which approach includes the capital market method, the transaction method and the industry coefficient method?

a. costly

b. profitable

c. comparative

d. net operating income

e. investment

18. The maximum value of an enterprise is determined by the lowest price at which another object with equivalent utility can be acquired" - this is the principle:

a. foresight

b. utility

c. contribution

d. substitution

e. expectations

19. Currently, in Kazakhstan, in order to carry out valuation activities, it is necessary to have:

a. license from the Ministry of Economic Development

b. appraiser's membership certificate

c. license of the Ministry of Economy

d. permission from the Ministry of Finance

e. permission from the Ministry of Labor

20. The valuation agreement must contain the following conditions:

a. grounds for concluding a contract

b. type of object of assessment

c. type of determined value (values) of the assessment object

d. information about appraiser's civil liability insurance

e. all of the above

**Chapter two**

**FACTORS AFFECTING PROPERTY VALUE**

**2.1 CONCEPTS RELATED TO BUSINESS VALUATION**

Various business valuation methods have been developed over the years. Each of these reflects a very precise logic and no one method is better than another in absolute terms. Rather, there are methods that, in certain circumstances, are more appropriate than others in interpreting the value of a business.

According to valuation standards, the various methods can be grouped in three main areas: cost-based approach, income-based approach, and market-based approach.

**A business** can be defined as the organized efforts and activities of individuals and legal entities to produce and sell goods and services for profit.

**A legal entity** is an association, corporation, partnership, proprietorship, trust, or individual that has legal standing in the eyes of law. A legal entity has legal capacity to enter into agreements or contracts, assume obligations, incur and pay debts, sue and be sued in its own right, and to be held responsible for its actions. It is considered as a **property complex** used for entrepreneurial activities.

**Property complex** includes land, buildings, machinery and equipment, raw materials and products, intangible assets and property obligations.

***FIRST CONCEPT OF THE BUSINESS VALUATION***

The first concept is related to the evaluation of the components of the property complex.

As a rule, the assessment of an enterprise's business is reduced to the assessment of the components of the property complex: fixed assets without taking into account the value of property rights, which can be assessed using the market, income and cost approaches.

In fact, we are talking about the assessment of the components of the property complex, which are evaluated independently from each other (table, chair, computer, building, machine, pool, plot of land, etc.). At the same time, a separate assessment of the components of the property complex does not imply their subsequent accumulation with the identification of additional value, which may appear in their totality in the form of a property complex.

***SECOND CONCEPT OF THE BUSINESS VALUATION***

The second concept is related to the identifying the additional value that occurs when evaluating the business of an enterprise.

The fact that an additional value appears in the aggregate of the property complex is possible only if ***the enterprise is considered as a business system***, which includes its property complex and a system of rights or a portfolio of rights that allow controlling the sector of the commodity market (market niche).

At the same time, the system or portfolio of rights allows ***the enterprise as a business system*** to effectively compete in the commodity market.

The system or portfolio of rights should include:

• Rights to work on the market arising from licenses, certificates, etc., which are issued by federal and local executive authorities to enterprises engaged in entrepreneurial activity;

• Rights to lease, sublease, pledge, etc., that generate income for the enterprise;

• Rights arising from the system of contracts of business partners (contracts for the supply of raw materials, contracts for the sale of commercial products, etc.);

• Rights arising from the controlling interest held by the company;

• Exclusive rights that form intangible assets.

In view of the above, the objects of business assessment of an enterprise should be:

• Property complex of the enterprise;

• A system or portfolio of rights that allows an enterprise (firm) to control a sector (niche) of the market;

• The ability of the enterprise (firm) to compete in the product market.

Thus, the business assessment of an enterprise (firm) can be carried out using two concepts.

***The first concept*** involves evaluating the business of an enterprise( firm) in cases of transactions, usually purchase and sale. In this case, the value of the business is formed from two components: the value of the property complex and the margin on the value that characterizes the value of intangible assets (business reputation).

***The second concept*** involves the assessment of capacities of monitored sectors of the commodity market (sales volumes) at the time of evaluation, modelling of controlled sectors of the commodity market with the perspectives of business development and capabilities to compete on the basis of the enterprise system or portfolio of rights.

When evaluating a business, we analyze what it will bring in the future, but in the form it is at the time of evaluation. The assessment does not imply any additional investments, other investments or conditions, we proceed only from the current state and efficiency of assets, an assessment of the capacity and dynamics of the market. We also need to consider the time value of money. The amounts in the accounts today are of greater value than the same amounts in a year, and the amounts in a year are more valuable than the same amounts in two years. This is not only a matter of inflation, but also of preferences - a person always wants to have and own here and now, and not tomorrow and somewhere far away. The time value of money is included in the valuation in the discount rate.

The assessment is based on the assumption of the best, that is, the most efficient use of business assets.

**2.2 FACTORS AFFECTING PROPERTY VALUE**

Real estate does not exist by itself. It is influenced by its environment and itself influences this environment. Therefore, during the assessment, those environmental factors and the real estate itself are determined, which ultimately affect the value of real estate.

The world practice of assessment has identified a number of factors that most significantly affect the assessment of the property value:

**physical:** natural - land, climate, resources, topography, soil, and man-made - buildings, structures, roads, utilities, the shape of the site, etc.;

**social:** trends in population change, trends towards rejuvenation or aging, lifestyle, living standards, family size, trends in educational level, crime rates, neighborhoods, attitudes towards neighboring properties and their owners;

**economic:** trends in the level of income, employment, credit policy and the availability of credit resources, interest rates, rental rates, growth or reduction in construction costs, prices, demand, supply;

**political (administrative):** zoning restrictive or liberal, building codes restrictive or liberal, municipal services, health and safety, tax policy, environmental protection.

As you can see, all these factors act in combination and, as a rule, reflect the location of the evaluated object in the settlement system. Settlement, as is known from the theory of urban planning, reflects the processes of social development, the territorial structure of production and the life of society as a whole and is one of the most important spatial forms of interaction between society and nature. Consequently, the location should be considered as a qualitative characteristic, determined by the correspondence of the physical parameters of the site to the type of land use adopted in the area and the socio-economic environment. In order to understand and evaluate the role of these factors in the valuation, it is necessary to trace how the location of real estate objects is formed.

The history of the development of mankind shows that man has always strived to live in the best natural conditions - on fertile lands, near convenient harbors, in a favorable climate, in the presence of water and fuel resources, in places where the bearing capacity of soils, the depth and chemical characteristics of groundwater, relief and other natural characteristics are favorable for construction. Having settled in such places, people built dwellings, public buildings, places of worship, industrial and outbuildings, communal facilities, connected them with roads, landscaped the territory of settlements, adapted them for life. The development of the economy, business activity, and relevant laws determined the style and standard of living and behavior of people.

So, settlements appear in places favorable in terms of topography, where there are natural resources and sources of raw materials, where commercial benefits can be obtained (production for various purposes, industry, transport services, sanatorium and health services, providing a wide range of services to surrounding territories, etc.). etc.). Activities for their arrangement (urban planning) involves the placement on the territory of settlements of zones for production, dwellings, community centers, recreation areas; creation of a system of connections between them; the structural organization of each of the zones; placement of material elements of the corresponding purpose in each of the zones. The essence of urban planning is in its functional nature. The zoning is based on the most important social categories: everyday life (housing), rest and work. Dwelling is located on the best plots, in the residential area of ​​cities, rest - recreation near cities, labor - industrial and production zones, independent, but closely and conveniently connected with housing. Their layout is subject to some generally accepted urban planning principles. Let's call them:

a) functional zoning - dividing the settlement into parts of various functional purposes according to the principle of the leading function: work, social life, everyday life, rest. None of the functions exist in isolation. Therefore, the planning structure of a settlement is determined, first of all, by the rational mutual arrangement of zones and the possibility of creating a convenient, permanent and reliable interconnection of all parts of the settlement, the alternation of the life cycles of everyday life, rest and work. A number of sanitary and hygienic requirements are fulfilled in the mutual placement of zones, namely: the direction of the prevailing winds from housing to production, and not vice versa; the residential area is located higher on the relief and upstream of the river than the production area, etc. The distance between residential buildings and industrial enterprises, communal storage areas and other industries (sanitary protection zone) is determined by the hazard class of the latter (first class enterprises - 1000 m, second - 500 m, third - 300 m, fourth - 100 m, fifth - 50 m);

b) the city as a whole. None of the functions of the city, taken in isolation, exist on its own. The planning structure of the city is determined by the rational mutual arrangement of functional zones and the possibility of creating a convenient, permanent and reliable interconnection of all parts of the city. All functional areas of the city include green spaces. The unity of the architectural and planning structure is not least achieved through the placement of green spaces. Necessary uniformity of placement on the territory of the settlement, the unification of all types of plantings into a continuous integral system. Green spaces contribute to the improvement of the urban environment, create a favorable microclimate for residents, protect residents and their living quarters from dust, noise, solar radiation, have high aesthetic qualities if they are placed according to the improvement project;

c) creation of a system of interconnected public centers, each of which is characterized by its own functions: a city-wide center - the center of a planning (residential) district - centers of industrial areas and recreation areas - centers of local importance (micro-district, quarter). The purpose of public centers: to create an appropriate level of cultural and consumer services for the population; act as a communication medium (meetings, unions, clubs, societies, etc.); be an architectural ensemble; to form the social infrastructure of the city;

d) transport and planning organization of the city. This is the road network. Its role in the settlement is to organize convenient and short pedestrian and transport links between all functional areas of the settlement; to be the framework of the planning organization of the settlement, uniting the latter into an integral functional planning complex; create the architecture of the settlement;

e) settlement as a developing structure. When developing the architectural and planning structure of the settlement, the ability to improve and the ability to respond flexibly to unforeseen adjustments in the pace, nature and parameters of development is laid in it. In this regard, we are talking about reserve territories, planning techniques (for example, a linear structure), etc .;

f) city in the settlement system. A settlement is part of a system of settlements. A system of settlements or a group system of settlements is a rational spatial organization of a group of settlements of different sizes and profiles in a natural landscape environment, based on their interaction in all social spheres, connections of the population, joint use of inter-settlement territories and a common planning structure. Therefore, the architectural and planning structure of the designed settlement is a derivative of the internal relationships between the elements of the settlement and of its external ties in the settlement system, due to which one is inseparable from the other;

g) complexity - consists in the joint consideration of the development of a settlement of five main tasks solved by its planning: social, environmental, economic, aesthetic and technical.

The social task of planning is to ensure the following social functions: housing, education, service, recreation, labor, management.

Environmental - in ensuring the vitality of the environment, expressed by physical, sanitary and hygienic and climatic parameters. The meaning of this activity is determined by the objectives of environmental protection.

The economic task is aimed at the rational use of territorial resources in the placement and efficient use of the main factors of production, as well as the functions of everyday life and recreation of residents of the settlement.

The aesthetic task is to ensure the full aesthetic qualities of the environment.

And, finally, the technical problem solves a set of issues related to taking into account the relief of the territory, the quality and bearing capacity of soils, other engineering and geological conditions, and in addition, the development of the capabilities of the material and technical base of construction and production of building materials in the region.

All the principles and requirements of urban planning are focused on creating favorable conditions for the activities of people. All urban planning rules and regulations are based on this idea. For example, plots with the most favorable natural and sanitary conditions are allotted for housing construction - near rivers, reservoirs, and green spaces. Taking care of a person, they also take into account the rules of an ecological nature - the requirements of environmental protection.

The physical, social, economic and political factors listed above determine the development of the environment for the location of the property.

In the theory of real estate valuation, there are 4 cycles of development of the environment of the location of the object:

1) growth;

2) maturity (stability);

3) decline (deterioration);

4) renewal (revival) (picture-1).

 stability renewal

growth decline

**Picture-1. Development cycles of the real estate location environment**

It is extremely important for an appraiser to accurately determine: in which cycle and in which place of the development cycle the settlement is and the location of the property being assessed in order to forecast the development of the property complex value. For example, a light industry enterprise (a garment factory) is assessed, which is in a difficult financial situation (production is practically paralyzed, since there is no demand for manufactured products). In the region of its location, the rapid development of manufacturing enterprises began. The employment of the population is growing, incomes are increasing, and living standards are rising. Consequently, the location of the object of assessment (garment factory) entered the growth stage. An increase in demand for finished garments is expected. There are no other sewing enterprises for sewing mass products in the region. Obviously, in such conditions, an increase in the value of the property complex of this factory will follow. This may interest potential investors in purchasing a company or part of its shareholding.

This example shows how it is necessary to analyze the economic situation not only of the real estate market in which the appraiser works, but also of the district, city and region of the object's location. It is often necessary to consider various aspects of the economy at the national and even international level: the developing structure of the economy in terms of industry and employment; a combination of factors of production that will increase the production of goods and ensure the further development of the service sector; an increase in costs and their impact, in turn, on the development of production, problems of money circulation. In the social sphere, the needs of individuals and population groups should be considered; changes in the social structure of the population, its employment; the impact of employment on lifestyle and type of housing; family structure problems in terms of age, profession and educational level; the impact of industrial mobility of the population on the central part of the city and new outskirts; changes in the structure of land tenure and the impact of this process on the housing market; income of the population and their impact on transportation costs of low-income families. That is, three levels of influence of these factors on the real estate object should be considered: regional, local and the environment, including the real estate object itself.

Factors discussed above are summarized in Table-1.

***Table-1***

***Factors affecting the cost of property of the enterprise***

|  |  |
| --- | --- |
| *Factors* | *Characteristics* |
| Physical, environmental, location | * Location: climate, resources, topography, grounds, soil; in relation to the business center, places of employment, residential areas, roads, railways, coastlines, green areas, municipal institutions (landfills, etc.); condition of roads and etc.
* The site itself: size, shape, area, topography, entrances, landscaping, type of use for zoning, easements, general view, attractiveness and etc.
* Buildings and structures: number; type, year, quality of construction; style, layout, designs, etc.
 |
| Economic | * The general state of the world economy; economic situation in the country, region, local level; financial condition of enterprises
* Demand: employment level, salary and income, ability to pay, availability of funding sources, interest rate, rent rate, costs of generating sales
* Supply: area of land available for sale; the number of objects (property complexes) offered for sale; construction and installation costs; financing costs; taxes
 |
| Social | * Basic needs for the acquisition of land, real estate, enterprises (small, large, cheap, expensive), in the option of land use
* Basic needs for communication with others, attitude towards neighboring objects and their owners, a sense of ownership
* Population trends, family size, rejuvenation or aging
* Trends in educational level change, crime rate
* Lifestyle, standard of living
 |
| Administrative (political), legal | * Tax, financial policy
* Providing various kinds of benefits
* Control of land use, rental rates
* Zoning: prohibitive, restrictive or liberal
* Building codes: restrictive or liberal
* Municipal services: roads, landscaping, engineering equipment, public transport, schools, health and safety, fire service
 |

Considering the economic, social, political and physical factors influencing the valuation of real estate, we thereby solved the problems of applied economic analysis, which includes the valuation of property. They are based on systematic methods of collecting, analyzing and processing information to obtain valid results. Based on the content of the above-described factors influencing the value of property, the information (data) collected for the assessment can be divided into three large groups (Table-2):

From an economic and geographic point of view, general and comparative data are prepared for three hierarchical levels: regional, city and the immediate environment. These data, containing a qualitative and quantitative description of the factors influencing the valuation, provide an economic basis for assessing and analyzing the location of the valuation object and calculating the desired value of the assessed value.

***Table-2***

***Date on supply and demand***

|  |  |  |
| --- | --- | --- |
| ***General*** | ***Specific*** | ***Comparative*** |
| EconomicSocialEnvironmentalAdministrative (political) | On land plotOn the immediate environmentOn constructions | CostsSalesIncome and expense |

***INFLUENCE OF CONTROL AND NON-CONTROL PARTICIPATION IN AN ENTERPRISE ON ITS COST***

The degree of control affects the estimated value of the enterprise, depending on the ability to exercise certain rights related to control over the enterprise, for example:

1. To elect members of the board of directors and make changes in the direction of the enterprise.
2. To approve a forward-looking policy and make changes in the direction of the enterprise.
3. Determine remuneration and privileges for board members.
4. Acquire, sell or liquidate the assets of the enterprise.
5. Select partners to conclude contracts.
6. Make decisions about mergers and acquisitions of other companies.
7. Liquidate, sell off, reorganize the enterprise.
8. Sell or buy own shares of the company.
9. Register shares of new issues for public sale.
10. Approve reports on the results of economic activities.
11. Declare and pay dividends.
12. Make changes to statutory documents or internal regulations.

Each separately of the listed rights has its own value, therefore, when the appraiser is faced with the task of determining the value of a controlling stake in an enterprise, he must determine the set and value of these rights.

The rights of the owner of a controlling stake may be limited by a number of conditions. For example, the terms of voting for the election of members of the board of directors, or certain restrictions formulated in the constituent documents, or the preliminary conditions for a specific distribution of shares among shareholders. The last condition is illustrated by the following situation.

questions for self-control

1. What are the factors that determine the choice of the type of value
2. Describe such objects of assessment as: enterprise, business, firm, real estate.
3. After analyzing the literature and information available on the Internet, formulate in writing the problems and errors in assessment activities and provide examples of poor-quality assessment.
4. What are the main Internet resources needed to conduct an assessment.
5. Point out the differences between the principles of balance and fit.
6. When assessing what types of value are separate stages of the organization of the assessment process become optional? Please provide specific examples.

Test tasks

1. Deterioration of the electromagnetic, radiation characteristics of the natural and anthropogenic environment, littering of the land, deterioration of the chemical properties of the atmosphere, soil, water, thermal pollution - these are:

a. negative social factors

b. negative physical factors

c. negative technical factors

d. negative environmental factors

e. negative chemical factors

2. The evaluation process does not include -

a. analysis of the market to which the object of assessment belongs

b. conclusion of an agreement with the customer on the valuation of the object

c. establishment of quantitative and qualitative characteristics of the object of assessment

d. choice of valuation method within each of the approaches to valuation activities and determination of the market or other value of the valuation object

e. property management

3. Restriction of rights to real estate is -

a. ownership

b. right of operational management

c. ownership

d. right to manage property

e. encumbrance

4. Identification is -

a. the process of calculating the arithmetic mean

b. the process of establishing the identity of a particular subject or person according to the totality of general and particular features by comparing them

c. bank customer recognition

d. identification of something or someone

e. asset owner recognition

5. Appraiser principles -

a. high pay

b. Minimum cost

c. objectivity and reliability

d. objectivity and accuracy

e. reliability and durability

6. The main objects of valuation activity -

a. only tax-exempt property

b. movable and immovable property

c. only sold property

d. only mortgaged property

e. bank property only

7. What document is mandatory for the implementation of valuation activities -

a. course completion certificate

b. company charter

c. seminar attendance certificate

d. power of attorney certified by a notary

e. State license

8. When valuing a property, the valuation date corresponds to -

a. date of the last inspection of the subject property

b. date of the last major overhaul of the subject property

c. date of preparation of the terms of reference for evaluation

d. the date of signing the valuation agreement

e. date of the assessment report

9. What types of adjustments are used in the comparative approach

a. interest and cost

b. direct and indirect

c. simple and complex

d. cumulative and risk-free

e. major and minor

10. Approaches for assessing the value of a property -

a. mortgage, collateral, credit

b. inflationary, retrospective, prospective

c. cost, comparative, profitable

d. restorative, tax, budgetary

e. costly, analytical, comparative

11. Depending on the procedure for accounting for costs in the cost of construction, it is customary to allocate -

a. additional expenses

b. direct costs

c. additional expenses

d. indirect costs

e. direct and indirect costs

12. The totality of purely natural and natural-anthropogenic factors that have a direct impact on the efficiency and usefulness of the use of the property -

a. economic forces

b. social factors

c. physical factors

d. chemical factors

e. environmental factors

13. The gradual loss of technical and operational qualities due to technical malfunctions and loss of service life is -

a. physical deterioration

b. functional wear

c. external wear

d. cumulative accumulated depreciation

e. economic depreciation

14. Amendments happen -

a. cost and interest

b. interest

c. interest and adjustment

d. cost

e. corrective

15. Exposure time is -

a. the time an object must be on the market in order to be sold

b. commissioning time of the property

c. chronological age

d. effective age

e. commodity investment in the market

16. A systematically maintained public register of written information about real estate objects in the region (country), based on a cartographic image of the boundaries of real estate plots, which are assigned certain designations

a. inventory number

b. inventory

c. cadastral number

d. condominium object

e. registration number

17. The period of operation of the building, during which the state of the load-bearing structural elements of the building meet certain criteria is

a. chronological age

b. the physical life of the building

c. economic life

d. full age

e. effective age

18. The operating time during which the object generates income is

a. chronological age

b. effective age

c. wear

d. the physical life of the building

e. economic term

19. Age, which is calculated on the basis of the chronological age of the building, taking into account its technical condition and economic factors

a. chronological age

b. rational age

c. effective age

d. physical life

e. remaining economic life

20. The time that the object is on the market is

a. rental time

b. tender period

c. exposure time

d. sale time

e. mortgage term

**Chapter three**

**INCOME APPROACH**

**3.1 Direct capitalization method**

In the income approach, the most important concept is the capitalization of income, which is a set of techniques and methods that allow you to evaluate the value of an object based on its potential ability to generate income. Using an income approach, the appraiser measures the present value of the future benefits of real estate ownership. Income streams during ownership and proceeds from subsequent resale of the property are capitalized to present value using capitalization ratios.

There are two types of capitalization ratios: capitalization rates and rates of return.

Capitalization rates reflect the relationship between the annual income that a property generates and the value of that property. Depending on the indicators of net income and property value, the following types of capitalization rates are distinguished:

1. *Total capitalization rate*. It is calculated as the ratio of net operating income to the total cost of the property.

2. *Capitalization rate for own funds*. It is the ratio of the cash flow (before tax) to equity invested in the acquired property.

3. *Capitalization rate for borrowed funds (mortgage constant).* Expresses the ratio of annual payments on a loan to the amount of the loan itself.

Rates of return are measures of return on a property that take into account all the benefits (i.e. cash flows) that the property brings over the course of the ownership. The practical value of profit margins lies in the possibility of their use as:

* + discount rates when valuing using the discounted cash flow method;
	+ comparable indicators when comparing investment projects with different levels of initial investment and subsequent income.

Rate of return types:

1. *Internal Rate of Return* (IRR) is the annual rate of return on investment that an investor will receive from (positive and negative) cash flows during the holding period.

2. *The rate of return on equity* (the rate of return of the investor). The indicator is similar to the IRR indicator, in the calculation of which the investment in the acquisition of the object of own funds, the income remaining at the disposal after payments on the loan and the proceeds from the sale of the object upon closing the loan were used.

3. *The rate of return on borrowed funds*. The indicator is similar to that of IRR. When calculating this indicator, the cash flows received by the bank are used (issued loan, recurring income and receipt of the balance of debt on the principal amount in case of early termination of the loan).

Sometimes the capitalization rates and profit rates for a particular object may coincide, but these are completely different indicators and should not be mutually replaced.

There is a relationship between the capitalization rate and the rate of return:

1. *The capitalization rate is equal to the rate of return*.

Property value or income does not change over time. Periodically earned income expresses the return on investment. Full reimbursement of the originally invested funds occurs at the time of the reversion.

2. *The capitalization rate exceeds the rate of return*.

Property value or income decreases over the period of ownership. Consequently, a full refund of the originally invested funds at the time of the reversal becomes impossible. A certain percentage of the initial investment must be reimbursed along with periodic income receipts until the reversion.

3. *The rate of return exceeds the capitalization rate*.

The value of the object (income) increases over the period of ownership. The size of the annual income cannot provide the expected rate of return on investment, since part of this profit will be received only at the time of the reversion.

In world practice, the income approach uses two valuation methods: the direct capitalization method and the method of discounting cash income. These are the most versatile methods used in assessing the value of various types of enterprise property.

The calculation of the current value of the property complex of the enterprise by this method is performed in three consecutive stages.

***STAGE 1***

*CALCULATION OF ANNUAL NET INCOME*

The concept of net operating income (NOI) is a calculated steady-state value of the expected annual net income received from the appraised property after deducting all operating expenses and reserves, but before servicing debt on a mortgage loan and accounting for depreciation charges. The NOI is based on the assumption that the property will be rented out on a market-based rental basis and that this income is projected for the most representative year.

The calculation of NOI begins with the calculation of potential gross income (PGI), which is the expected total of the market rent and other income of the latter up to the date of valuation of the year (or any of the most characteristic years). PGI can be obtained from the operation of the property, taking into account the assumption that at the date of valuation it was vacant, vacant and available for rent. Calculating PGI requires the appraiser to know the lease market to which the appraised property belongs. The appraiser should compare the property being valued with other similar leased properties and make adjustments for the difference between them. The best way to make adjustments is to find comparable rental pairs in the market. If such items are similar, except for differences in one or more material components, then adjustments (adjustments) can be calculated based on market data (see Table 3).

***Table-3***

***Example of calculating rental amendment***

|  |  |
| --- | --- |
| *Indicators*  | *Monthly rent, dollars* |
| 1 hectare plot of land has a parking lot1 hectare plot of land without parkingParking amendment | 20 00015 0005 000  |

When the correction can not be verified market data, the appraiser determines its expert way.

In addition to income in the form of rent, the owner of the property can receive other income that can be obtained in the process of owning the property in the form of:

• Payments for the use of parking lots and garage;

• Fees for setting up advertisements;

• Payments for fixed antenna, etc.

To separate the amount of PGI, the appraiser must add the total amount of the market rent with other income arising from the ownership of the property.

However, the PGI obtained by calculation can be changed due to vacancies (unloaded property), lack of rent collection. The appraiser should take into account that it is always possible that a portion of the rent will not be collected during the forecast period of ownership of the property. There are no standards for admission for vacancies and under-fundraising. The best way to obtain this information is to look at a similar property for which there is data on rent payments for a long period of time, from which it will be possible to find out what the losses were in practice on the property being valued.

Thus, the estimated losses due to unoccupied premises (availability of vacancies), change of tenants and non-payment of rent (losses in rent collection), that is, allowances for “vacancies and shortfalls in funds” are deducted from the PGI to obtain an effective gross income (EGI ).

To obtain the NOI, the appraiser conducts a cost analysis. The expenses of the owner of the property complex are divided into three groups: fixed costs, operating (maintenance) costs and replacement reserve.

Fixed costs are property taxes and insurance costs. These costs are defined as fixed, they practically do not depend on the degree of congestion of the property.

Operating (maintenance) costs include the costs of a typical year of maintaining the property, providing services to tenants, and maintaining an income stream.

Consider a list of operating expenses compiled for many properties:

1. Fee for management services.
2. Utilities: electricity, gas, fuel, coal, telephone, water, sewerage, plumbing.
3. Removal of garbage and waste.
4. Salary
5. Payroll taxes.
6. Employee benefit.
7. Maintenance and repair.
8. Contractual services: fire protection system, elevator, telephone, security, etc.
9. Painting and external decoration (if it is a building, structure).
10. Office maintenance, cleaning, etc.
11. Bank payments.
12. Legal fees.
13. Advertising.
14. Payment for accounting services.
15. Vehicle expenses.

Not every property owner bears all the costs listed in this list, but there are also those whose costs are beyond the scope of this sample list.

Replacement (restoration) reserve. During the operation of the property, the owner sets aside (reserves) funds for: repair of the water supply system; sewerage; furniture; roofs; elevators; telephone system, etc. The appraiser should be aware that even if these funds are not used by the owner, they should be taken into account when evaluating the property.

Conditional example of calculating the NOI.

*Given*:

1. Leased office building area 1000 s.m.

2. Rental rate 200 $/sq m.

3. Operating costs increase by 5% annually 30 $/sq m.

4. Downtime of rooms: (1st year) up to 10%

 (2nd year) up to 5%

Calculate the NOI for the 1st and 2nd years

*Solution*:

***Table-4***

|  |  |  |
| --- | --- | --- |
| *Indicators:* | *1st year, dollars* | *2nd year, dollars* |
| Potential gross incomeDowntime discountEffective gross incomeOperating costsNOI | 2000002000018000030000150000 | 2000001000019000031500158500 |

When assessing the property of an enterprise, it is important for an appraiser to determine what type of income will be used for capitalization. The choice of the type of income depends on the nature of the property. If the property is valued with wear parts or outdated equipment, then the net profit indicator is used for the calculation. If the book value of the property does not change very significantly over time (for example, buildings, structures, land ...), then the indicator of net cash flow is taken as a basis.

The calculation of income is preceded by an analysis of the financial position of an enterprise or production system, which includes the assessed object over a number of years. Analyze the statement of balance sheet and net income in accordance with the reporting form No. 2 (statement of financial results and their use). Based on the analysis results, a forecast of the size of the annual net profit (in monetary units) is made. Then, the net profit is multiplied by a coefficient showing the share of this property in the capital of the production system.

If net cash flow is taken as an indicator of income, then it is calculated using the following formula:

Net cash flow = Net profit + Depreciation + Increase in long-term debt - Increase in own working capital - Capital investments.

In the practice of assessing the property of an enterprise, the most common use of the following indicators of income:

for a separate property located in a common property complex - “net operating income”;

for property with rapidly wearing out, obsolete, dilapidated property - “net profit”;

for a property complex with a stable book value - “net cash flow”.

***STAGE 2***

*CALCULATION OF THE CAPITALIZATION RATE*

There are several ways to get your capitalization rate. The simplest of these is to define it using data collected from the market. For example, there is information about a property that is comparable to the one being evaluated. A comparable property was sold for $ 200,000 and had a net operating income of $ 25,000. The capitalization rate can be determined by dividing the net operating income by the property value.

$Capitalization rate= \frac{NOI}{Property value}$,

$CR= \frac{25000}{200000}=0.125 (capitalization rate)$.

The capitalization rate determined in this way is called *the total rate*.

The evaluator should not try to derive the capitalization rate from just one set of data. The best source of data for determining capitalization rates are other property valuations comparable to the one being assessed. Therefore, of all the existing methods for determining capitalization rates, the best (simpler) one is the analysis of comparable sales. To extract the capitalization rate from comparable sales, they resort to when there is a sufficient amount of data on similar objects of profitable real estate, which act for the investor as alternative ways of placing funds.

Comparable objects should coincide with the assessed in terms of their functional purpose and the level of risk of non-receipt of income in the expected volume or loss of funds invested in the acquisition of property, and also correspond to it, as far as possible, in terms of:

* + Amount of income;
	+ Relationship between gross income and operating costs (operating cost ratio);
	+ Physical similarity;
	+ Location;
	+ Expected changes in value.

For each object being compared, the following data should be collected:

* + Selling price;
	+ Net income;
	+ Ratio of operating costs;
	+ Terms of financing the transaction;
	+ Market situation at the time of the transaction.

Here is an example of extracting the capitalization rate from data on comparable properties:

***Table-5***

|  |  |
| --- | --- |
| *Indicators* | *Comparable objects* |
| 1 | 2 | 3 | 4 |
| Net income, con. unitsSelling price, con. unitsCapitalization rate | 65 000374 0000,1719 | 72 000400 000 0,1800 | 55 000 230 0000,1719 | 74 000420 000 0,1762 |

To select the final capitalization rate that can be used in property assessment, the following conditions must be met:

- The characteristics of all comparable objects must match;

- Data for comparable properties must be valid and from reliable sources.

If both conditions are met, the appraiser calculates the capitalization rate as the arithmetic average capitalization rate for comparable properties.

In our example, the final capitalization rate will be 0,1754.

We will calculate the capitalization rate using the specific conditions of the property.

***EXERCISE №1***

*Given:*

|  |  |
| --- | --- |
| *Indicators:* | *Conventional (con.) units* |
| PGI | 200 000 |
| Discount on “downtime” of areas | 20 000 |
| Effective gross income |  180 000 |
| Operating costs | 70 000 |
| Net operating income | 110 000  |
| Debt service costs | 80 000 |
| Profit on equity (before taxes) | 30 000 |
| Equity | 110 000 |

*Find:*

Equity capitalization rate, %

*Solution:*

$$CR\_{eq}=30000÷110000×100\%=27,27\%$$

*Answer:*

$$CR\_{eq}=27,27\%$$

Equity capitalization rate is 27,27%.

***EXERCISE №2***

How will the capitalization rate for equity change when the PGI falls by 10% (provided that other indicators remain unchanged)?

*Solution:*

|  |  |
| --- | --- |
| *Indicators:* | *Con. units* |
| PGI | 180 000 |
| Discount on “downtime” of areas | 20 000 |
| Effective gross income | 160 000 |
| Operating costs | 70 000 |
| Net operating income | 90 000 |
| Debt service costs | 80 000  |
| Profit on equity | 10 000 |

*Solution:*

$$CR\_{eq}=10000÷110000×100\%=9,09\%$$

*Answer:*

$$CR\_{eq}=9,09\%$$

The capitalization rate is 9,09% for equity change when the PGI falls by 10% (provided that other indicators remain unchanged).

 ***EXERCISE №3***

How will the capitalization rate for equity change if operating costs increase by 10% (provided that other indicators remain unchanged)?

*Solution:*

|  |  |
| --- | --- |
| *Indicators* | *Con. units:* |
| PGI | 200 000 |
| Discount on “downtime” of areas | 20 000 |
| Effective gross income | 180 000 |
| Operating costs | 77 000 |
| Net operating income | 103 000 |
| Debt service costs | 80 000 |
| Profit on equity | 23 000 |

*Solution:*

$$CR\_{eq}=23000÷110000×100\%=20,9\%$$

*Answer:*

$$CR\_{eq}=20,9\%$$

The capitalization rate is 20,9% for equity change if operating costs increase by 10% (provided that other indicators remain unchanged)

***EXERCISE №4***

The property complex includes 10 offices, each of which is rented for $750 per month. What will be the break-even load of an object, if the operating costs amount to $35070, and debt service of $35,000?

*Solution:*

$$Break-even load= \frac{Operating costs+Debt service}{Rent for 1 unit in year}=\frac{\$35070+\$35000}{\$9000}$$

$$=7,79 units or 8 offices$$

The break-even load of an object is 8 offices.

***STAGE 3***

*CALCULATION OF THE CURRENT VALUE OF THE PROPERTY OF THE ENTERPRISE*

 The third step in the income approach is to convert the projected net operating income (NOI) to the value of the property at the valuation date. This process is called capitalization and is carried out by dividing the net operating income (NOI) by the capitalization rate (CR):

$$Property value=\frac{Income}{Capitalization rate} .$$

Using the theory of the direct capitalization method, we will evaluate some property objects.

***EXERCISE №1***

To acquire the property complex of the enterprise, a loan in the amount of $ 300,000 was raised. The mortgage constant (capitalization rate on borrowed capital) is 17.5%. The property is expected to generate a net operating income (NOI) of $ 65,000. Analysis of comparable sales shows that investors expect a 19% equity capitalization rate on investments in similar properties. Estimate the cost of the object.

*Solution:*

1. Determine the income of borrowed funds.

$$I\_{b.f.}=\$300000×0.175=\$52500$$

1. Determine the income of your own funds.

$$I\_{o.f.}=\$65000-\$52500=\$12500$$

1. Determine the size of your own funds invested in the object.

$$S\_{o.f.}=\$12500÷0.19=\$65789$$

1. Estimate the value of the property.

$$V\_{p}=\$300000+\$65789=\$365789$$

*Answer:*

The value of the property equal is $365789.

***EXERCISE №2***

The value of the land that is part of the property complex is $100,000. The property generates $45,000 in constant income. Analysis of comparable sales shows that investors expect a 14% land capitalization rate and a 17% improvement capitalization rate.

Estimate the value of the property complex.

*Solution:*

1. Determine the income of the land.

$$I\_{L}=L\_{v}\left(land value\right)×CR=\$100000×0.14=\$14000$$

1. Determine the income that brings improvements (buildings, structures) to the owner.

$$I\_{imp}=NOI-I\_{L}=\$45000-\$14000=\$31000$$

1. Determine the cost of improvements (buildings, structures ...)

$$C\_{imp}=I\_{imp}÷CR\_{imp}=\$31000÷0.17=\$182353$$

1. Estimate the value of the property complex.

$$V\_{p}=\$182353+\$100000=\$282353$$

The direct capitalization method is very simple and this is its main advantage. However, it is very static, being tied to the data of one most characteristic year, and therefore the evaluator needs special attention to the correct choice of indicators of net income and capitalization ratios.

**3.2 CASH FLOW DISCOUNTING METHOD**

The ability of an enterprise to generate recurring income is considered a key indicator in assessing the value of full ownership of the enterprise. That is, the well-known capitalization formula is used:

$$V=\frac{I}{K} ,$$

Where,

V - present value

I – recurring income

K – capitalization ratio.

 The main principle of the income approach is the principle of expectation, since the market value of an enterprise is defined as the current value of the rights to expected future benefits.

Discounting future earnings is a technique used to value income properties as the present value of the expected future benefits of owning the property.

Future benefits from real estate transactions represent recurring receipts in the form of future income during the period of ownership and reversion, that is, the proceeds from the sale of an object at the end of the period of ownership.

The sequence of application of the discounting method assumes:

1. Establishing the duration of the period of income generation.
2. Implementation of forecast cash flows for each year of the holding period. Cash flow is the annual result of the enterprise's activities related to its main functional activities. The initial data in the process of discounting cash flows are:

- The size of income and the nature of its change (constant, changing with a known rate of growth or decline, changing without a visible trend);

- Frequency of income generation (monthly, quarterly, semi-annual, annual);

- The length of the period over which income is forecast.

1. Discounting of cash flows is carried out by bringing the present value of the cash flow for each of the future periods based on the application of the theory of the value of money in time and the summation of all current values.
2. Depending on the task facing the appraiser, cash flows are discounted, expressing:

- Net operating income;

- Investor income before tax;

- Investor income after tax;

- Bank income from the loan granted;

- The lessor's income from the lease.

1. The discount rate is chosen as the average rate of return that investors expect to receive on investments in similar properties in the given real estate market and reflects the expectations of the real estate market.

Since the rate of return is directly proportional to the risk, the discount rate is determined by how high the average investor estimates the level of risk associated with investing in the purchase of a given enterprise. The higher the level of risk, the higher the discount rate and, accordingly, the lower the present value of future income.

1. The discounting method involves calculating the proceeds from the sale (reversion) of the property at the end of the holding period and bringing it to its present value through the discount rate.
2. Addition of present values ​​of income streams and sales proceeds (reversion).
3. Calculation of the value of the enterprise as the difference between the amount of income for a number of years and the amount of borrowed funds.

The future income and expenses form the cash flows for each calculation step.

Estimation of the forthcoming costs and results of the company's activities are determined within the billing period, the duration of which is called the calculation horizon. The calculation horizon is measured by the number of calculation steps.

In the discounted cash flow method, the value of an enterprise's assets is measured by their ability to generate income.

The main indicator in this method is net cash flow. There are concepts that characterize the direction of cash flow - cash inflow and cash outflow.

Net cash flow is calculated as the difference between the inflow and outflow of funds for a certain time - the calculation horizon.

During its work, the enterprise carries out three types of activities: operational, investment and financial.

Cash inflows and outflows are estimated using discounted future flows.

The difference between them in operating and investing activities is called real money flow.

The real money balance is the difference between the inflows and outflows of cash from all three activities of the enterprise.

The scheme of inflows and outflows of funds at the enterprise is provided in the Table-6.

***Table-6***

|  |  |
| --- | --- |
| **Cash inflows** | **Cash outflows** |
| *Operating activities* |
| Cash saleReceipts from receivables | Payments for raw materials SalaryRental insurance paymentsTaxes |
| *Investing activities* |
| Income from investments in securitiesIncome from subsidiariesSale of assets | Acquisition of fixed capital**Budget expenditures**Investment financing |
| *Financing activities* |
| Sale of securitiesLoans | Payment of interest and dividendsRepayment of loans and bonds |

The company's cash inflows are mainly due to the fact that it:

* + Sells its goods for cash, and also receives payments from debtors for goods sold on credit;
	+ Receives income from investments in securities or operations of its branches in the country or abroad;
	+ Sells its newly issued securities of various types;
	+ Get rid of unnecessary or unnecessary assets;
	+ Attracts loans, etc.

The company's cash outflows are mainly due to the fact that it:

* + Acquires raw materials and materials for carrying out its activities;
	+ Pays wages and salaries to its employees, maintains its capital in working order and makes new investments;
	+ Pays dividends and interest on borrowed loans;
	+ Pays off the principal amount of debts on bonds and loans, etc.

The end result of the enterprise can be expressed in net income after taxes. However, depreciation can also be added to these funds; taxes assessed but not paid.

The listed funds add value to the enterprise.

Real money flow includes certain types of income and costs.

1. From operating activities:
	1. Sales volume;
	2. Price;
	3. Revenue (1 \* 2);
	4. Non-operating income;
	5. Variable costs;
	6. Fixed costs;
	7. Depreciation of buildings;
	8. Depreciation of equipment;
	9. Interest on loans;
	10. Profit before taxes (3 + 4-5-6-7-8);
	11. Taxes and fees;
	12. Projected net income;
	13. Depreciation (7 + 8);
	14. Net inflow from operation (12 + 13).
2. From investment activities:
	1. Earth;
	2. Buildings and structures;
	3. Machinery and equipment, transmission devices;
	4. Intangible assets;
	5. Total: investments in fixed assets (1 + 2 + 3 + 4 = 5);
	6. Increase in working capital;
	7. Total investment (6 + 5).
3. Flow of financial activities:
	1. Equity capital (shares, subsidies);
	2. Short-term loans;
	3. Long-term loans;
	4. Repayment of debt on loans;
	5. Payment of dividends;
	6. The balance of financial activity (1 + 2 + 3-4) - the project,

(1 + 2 + 3-4-5) - recipient.

To determine the flow of real money in investment activities, the net liquidation value of the object should be determined:

1. Market value;
2. Costs;
3. Accrued depreciation;
4. Book value at t-step (2-3);
5. Liquidation costs;
6. Income from capital gains;
7. Operating income (losses) (1-4 + 5);
8. Taxes;
9. Net Liquidation Value (1-8).

If the company provides for the reinvestment of free cash, then the balance of accumulated real money is used to determine the flow of real money.

Not all cash payments are recorded as expenses. For example, the purchase of inventories or property involves an outflow of real money, but is not an expense.

There are a number of ways to calculate cash flow:

1. Net operating income (NOI) is the actual income remaining after deducting all operating expenses from the actual gross income (AGI) until the payment of loan servicing and accounting depreciation. Expressed as an annual amount.

2. Cash flow (investor income) before tax is the part of net operating income that remains after payments on borrowed funds and depreciation. It should be borne in mind that maintenance costs are not expenses in the full sense of the word, since as they are paid, the value of the investor's property rights increases; depreciation - refers to "non-cash" expenses, since it is not actually paid by the owner, but, on the contrary, serves to reduce taxable profit.

Depreciation is a targeted deduction of cash that compensates for the physical and obsolescence of the fixed capital used by the enterprise for its operating activities.

Amortization deductions depend on three factors:

* + Book value of equipment included in fixed assets;
	+ The expected life of the equipment until it is decommissioned;
	+ The method chosen by the company for calculating depreciation rates.

Depreciation, being the source of the formation of a special (targeted) cash fund, does not cease to be the property of the enterprise, although it is deducted from its profit as production costs or tax payments.

The contributions are used only purposefully and strengthen the financial side of the company. If it is necessary to invest funds to replace worn-out fixed assets, the depreciation fund will become for the enterprise equivalent to net profit after tax.

Therefore, the accrued depreciation is logically included in the result of commercial activities, that is, in the cash flow.

***DEPRECIATION (AMORTIZATION) METHODS***

1. *Straight-line method*.

$$DC \left(in a year\right)=AR×IC ;$$

$$DC \left(in a year\right)=IC÷service time ;$$

$$DC \left(in a year\right)=\left(IC-LV\right)÷service time ;$$

$$AR=100÷service time-means of production .$$

where,

DC – depreciation charges;

AR – annual depreciation rate;

IС – initial cost;

LV – liquidation value.

1. *Accelerated depreciation methods*.
2. *Declining balance method* (double residual method)*.*

$$DC \left(in a year\right)=\left(2×AR\right)×BV ,$$

where,

BV – book (residual) value at the beginning of the year

AR – the annual depreciation rate calculated with straight-line method

1. *Sum of the years’ digits method* (cumulative)*.*

$$DC \left(in a year\right)=\frac{yearsof service remaining}{S}∙(IC-LV) ,$$

$$S=n \frac{n+1}{2} ,$$

where,

S - sum of years of service;

n - number of years of service.

1. *Production method* (in terms of output)

$$DC \left(in a year\right)=AR×W ,$$

$$AR=\frac{IC-LV}{V} ,$$

where,

AR - annual depreciation rate (per 1 unit of volume);

W - production volume per year;

V - production volume for the service time of the equipment.

1. *Cash flow* (investor income) *after tax* – the part of net operating income that remains after taxes.
2. *Bank income from the loan granted*.
3. *Lessor's lease income*.

Cash flow is necessarily adjusted for the increase or lack of own working capital.

Cash flow example:

Net profit after taxes;

+ depreciation;

± decrease (increase) in own working capital;

± decrease (increase) in capital investments in fixed assets;

± increase (decrease) in long-term debt.

***REVENUE FROM SALE OF THE ENTERPRISE AT THE END OF THE FORECAST PERIOD (REVERSE)***

The reversal is calculated by direct capitalization of the cash flow. The capitalization ratio is selected based on the market conditions for enterprises of this type.

If the income forecast assumes growth at a rate of g, and the expected value of cash receipts at the end of the first year of the post-forecast period of PMT, then the current value can be determined using the formula:

$$PV=\frac{PMT\_{i}}{i-g} ,$$

this equation is the Gordon model.

To ensure the adequacy of the results obtained, it is necessary to use the PMTi value in the numerator (cash flow at the end of the i-th year of the post-forecast period).

The model is used only if the cash flow grows constantly and with the same growth rate. Gordon's model is valid provided that the growth rate g is less than the discount factor.

Two adjustments are made to the resulting total cost of the enterprise. First, the value of assets that are not functioning in operating activities is added. The second - for the excess (plus) the lack (minus) of its own working capital.

***CAPITALIZATION AT THE RATE OF RETURN OF EQUITY***

Let us consider the case when the company is financed from its own financial resources.

The economic essence of financial resources is that the use of financial resources must be paid regardless of the source of their receipt: in the form of dividends for own funds or in the form of interest for borrowed funds.

Own funds can be represented by the following Chart-2.

***Chart-2***

|  |
| --- |
| Own financial resources |

|  |  |  |
| --- | --- | --- |
| Monetary contributions of the owners of the company (statutory funds) |  | Accumulation resulting from business activities (retained earnings + depreciation) |

|  |
| --- |
| Mobilizing internal assets |

In the process of capital construction, the enterprise may form specific sources of financing, mobilized during the construction process. Amount of mobilization of internal resources:

$$M=A-H\pm K ,$$

where

A - the expected availability of current assets at the beginning of the planning period;

H - the planned need for current assets for the period;

K - change in accounts payable during the year.

The essence of mobilization lies in the fact that part of the current assets is withdrawn from the main activity (since this activity can be slowed down due to capital construction) and is directed to finance capital construction.

***COST OF THE CAPITAL OF THE ENTERPRISE AND THE RATE OF PROFITABILITY OF CAPITAL INVESTMENT***

The cost of capital is understood as the income that new capital investments must bring in order for them to justify themselves.

The cost of capital is expressed as the percentage rate (or fraction of a unit) of the amount of capital invested in a business, which the investor must pay during the year to use his capital. The investor can be a creditor, a shareholder of an enterprise or the enterprise itself. In the latter case, the company invests its own capital, which was formed during the period preceding new capital investments. In any case, you have to pay for the use of capital, and the cost of capital is the measure of this payment.

It is generally assumed that the cost of capital is the opportunity cost, in other words, the return that investors expect to receive from alternative capital investment opportunities with a constant amount of risk. Indeed, if an enterprise wants to raise funds, then it must provide an income on them, at least equal to the amount of income that can bring investors alternative capital investment opportunities.

The cost of capital serves as the discount rate for valuing an enterprise. The discount rate is the percentage rate of return that the company expects to receive on the financial resources earned in the process of activity. An enterprise, carrying out investment activities, does not have firm confidence that it will find a very effective way to invest its financial resources. But it can invest that money in its own business and get a return at least equal to the cost of capital. Thus, the cost of capital of an enterprise is the minimum rate of profitability when investing the funds earned in the course of activities. The cost of capital is influenced by such factors as: the level of return on other capital investments; the level of risk of this investment; sources of financing. Since the cost of capital is an opportunity cost, that is, the income that investors expect to receive from alternative capital investment opportunities with a constant amount of risk, the cost of this capital investment depends on the current level of interest rates in the securities market (bonds and stocks). If the company intends to invest in a more risky business, then it must be provided with a higher level of profitability.

***MODELS FOR DETERMINING THE COST OF OWN CAPITAL***

The cost of equity is the cash income that ordinary shareholders want to receive. The cost of equity is a function of the rate of return on investment in any other enterprise and the risk inherent in the common stock of that enterprise.

Several models are known, each of which is based on the use of available information.

1. *MODEL OF FORECASTED DIVIDEND GROWTH*

The calculation of the cost of equity is based on the formula:

$$C\_{e}=\frac{D\_{1}}{P}+g ,$$

where: $C\_{e}$ – the cost of equity;

$D\_{1}$ – dividend promised to the company in the 1st year of operation;

$P$ – the market price of one share;

$g$ – projected annual growth in dividends.

***EXAMPLE***

The current price of one ordinary share of the company is $50. The expected size of the dividend next year is $5. The annual increase in dividends is planned at a rate of 6%. Calculate the cost of equity.

***DECISION***

$$C\_{e}=\frac{D\_{1}}{P}+g=\frac{5}{50}+0.06=0.16 или 16\%$$

This model is applicable to those enterprises whose dividend growth rate is constant. If this is not observed, then the model cannot be used.

1. *CAPITAL INVESTMENT PRICE MODEL*

The use of this model is most common in a stable market economy with a sufficiently large information database that characterizes the profitability of the enterprise.

The model uses in a significant way the risk indicator of a particular enterprise, which is formalized by the introduction of the β indicator. To begin with, we note that β = 0 if the company's assets are not at all risky (the case is as desired, as impossible). The β value is zero, for example, for US Treasury bonds. Indicator β = 1 if the assets of the given enterprise are as risky as the market average of similar enterprises in the country.

If 0 < β <1, then this enterprise is less risky than the market average. If β > 1, then it is more risky.

The calculation formula of the model is as follows:

$$C\_{e}=C\_{RF}+β\left(C\_{M}-C\_{RF}\right) ,$$

where, $C\_{e}$ – the cost of equity;

$C\_{RF}$ – indicator of profitability (return) for risk-free capital investment;

$C\_{M}$ – market average profitability indicator;

β is a risk factor.

***EXAMPLE***

The enterprise is a relatively stable company with a value of β = 0,5. The value of the interest rate for risk-free capital investment is 6%, and the average for the stock market is 9%. According to the price model of capital assets, the cost of a company's capital is:

$C\_{e}=0.06+0.5×\left(0.09-0.06\right)=7,5$%.

The price model of capital assets, the cost of a company's capital is-$ 7,5$%.

1. *PROFIT PER SHARE MODEL*

This equity valuation model is based on profit per share rather than dividends.

Many Western investors believe that it is the profit per share ratio that reflects the real income received by shareholders, regardless of whether it is paid as dividends or reinvested in order to bring benefits to shareholders in the future. Typically, profit per share are published and publicly available.

Calculations of the cost of equity according to this model are carried out according to the following formula:

$$C\_{e}=\frac{Ps}{P} ,$$

Where $C\_{e}$ – the cost of equity;

$Ps$ – profit per share;

$P$ – the market price of one share.

***EXAMPLE***

The profit per share of the enterprise was $ 5, and the market price of a share averaged $ 45. Estimate the cost of equity.

***DECISION***

$$C\_{e}=\frac{Ps}{P}=\frac{5}{45}=0.11 or 11\%$$

All models shown are estimates only. None of the models can accurately predict the true cost of equity and usually calculations using the algorithms of all models lead to different results.

***EXAMPLE***

For an enterprise, the value of the indicator β = 1.5. The current market price of the share is $ 20 and earnings per share last year was $ 2. The dividend paid this year is $ 1 per share and is expected to grow by 6% annually. Assuming that the risk-free interest rate is 6% and the average return across the market is 9%, you need to calculate the cost of equity using all three models.

***DECISION***

For the dividend growth model:

$$C\_{e}=\frac{\$ 1}{\$ 20}+0.06=11\%.$$

For the capital asset pricing model:

$$C\_{e}=6\%+\left(9\%-6\%\right)×1.5=10.5\%.$$

For the earnings per share model:

$$C\_{e}=\frac{\$ 2}{\$ 20}=10\%.$$

As you can see, we got different results for all three models. In this case, the discrepancy is small, although in real practice the differences in estimates may be more significant.

1. *RISK PRIZE MODEL*

This model occupies a special place as it is of a contractual nature. If we denote by $C\_{p}$ the level of return on invested capital, then the cost of capital is estimated according to the following formula:

$$C\_{e}=C\_{p}+RP ,$$

Where $RP$ – the risk premium.

***MODEL OF THE COST OF RETURNED CAPITAL***

The required return on newly raised equity capital is usually higher than the required return on existing equity. When an entity issues additional shares, it usually receives a price less than the market price of existing shares. This is due to the additional costs of issuing additional shares and, in addition, to the desire to ensure a quick sale of new shares.

When calculating the cost of newly raised capital, it is customary to use the following formula within the dividend growth model:

$$C\_{e}=\frac{D\_{1}}{P(1-F)}+g ,$$

Where $F$ is the so-called value of the issue, which reflects the natural decline in the market value of newly issued shares.

***EXAMPLE***

The company expects a $ 1.24 per share dividend next year, with an 8% expected annual dividend growth. The company's shares are currently trading at $ 23 per share. According to the formula, the cost of the company's equity capital is:

$$C\_{e}=\frac{1,24}{23}+0.08=13,4\%.$$

The company plans to issue new shares next year, spending 10% of the share price on the issue. According to the formula, with $F$ = 10%, we get the following value of newly issued shares:

$$C\_{e}=\frac{1,24}{23×(1-0,1)}+0,08=14\%.$$

*MODEL FOR DETERMINING THE VALUE OF PREFERRED SHARES*

On preferred shares, a fixed dividend is usually paid and nothing is paid in excess of this dividend, regardless of the amount of profit received. Therefore, the required income on preferred shares is calculated using the following formula:

$$C\_{P}=\frac{D}{P} ,$$

Where $D$ – the size of the annual dividend per share;

 $P$ – the market price of one share.

***EXAMPLE***

The company's preferred shares pay an annual dividend of $ 8, the current market price of one share is $ 100 per share. Calculate the value of preferred shares.

$$C\_{P}=\frac{D}{P}=\frac{\$ 8}{\$ 100}=0,08 or 8\%.$$

If the market price of preferred shares decreases to $ 80 per share, the value of preferred shares increases to:

$$C\_{P}=\frac{\$ 8}{\$ 80}=0,1 or 10\%.$$

***CAPITALIZATION AT THE RATE OF BORROWED CAPITAL RETURN***

It is known that enterprises often attract borrowed funds for their activities. In general, borrowed funds consist of a bank loan, loans to legal entities against debt obligations, placement of bonds and leasing (a financial transaction for the use of property through lease). In a market economy, the use of leasing is 25-30% of the total amount of borrowed funds.

***MODELS FOR DETERMINING THE COST OF BORROWED CAPITAL***

In the case of attracting a long-term loan from a national bank, commercial banks, other enterprises to support the process of their activities, the cost of borrowed capital is equal to the interest rate of the loan and is determined by a contractual agreement between the lenders and the borrower in each case separately.

If the company has issued bonds with a given maturity and nominal interest rate, the cost of debt capital is determined by the amount paid by the nominal interest rate of the bond, expressed as a percentage of its par value. The par value is the price that the entity pays to the bondholder by the issuer on the date of maturity. The term after which the bond will be redeemed is necessarily indicated when issuing them.

At the time of issue, bonds are usually sold at their par value. Therefore, in this case, the cost of borrowed capital $C\_{d}$ is determined by the nominal interest rate of bond $i\_{H}$:

$$C\_{d}=i\_{H}.$$

Unlike income paid to shareholders, interest paid on borrowed capital may in some cases be included in production costs and not be taxed. In this case, the cost of the borrowed capital after taxes becomes lower than the final yield (value before taxes).

***EXAMPLE***

The final return on the borrowed capital is 10%. A newly issued bond with a par value of $ 1,000 will return 10% annually, which is $ 100. If the income tax rate is 40%, then the cost to $ 100 for interest payments after taxes will be: 100 - 40 = 60. Therefore, the cost of debt after taxes will be 60/1000 = 6%.

The effective cost of debt capital is calculated using the following formula:

$$C\_{D}^{E}=C\_{D}\left(1-T\right) ,$$

Where T – the income tax rate.

For an example condition:

$$C\_{D}^{E}=C\_{D}\left(1-T\right)=10\%∙\left(1-0.4\right)=6\%.$$

However, if the capital of the enterprise consists not only of its own funds, but also of borrowed capital, then in this case the calculation algorithm consists of three stages.

1. Calculation of the weighted average rate of return on all capital (return on capital).
2. Calculation of the company's income for a certain period of existence (calculation horizon 1, 3, 5 years).
3. Assessment of the enterprise value as the difference between the amount of income for a number of years and the amount of borrowed funds.

***WEIGHTED AVERAGE COST OF CAPITAL***

Weighted average cost of capital:

$$WACC=W\_{d}C\_{d}\left(1-T\right)+W\_{p}C\_{p}+W\_{e}C\_{e} ,$$

Where $W\_{d}, W\_{p}, W\_{e}$ – respectively, the shares of borrowed funds, preferred shares and equity (ordinary shares and retained earnings);

 $C\_{d}, C\_{p}, C\_{e}$ – the cost of the corresponding parts of the capital;

 T – the income tax rate.

***EXAMPLE***

The market value of the company's common shares is $ 450,000, the preferred shares are $ 120,000, and the total borrowed capital is $ 200,000. The cost of equity capital is 14%, preferred shares - 10%, and corporate bonds - 9%. It is necessary to determine the weighted average cost of capital of the company at the income tax rate T = 30%.

Let us first calculate the shares of each component of the capital.

$$W\_{d}=\frac{\$ 200000}{\$ 770000}=25,97\% ;$$

$$W\_{p}=\frac{\$ 120000}{\$ 770000}=15,58\% ;$$

$$W\_{e}=\frac{\$ 450000}{\$ 770000}=58,45\% .$$

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Type* | *Cost* |  | *Share* |  | *Weighted cost* |
| Borrowed capital | 9% $∙$(1-0,3) | × | 0.2597 | = | 1,636 |
| Preference shares | 10% | × | 0.1558 | = | 1,558 |
| Ordinary shares | 14% | × | 0.5845 | = | 8,183 |
| Weighted average cost of capital is 11,377% |

In the domestic literature, the calculation of the weighted average rate of return on all capital is calculated using the following formula:

$$K=K\_{c}\left(1-T\right)\frac{M}{M+E}+K\_{e}\frac{E}{M+E} ,$$

Where $K$ – capital;

 $K\_{c}$ – interest paid on loans;

 $T$ – income tax rate;

 $M$ – total amount of borrowed capital;

 $E$ – total equity capital;

 $K\_{e}$ – rate of return on equity.

Income naturally falls into two parts: the investor's income Yе - residual income and the creditor's income DS.

The return on equity Re can be calculated using the following formula:

$$Re=\frac{Ye}{E} ,$$

Return of the lender, loan capital Rm:

$$Rm=\frac{DS}{M}.$$

When forecasting future cash flows, the degree of risk associated with the receipt of these incomes is also taken into account. This reflects the capitalization ratio and the discount rate.

The capitalization ratio takes into account the capital structure:

$$Ro=RmM+ReE ,$$

Where $M$ – share of borrowed capital;

$E$ – share of equity capital.

Since the absolute size of equity and borrowed capital for the future can be difficult to determine, the formula can be simplified:

$$K=K\_{c}\left(1-T\right)\frac{1}{1+K\_{D}}+K\_{e}\frac{K\_{D}}{1+K\_{D}} ,$$

Where $K\_{D}$ – ratio of equity to debt ($K\_{D}=E/M$).

The $K\_{e}$ coefficient can be calculated using the following formula:

$$K\_{e}=p+β×\left(p\_{0}-p\right) ,$$

Where $p$ – return on risk-free capital investment (usually corresponds to the return on government securities);

$β$ – systematic risk assessment for the given enterprise;

$p\_{0}$ – average return on the stock market.

The income of the enterprise for 5-10 years is calculated on the basis of forecasts of their receipt for these years according to the formula:

$$P\_{D}=\frac{P}{1+K}n ,$$

Where $P\_{D}$ – discounted income for a specific year;

 $P$ – income for a specific year;

 $n$ – number of years from the start of the countdown (the year in which this income was produced).

Enterprise value can be represented by the following expression:

$$C\_{P}=P\_{D1}+P\_{D2}+…+P\_{Dn}+C\_{a}×M ,$$

Where $C\_{P}$ – assessment of the enterprise value;

 $P\_{D1}$ – discounted income in years 1, 2 ..., n;

 $C\_{a}$ – the value of the assets of the enterprise (liquidation or restoration less depreciation);

$M$ – borrowed funds used by the enterprise. Hence $C\_{a}×M$ – the net asset value of the enterprise.

***ESTIMATION OF THE VALUE OF THE ENTERPRISE BY THE PRICE / INCOME METHOD***

The value of the enterprise is determined by multiplying the income that the enterprise has on the balance sheet by the ratio of the market price of its share to the dividend per share. The enterprise value in this case is equal to the capitalized value of all its shares:

$$C\_{n}=P\frac{Pr}{D} ,$$

Where $C\_{n}$ – the value of the enterprise;

 $P$ – income in a given year;

 $Pr$ – market price of the share;

 $D$ – dividend per share for the given year.

This method can be applied to those enterprises (joint-stock companies) that have a stable exchange quotation of their shares on stock exchanges and on an over-the-counter market.

***ADDED INCOME METHOD***

It comes from comparing the average return on capital in the industry and the return on capital invested in a given enterprise.

The value of an enterprise can be defined as the sum of the average annual capital in a given year and the excess of the company's annual income over the industry average, capitalized over several years (for example, for 5 years), taking into account discounted income:

$$C\_{n}=C\_{a}+\frac{I\_{1}(K\_{b}K)}{1+K}+\frac{I\_{2}(K\_{b}K)}{(1+K)^{2}} ,$$

Where $C\_{n}$ – value of the enterprise;

 $C\_{a}$ – the value of the assets of the enterprise (capital of the enterprise);

 $I\_{1, 2, …}$ – income in the 1st, 2nd, ... years;

 $K\_{b}$ – return on capital of the given enterprise;

 $K$ – weighted average yield (industry average).

In a sense, the income-added method is a development of the discounted cash flow method. However, in the proposed form, the income-added method could be used to estimate the value of the majority of functioning enterprises, since the necessary information is available for its use. Of course, the main condition for applying this method is the stabilization of the economy, the growth of production, and the profitability of capital investment in production. Under these conditions, it is easy to determine two coefficients: the average industry profitability and the profitability of a given enterprise.

The value of the company's assets is calculated in accordance with the accounting data.

questions for self-control

1. Explain the main goals, stages and methods of the income approach when analyzing the results of the valuation of the enterprise.
2. Estimate the future financial situation of an entrepreneur who intends to take out a loan of $ 100,000 for two years to develop a property and expects to sell it in these two years for $ 120,000. Take into account that, according to the available market information, the fee for using the capital is 10% per year and the loan will be taken with the condition of a one-time return of the amount and interest at the end of the contractual period.
3. Estimate the value of the property complex, for the acquisition of which funds borrowed in the amount of $ 300,000 were raised. The mortgage constant rate (capitalization on borrowed capital) is 17.5%. The property is expected to generate a net operating income (NPR) of $ 65,000. Analysis of comparable sales shows that investors expect a 19% capitalization rate on investments in similar properties.
4. To acquire the property complex of the enterprise, a loan in the amount of $ 300,000 was attracted. The mortgage constant (capitalization rate on borrowed capital) is 17.5%. The property is expected to generate a net operating income (NPR) of $ 65,000. Analysis of comparable sales shows that investors expect a 19% equity capitalization rate from investments in similar properties. Argument and estimate the cost of the object.
5. Form and estimate the capitalized cost of renting a production and technical center with an area of 20 thousand square meters. m with an annual rent of $ 300 / sq. m. The average annual percentage of occupancy of production and technical modules by tenants is 90%. The owner's tax payment for land use is 600 thousand dollars. in year. Expenses for maintenance, security of the center and everything else - $ 1.2 million. in year. The profitability indicator of such a rental business is 12%.
6. Determine and analyze the expected rental value of a 10-storey 10,000 sq. m with an annual rent for leased office space of $600. for 1 sq. m. Tax payments for land use - 1000 USD / sq. m per year (the building does not have a land plot, except for itself) and the total cost of maintaining the building, etc. - 2 million dollars. in year. Assume that the profitability of a similar business (i.e. the profitability of multi-tenant office buildings intended for rent) is 10%.

Test tasks

1. Types of rights to real estate subject to state registration -

a. land use right, taxation right, expropriation right

b. right of ownership, right of use, right of disposal

c. the right to sell, the right to buy, the right to donate

d. right of ownership, right of economic management, right of operational management

e. the right of operative intervention, the right of expropriation

2. In what cases can the justice authorities refuse to state registration of rights to real estate -

a. if you have a condominium

b. in the absence of an appraiser at the time of registration of the property

c. in the presence of 2 minor children

d. in the absence of a notary at the time of registration of the property

e. if there is an encumbrance

3. The principle that if there are similar objects on the market, a rational investor will not pay more than the amount that it would cost to acquire real estate of similar utility.

a. substitution

b. expectations

c. contribution

d. supply and demand

e. competition

4. How many groups of evaluation principles exist in world practice -

a. 9

b. 4

c. 3

d. 2

e. 6

5. Objects that are not rigidly connected to the ground, which can move, be interconnected with each other and form technological complexes, be functionally independent include -

a. own

b. property

c. things

d. movable property

e. real estate

6. The valuation approach based on the analysis of the purchase and sale prices currently prevailing in the primary and secondary markets is called -

a. synthetic

b. costly

c. comparative

d. combined

e. profitable

7. Type of leasing, in which the owner of the property (supplier) independently leases the object (bilateral transaction) -

a. direct leasing

b. indirect leasing

c. financial leasing

d. leaseback

e. operational leasing

8. Indicate the formula for the effective age method for determining the coefficient of physical wear and tear -

a. K= Kphys \* First

b. C=Tek/Tef+100%

c. K=Tef/Tn

d. K=First\*Kphys

e. K \u003d (0.208 - 0.003 \* B) \* Txr

9. Effective age is -

a. functional wear

b. age determined by the condition and usefulness of machinery and equipment

c. guarantee period

d. age of physical wear

e. the period of time the object is used

10. The totality of purely natural and natural-anthropogenic factors that have a direct impact on the efficiency and usefulness of the use of the property -

a. economic forces

b. social factors

c. physical factors

d. chemical factors

e. environmental factors

11. The main features of real estate include

a. perfectly inelastic demand for real estate

b. high cost of residential properties in the real estate market

c. short life cycle of any property

d. high liquidity and low profitability of real estate objects

e. low liquidity and uniqueness of any property

12. A transaction that does not comply with the law, does not have the qualities of a legal fact and which does not entail the desired legal consequences

a. imaginary

b. feigned

c. real

d. contestable

e. invalid

13. Transfer after the death of a citizen of his real estate to one or more persons - possibly by will and by law

a. exchange

b. purchase and sale

c. donation

d. rent

e. inheritance

14. Leases or an agreement for the transfer of property by the owner into the possession of another person on certain conditions is

a. exchange

b. donation

c. inheritance

d. rent

e. purchase and sale

15. Using the method of breakdown by components of the cost approach, determine the coefficient of total (accumulated) depreciation, if the coefficients of physical (kfiz = 0.45), functional (kfunk = 0.2) and economic (kvn = 0.25) depreciation are given

a. 65%

b. 90%

c. 53%

d. 75%

e. 58%

16. Types and forms of real estate lease

a. partial and full rental

b. partial and purpose lease

c. full and free rent

d. commercial and trade

e. free and target lease

17. An approach based on information about recent transactions with similar properties on the market and comparison of the property being valued with analogues

a. income approach

b. marginal income

c. gross income

d. cost approach

e. comparative approach

18. This method of the cost approach consists in a detailed consideration and accounting of all types of depreciation (Accumulated depreciation = physical depreciation + functional depreciation + economic depreciation)

a. indirect capitalization method

b. lifetime method

c. direct capitalization method

d. sales comparison method

e. component breakdown method

19. There are the following types of wear

a. physical

b. external

c. functional

d. economic

e. physical, functional, external economic

20. The power of a person to own, use and dispose of property by his power and in his own interests

a. situs

b. servitude

c. rent

d. right of operational management

e. ownership

**Chapter four**

**MARKET APPROACH**

**4.1 Property valuation using a comparative approach**

Different researchers approach this issue from their own positions.

Henry S. Harrison believes that there are 5 steps the evaluator should take when using the comparative approach:

1) Study the market and choose the environment for sales and listings (offers for sale), that is, those properties that are most comparable to the property being evaluated. As a rule, the most relevant and similar comparable sales are the best indicators of the value of the property being valued;

2) Collect and verify information on each selected object:

* Selling price and asking price;
* The date of the transaction;
* Physical characteristics;
* The location of the object;
* Any special terms of the transaction;

3) Analyze and compare each object with the evaluated one:

* By time of sale, by location;
* By physical characteristics;
* According to the terms of sale;

4) Adjust the sales prices or asking (listing) prices for each comparable property according to the differences between it and the property being evaluated.

The values ​​of price adjustments are determined on the basis of market analysis using the "comparable pairs" method, regression analysis and other methods;

5) Agree on the adjusted prices of comparable real estate objects and arrive at an indicator of the value of the property being evaluated.

The authors of the tutorial "Real estate assessment: theoretical and practical aspects" distinguish three stages of assessment in the implementation of the method of analysis of real estate sales.

*First stage*. Identifying recent sales of comparable properties in the relevant market.

*Second stage*. Checking information about transactions.

*Third stage*. Adjustments to the price taking into account the differences between the property being assessed and each of the comparable properties.

Finally, G.V. Popov, in his Real Estate Valuation Fundamentals tutorial, believes that applying a direct sales comparison involves the following steps:

* 1. Collection and systematization of all available information. This refers to the following information:

Purchase and sale prices for comparable properties;

Asking prices for the property put up for sale (upper limit of the market value);

Bid prices (lower market value);

* 1. Comparison of the characteristics of comparable and evaluated objects in order to identify the differences between them concerning:

Terms of the transaction;

Differences in time of sale;

Location;

Physical characteristics and accumulated wear and tear;

* 1. Making the necessary adjustments to the prices of comparable objects to compensate for each of the differences.

***A) Market research and data collection***, which H. Harrison considers as two separate sequential steps, are usually combined by Russian researchers into one stage (step).

Market research and collection of information (data) is essentially the identification of recent sales of comparable properties in the relevant market.

Generally, the more relevant a comparable sale is and the more similar it is to the property being valued, the better it serves as an indicator of the value of the property being valued.

The accuracy of cost estimates is highly dependent on the quality and quantity of information collected.

When there is enough information, it is necessary to make sure that the sold objects are really comparable with the property being valued in terms of their functions and parameters. So, when analyzing recent sales of real estate, it is necessary to make sure that the comparable property has the same plot of land under the property, the same financial terms of the transaction, etc. Typically, many more sales (and offers) are analyzed than the number of definitively selected peers used in the assessment.

Justifying the need to take into account not only actual, but also listings (offers for sale). Harrison points out that the price paid by a typical buyer is usually the result of a bidding process in which a variety of properties listed for sale have been examined and evaluated. Buyers often base their value judgments primarily on the items for sale. In turn, appraisers also use this information, including information on properties sold and leased.

Sources of information on recent sales of comparable items may include:

* own archive of the expert appraiser;
* data banks of real estate firms;
* data banks of notary offices and territorial committees of the State Property Committee, where the registration of purchase and sale transactions is carried out and the register of property owners is kept.

The appraiser's own database is the best source of information, updated on an ongoing basis. In Kazakhstani conditions, its own database is formed from all possible sources.

The collected data must be properly systematized and stored in an easy-to-use form in order to efficiently select comparable objects. Typically, in each specific assessment case, only a portion of the collected data is required.

***B. Verification of information about transactions***. Each sale used as comparable must be personally verified by an appraiser and the data must be verified by the seller, buyer or broker or appraiser who accompanied the transaction.

The appraiser must be confident in the specificity of the measurements, the accuracy of the prices and terms of sale reported, and the correct accounting for all types of wear and tear.

Data to be verified:

* the motivation for the transaction: whether the buyer and seller acted under financial pressure;
* was this transaction between the parties, independent of each other, or they are related in any way;
* whether the buyer and seller had comprehensive information about the property and the market in which the transaction took place;
* whether the seller had enough time to sell and the buyer to buy;
* were there any special concessions from any side;
* whether the financing was typical of the market or was there one of the unusual situations, such as a mortgage that passed from buyer to seller (to reduce the amount of cash involved in the transaction), secondary mortgage with a change of debtor, etc.
* were there any special conditions of sale (such as the inclusion in the sale of personal real estate: furniture, prefabricated pools, boats, cars, sports equipment).

These are some of the conditions that would make the reported sales prices differ from the market value. Therefore, it is imperative to ensure that prices are not distorted by any extraordinary circumstances corresponding to the transactions that took place.

The accuracy of information about the date of the transaction, physical and other characteristics of similar objects can be checked.

Under the current conditions, Kazakhstani appraisers have to pay special attention to the confirmation of the transaction price, since often in the "secondary" market, the sale and purchase agreement indicates a lower price, and the actual transaction price, which is usually much higher, is not indicated.

The decrease in the transaction price in the sale and purchase agreement is due to the high state duty and high tax rates on income from real estate transactions.

The double price problem is not a purely Kazakh problem. In some countries, it is solved by the introduction of legislation, according to which the municipal government has a priority right to purchase properties for sale. If the municipal government finds that the sale and purchase of a property is being carried out at a price below market value, the municipality decides to buy the property at that lower price.

Especially often it is necessary to thoroughly check the prices of sales and purchases by two parties closely related by mutual interests (for example, between relatives, parent and subsidiary firms, etc.).

It should also be borne in mind that prices paid by federal or local authorities, as a rule, are not accepted as analogues of the open market, since it is believed that such transactions may contain moments of coercion, which contradicts the concept of free expression of the will of the seller and the buyer in the act of purchase and sales.

***C. Comparison of the evaluated object with each of the similar objects*** and identification of differences.

The process of comparing an appraised property with other market objects always includes two components:

- comparison elements;

- comparison units.

**Comparison elements (Harrrison classification)**

*1. Terms of financing.*

If conventional financing is typical for this category of objects, then the sale is under unusual conditions (for example, 100% lending of the transaction, special contracts, etc.).

If the special conditions also specify a different selling price from what would have occurred under the normal financing conditions, then the following adjustment must be made.

For each transaction, the following financing conditions should be analyzed:

- the amount of interest payments;

- credit term;

- the size and value of the mortgaged property.

The manual, edited by Grigoriev, lists the following funding conditions:

- ratio of payment arrears;

- interest rate;

- loan term;

- depreciation (payments);

- agreements on participation;

*2. Terms of Sale.*

According to Harrison, the terms of sale are determined by the circumstances in which the seller and the buyer make their decisions regarding the sale and purchase of a particular property (other property).

By definition, market value refers to the value of a transaction involving a willing to buy, an informed and able to buy, and a willing to sell and an informed seller.

Quite often there are circumstances that force to buy or sell some property (bankruptcy).

In V.V. Grigoriev's textbook, the terms of sale include:

- ordinary or special mortgages;

- the motives and knowledge of the buyer and seller.

Some professional appraisers strongly believe that if the terms of sale differ from those applied to the property being valued, then a comparable sale cannot be used. Others believe that if reasonable adjustments can be made to the terms of sale, it is acceptable to use a comparable property to determine the value of the property being valued.

*3. Market conditions (time factor).*

When comparing the valuation date with the sale date of comparable parcels, it should be borne in mind that market conditions change from time to time. The task of the appraiser is to determine whether a comparable sale took place under the same or different market conditions. Sometimes they are considered stable over a year or even a longer period of time, at other times they can change in a 3-6 month period and even faster.

It should be noted that during the analysis of differences in market conditions from the date of valuation to the date of sale, spontaneous market activity occurs, that is, it occurs over short periods. Such activity can be cyclical or seasonal, or a combination of both.

Seasonal activity is usually associated with the seasons in which market activity dies down (usually summer vacation time) or vice versa increases (autumn).

The most characteristic changes are life cycles. These changes concern the real estate objects themselves, as well as districts (cities), industries, society, in general.

The following main life cycles are distinguished:

*a)* origin (design, construction of an object, formation of an industry, society, district, etc.);

*b)* growth (a period of growth in income from the functioning of a real estate object, rapid development of a district (city), industry, society, etc.);

*c)* stability, a period of equilibrium (stable incomes, formed tastes of consumers of real estate objects, formed infrastructure of the district, etc.);

*d)* decline (period of decrease in demand for real estate, decrease in profits, decline in production in the industry, district, city).

Taking into account the life cycles, the expert appraiser must analyze and predict legislative, demographic, international, scientific and technical, urban planning and social processes, as well as the reaction of the real estate market to them.

Noteworthy is the fact that there may be short periods of time during the annual market period when unusually high activity occurs, however, the average annual indicators do not indicate this.

For example, the average price increase over the last calendar year may be 6%, but upon closer examination, it turns out that all the growth occurs entirely in the last quarter of the year. The use of sales data for the first three quarters should be adjusted accordingly. Thus, the average monthly growth is not 0.5%, and the average quarterly growth is not 1,5%.

Prices are influenced by the interaction of supply and demand. If one or the other, or both, changes, prices react accordingly. Changes in prices occur either in the buyers 'or sellers' market. The evaluator should investigate, identify and account for these processes.

Time-of-sale adjustments are judgments based on a careful study of market conditions at the time of the valuation, which are then compared and re-matched to those at the time of sale of the comparable property.

If the comparable item was sold in a market similar to the prevailing market conditions at the time of valuation, there is no need to make an adjustment. However, if the appraiser recognizes that market conditions have changed greatly between the two dates, then an adjustment must be made.

*4) Location.*

If the comparable property is in the same area as the property being assessed, there is a chance that no position corrections will need to be made.

In the science of assessment, the meaning of the concept of "districts" is somewhat different from the generally accepted one. The main meaning of the word "district" is a unit of administrative division. Appraisers understand by "district" the territory within which the same factors influence the value of real estate.

*5) Physical characteristics.*

In the comparative evaluation process, only major physical properties and differences are identified and considered. The following physical characteristics are taken into account:

- physical parameters;

- quality of construction and operation;

- convenience;

- functional suitability.

For residential real estate, important characteristics are such as the number of rooms, the size of the kitchen, the presence of a balcony or loggia, the material from which the house was built (brick, panel, parquet flooring, etc.).

Personal inspection by an appraiser of each comparable property is desirable.

If there are a large number of physical differences between real estate objects, then the sale probably cannot be used as a comparable one. But if there are no differences or few of them, then comparison is possible and necessary.

6) The author of the textbook edited by V.V. Grigorieva recommends taking into account *the composition (or volume) of property rights* as part of the amendments to the value of the assessed object, citing the following considerations.

Firstly, if the buyer purchases real estate property together with a commercial company, then he will want to know the income and losses, benefits and obligations that he acquires simultaneously with the purchase of a business or a building. In this case, the appraiser must separately check the assets of the company using financial statements and other documents.

Secondly, if the object is acquired not for business but in property to obtain the right to existing rental income, the buyer must get an idea of ​​the financial condition of the company of the tenant of this object and its ability to pay rent. The tenant's ability to pay rent is called the security of the contract.

**4.2. AMENDMENTS AFFECTING THE COST OF THE OBJECT**

A relatively complete set of adjustments to the value of the appraised property includes:

1.Composition of property rights.

2. Terms of financing.

 2.1. Mortgage debt ratio.

 2.2. Interest rate.

 2.3. Loan term.

 2.4. Depreciation (payments).

 2.5. Participation agreements.

3. Terms of Sale.

 3.1. Ordinary or special mortgages.

 3.2. The motives and knowledge of the buyer and seller.

4. Time.

5. Location.

 5.1. Environmental attractiveness.

 5.2. Access to busy highways.

 5.3. Communications.

 5.4. Kudos.

6. Physical characteristics.

 6.1. Physical parameters.

 6.2. The quality of construction and operation.

 6.3. Facilities.

 6.4. Functional suitability.

 The appraiser cites data on three recent sales of properties that are most similar and closest to the property being appraised.

**The process of adjusting the sales prices of comparable items.**

Adjustments to the sales prices of comparable items can only be made after all comparison elements between comparable and evaluated items have been differentiated (either as a percentage or in monetary units):

- if any significant element of comparable real estate is superior in quality or more convenient than the property being valued, a minus adjustment is required, which will reduce the value of the property being valued;

- if any element of comparable real estate is inferior in quality or less convenient, a plus adjustment is made, which increases the value of the property being valued.

**EXAMPLE**

The assessed site is considered $ 500 better than comparable site A due to the topography of the area. If comparable plot A is sold for $ 6,000, the adjustment should be made as follows:

the comparable sale is inferior in performance to the property being assessed, so a $ 6,000 positive adjustment is made to the comparable sale price of $ 6,000, which gives an estimated value of the property plot of $ 6,500 (6,000 + 500).

It should be remembered that unfavorable elements of comparable properties lead to a plus adjustment in the comparison process.

It is also important to remember that adjustments are made to the selling price of the comparable parcel in order to justify differences between it and the property being valued.

In this way, the comparable site is made as similar to the evaluated site as possible.

There are five possible relationships between the pricing subject and comparable sales. We will show you three of them.

***OPTION 1***

Comparable and evaluated objects have the same characteristics (objects are identical). In this case, no amendments are made.

***OPTION 2***

The evaluated object is 10% better than the comparable one. Hence, the cost of a comparable property must increase by 10% to reflect this difference.

Mathematically, this is expressed as follows:

X = 1 + 10% \* 1 = 1 \* (1 + 0,1) = 1,1

where X is the value of the property being evaluated;

1 - the price of a comparable property. The value of the property being assessed is determined by multiplying the price of the comparable property by 1,1.

The percentage adjustment was + 0,1 or + 10%.

X = 1 - 10% \* 1 = 1 \* (1 – 0,1) = 0,9.

***OPTION 3***

The evaluated property is 10% worse than the comparable property, then the price of the comparable property decreases. The cost of the evaluated object, taking into account this difference, is found from the following expression:

1=(X-10%)\*X

1=X\*(1-0,1)

1=X-0,1X

1=0,9X

X=1,11

Comparable and evaluated objects have the same characteristics (objects are identical).

questions for self-control

1. Explain the concept of the comparative approach in assessing the value of the enterprise and formulate the main goals and methods, comparing the elements of the assessed object (Harrison's classification).
2. Compare the cost of an assessed object consisting of 4 rooms and 2 balconies using tabular data of similar objects.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Number of rooms |   | number of balconies |   |
| 1 | 4 | Bostandyk | 1 | 165000 |
| 2 | 3 | Almalinsky | 1 | 108000 |
| 3 | 3 | Bostandyk | 1 | 100000 |
| 4 | 3 | Almalinsky | 2 | 114000 |

1. Compare the capitalization rates of objects, according to the following information, and draw conclusions on the property valuation.

|  |  |
| --- | --- |
| Indicators | Comparable objects |
| 1 | 2 | 3 | 4 |
| Net income, conventional units | 905000 | 902000 | 908000 | 907000 |
| Selling price, conventional units | 374000 | 400000 | 230000 | 420000 |
| Capitalization rate |   |   |   |   |

1. The object under study was sold for $ 200,000. Net operating income is $ 25,000. Applying the conditions for estimating the capitalization rate, draw a conclusion.
2. For the purchase of the property complex, funds were raised on credit - $ 300,000. The mortgage constant rate (capitalization on borrowed capital) is 17.5%. The property is expected to generate a net operating income (NPR) of $ 65,000. Analysis of comparable sales shows that investors expect a 19% capitalization rate from investments in similar properties. Determine the capitalization rate of this object and draw a conclusion on the property valuation
3. The economic life of the object is 80 years. Its chronological age is 15 years. The effective age is determined by the evaluator based on an analysis of the condition, design and nature of the environment, and is equal to 20 years due to unsatisfactory operation and maintenance. Determine the level of wear on the object and analyze the results.

Test tasks

1. What is the characteristic of the primary object of movable property -

a. market for movable property sent for disposal

b. market for new movable property not in use yet

c. worn-out movable property market

d. used movable property market

e. market for movable property sent for conservation

2. Cost estimation approaches -

a. mortgage, annuity

b. costly, comparative sales analysis

c. restorative, net asset method

d. inflationary, retrospective, substitutions

e. costly, comparative, profitable

3. Which code of the Republic of Kazakhstan in 1991 declared the equality of all

public and private forms of ownership? -

a. civil Code

b. land code

c. Criminal Code

d. administrative code

e. tax code

4. The type of activity intended to meet their own needs on a land plot located in an agricultural area or natural zone is -

a. agricultural use land

b. common farm

c. personal use land

d. state use land

e. private household

5. The part of the surface that has a fixed boundary is -

a. country cottage area

b. household plot

c. land plot

d. garden

e. garden plot

6. Lease of land plots is carried out only on the basis of -

a. mortgages

b. loan

c. payment of taxes

d. rent

e. agreements

7. The document regulating relations in valuation activities, the rights and obligations of the subjects of valuation activities is -

a. law on taxes and other obligatory payments to the budget

b. evaluation rules

c. assessment agreements

d. assessment standards

e. law on valuation activities in the Republic of Kazakhstan

8. What is the main score of the irrigated soil bonitet, if the humus of the assessed soil is - 2% -

a. 200

b. 40

c. one hundred

d. 10

e. 80

9. Norms for the provision of land for summer cottage construction -

a. 0.08 ha

b. 0.05 ha

c. 0.17 ha

d. 0.15 ha

e. 0.12 ha

10. Basic principles of valuation activities -

a. cost and price

b. investment level

c. customer status

d. objectivity and reliability

e. investors and profit

11. Privatization shapes -

a. primary market

b. trade fairs

c. bazaars

d. secondary market

e. construction market

12. The cost approach involves -

a. valuation of the property complex based on cost calculation

b. discount method

c. wear assessment

d. information about recent transactions with similar properties

e. income capitalization method

13. Administrative management methods include -

a. orders, instructions

b. orders, directives, instructions

c. orders, rules

d. orders, rules

e. orders, directives, instructions, rules, regulations

14. In mortgage lending, the object of collateral is -

a. movable property

b. real estate

c. stocks and bonds

d. goods in circulation and processing

e. perennial plantations

15. What approach is used when evaluating a property allocated for a shopping center -

a. direct capitalization method

b. direct investment method

c. cost approach

d. comparative approach

e. income approach

16. Types of assessment in accordance with the legislation of the Republic of Kazakhstan -

a. international

b. forced

c. state

d. at the request of the customer

e. obligatory, proactive

17. Secondary market of movable property -

a. it is a market for movable property sent for recycling

b. it is a market for new movable property not yet in use

c. it is a market for worn-out movable property

d. this is a market for movable property sent for conservation

e. it is a market for used movable property

18. Restriction of rights to real estate is -

a. ownership

b. right of operational management

c. ownership

d. right to manage property

e. encumbrance

19. Identification is -

a. the process of calculating the arithmetic mean

b. the process of establishing the identity of a particular subject or person according to the totality of general and particular features by comparing them

c. bank customer recognition

d. identification of something or someone

e. asset owner recognition

20. Appraiser principles -

a. high pay

b. Minimum cost

c. objectivity and reliability

d. objectivity and accuracy

e. reliability and durability

**Chapter** **five**

**Cost approach**

**5.1 THE ESSENCE OF THE COST-BASED APPROACH TO VALUATION**

The approach to appraising the property of an enterprise from the point of view of costs is to determine its current value based on the calculation of the replacement cost of the assessed object (or replacement cost) and determine its physical, technical condition and functional conformity as of the valuation date.

The present value of an item is determined by the difference between the cost of new construction (replacement cost or replacement cost) and the depreciation loss. In this case, the current cost of the object should include not only the contractor's profit, which is included in the estimated cost of the object, but also the customer's (investor's) profit, called business profit.

The replacement cost, as stated earlier, is the cost of reproducing a replica of the property.

The replacement cost is the estimated cost of building a new facility, similar to the assessed facility, with an equivalent functional purpose, for which design solutions and materials can be used instead of obsolete ones used in the assessed facility.

In other words, replacement cost is the cost of erecting an object that is similar to the property being evaluated, but is not a copy of it.

Entrepreneurial profit is the profit of the developer (investor).

Depreciation - loss of the value of the property of an enterprise caused by physical destruction, functional obsolescence and various external factors (economic conditions, ecological state of the environment, etc.).

The main feature of the cost-based approach is an element-by-element assessment, that is, the estimated property complex is divided into component parts, an assessment of each part is made, and then the value of the entire property complex is obtained by summing up the values ​​of its parts.

***APPLICATION AREA***

The cost-based approach is the most appropriate:

* when evaluating public facilities;
* when calculating the value of property intended for special use (without generating income), these are schools, hospitals, post offices, cultural buildings, train stations, etc.;
* when revaluing fixed assets;
* for accounting of fixed assets;
* when assessing for tax and insurance purposes;
* with the judicial division of property;
* when selling property at an open auction.

***STAGES OF A COSTLY APPROACH AND THE SEQUENCE OF THEIR IMPLEMENTATION***

The cost estimation approach includes the following steps:

1. Analysis of the structure of the property complex of the enterprise.

2. Determination of the value of the land plot.

3. Determination of replacement cost (replacement cost).

4. Determination of wear.

5. Calculation of the replacement value of each component of the property complex of the enterprise minus depreciation.

6. Calculation of the total value of the property of the enterprise.

***STAGE 1***

*ANALYSIS OF THE STRUCTURE OF THE PROPERTY COMPLEX OF THE ENTERPRISE*

At the first stage, the appraiser analyzes the structure of the property complex of the enterprise and identifies its constituent parts (components), the value of which is estimated by various methods.

For example, if a complex is assessed that includes only real estate, then the following components are distinguished: land, buildings, structures, communications.

If the machine tool (machine) park of an enterprise is assessed, then groups of machines and equipment are distinguished according to a number of characteristics (technological purpose, design features, uniqueness of manufacture, age, service life) and more.

Depending on the nature of the property being valued, different methods of the cost approach are used.

***STAGE 2***

*DETERMINATION OF THE COST OF A LAND PLOT*

At the second stage, the appraiser is faced with the task of determining the value of the land plot and works on its improvement. If the land plot is leased, then its value is not estimated. Costing work begins with choosing a valuation method. So, the following methods are used to determine the value of a land plot:

* direct sales comparison method;
* ratio method;
* method of Intended Use;
* residual land value method.

Direct sales comparison is a reliable and most commonly used method for valuing land plots. In the process of its application, the prices of recent sales of plots with similar characteristics are used as background information.

The procedure for applying the method includes the following:

1. Collection of background information. The main sources are:

* State registration records;
* Appraiser's own data bank;
* Periodicals and specialized publications on real estate markets.

When choosing comparable deals, you should be aware that objects differ in:

location;

object characteristics;

date of sale;

terms of sale.

2. Making adjustments to transaction prices. Corrections can be made in percentage or absolute terms. The following amendment procedure is considered to be generally accepted:

* difference in time;
* location;
* characteristics of real estate.

However, this method can only be used in an active market. If a direct comparison of sales is impossible, since the transactions made are single, then the ratio method is used to assess the land plot. This method includes:

* assessment of the total value of the property of the enterprise using the income approach;
* an assessment of the value of a land plot, based on the relationship between land and improvements in the value of real estate.

The intended use method can be applied to the valuation of any land plot that has a development perspective. This method is most often used in relation to undeveloped areas of land or used for other purposes.

An example is a land plot with dilapidated buildings, functionally used for other purposes. Despite the current use of the land, there is reason to believe that after a while they can be demolished and new buildings and structures built; technical, more advanced, corresponding to the functional purpose, generating income for the owner. The closer the moment of new construction, the more justified the application of the method of intended use to the valuation of a land plot.

When evaluating a land plot using this method, an appraiser uses an income approach. To implement this method, the evaluator needs to:

* determine the most likely development plan;
* make a forecast of prices and terms of implementation;
* make estimates of construction costs;
* to assess the land plot using the method of discounted cash flows.

Estimating the value of a plot of land using the residual method.

The value of a young piece of land is determined by the amount of income that it is able to generate with the best use. According to economic theory, land income is considered residual in nature: first of all, labor is paid, then capital raising (interest on loans), management (entrepreneurial income), and only the remaining funds represent income attributable to land. When the income from a land plot is known, its value can be determined by the direct capitalization method.

***STAGE 3***

***DETERMINATION OF RESTORATION COST (COST OF REPLACEMENT)***

Three methods are used to determine the replacement cost (replacement cost) of the assessed object:

* Method of unit costs per unit of area or volume;
* Element calculation method;
* Estimated calculation method.

*The method of unit costs per unit of area or volume* consists in the fact that on the basis of data on the costs of construction of similar objects, standards for the costs of construction work are developed (per 1 square meter of area or 1 cubic meter of building volume). The unit cost rate is multiplied by the total area or by the total volume, and the cost of the estimated building (structure) is obtained.

The essence of the *element-by-element method* is that buildings are divided into separate elements: foundation, basement, walls, frame, ceilings, roof, etc. Cost data for each item is collected by the evaluator. Then, by summing the itemized costs, the total cost of the building is calculated.

*The cost estimate method* involves drawing up a design estimate for the construction of a building with an indication of the list of construction and installation works and the costs for each type of work for wages, materials, electricity, tools, special equipment, etc.

***STAGE 4***

***DEFINITION OF WEAR***

*Cumulative depreciation* is a loss in the value of an enterprise's property caused by physical destruction, functional and external obsolescence.

In accordance with this definition, the following types of wear should be distinguished: physical, functional and external.

*Physical deterioration* - a decrease in the value of property, due to the loss of its elements of their original properties.

*Functional wear* is a decrease in the value of property due to the loss of its ability to be used for its intended purpose.

*External wear* is caused by changes in external factors in relation to the assessed object: changes in environmental conditions, changes in market situations, changes in financial and legal conditions, etc.

*By nature*, the degree of physical and functional wear is subdivided into *removable* and *irremovable*.

A measure of removable wear is the cost of restoring a worn-out item of property. Comparison of the costs of repair and restoration with the contribution to the total value of the property value allows the appraiser to determine whether we will eliminate wear or not.

Thus, depreciation is considered removable if the cost of its elimination is less than the added value of the property due to its elimination.

Depreciation is considered fatal if the cost of its elimination exceeds the added value of the property through elimination.

***WEAR DETERMINATION METHODS***

There are three methods for determining the degree of wear.

*Lifetime method*. Determination of the degree of depreciation is carried out by calculating the typical economic life of the object and its effective age.

*Market method*. This method allows depreciation to be calculated directly from market data analysis.

*Partitioning method*. When using this method, three types of wear are determined: physical, functional and external.

***LIFE METHOD***

When assessing the degree of wear, the following terms are used.

The “economic life” is the length of time during which an object can be used for a profit. An object reaches the end of its economic life when its contribution to the value of the property complex of the enterprise is equal to zero.

The term "physical life" is the period of time during which an object actually exists.

"Effective age" is based on an assessment of the appearance of an object, taking into account its condition, design and economic factors that affect its value.

The “remaining economic life” of an item is the period from the date of valuation to the end of its economic life. The task of the appraiser is to be able to calculate the remaining economic life of the object. In the analysis, the appraiser should not proceed from the assumption that the physical aging of an object is proportional to its physical and functional wear. Carrying out proper repairs, upgrades or refurbishments will extend the life of the facility.

Changes in economic, political conditions affect the remaining economic life of the object.

This method of determining wear is mainly based on expert and standard methods of calculating wear. The appraiser examines the object and his conclusions are based on the fact that the effective age, expressed as a percentage, reflects the typical economic life of the object, just as the percentage of accumulated depreciation reflects the total cost of reproduction at the date of valuation. Thus, wear can be determined by the following relationship:

$$\frac{W}{RC}=\frac{EA}{SL} ,$$

where

W - wear and tear;

EA - effective age;

RC - replacement cost of the object;

SL - typical economic life (service life).

***EXAMPLE OF CALCULATION***

The object has a service life of 50 years, its chronological age ChA = 20 years. Taking the replacement cost of the object as 100%, we have:

$$\frac{x(W)}{100(RC)}=\frac{20 years(ChA)}{50 years(SL)}, x=40\% wear,$$

where

x is an unknown quantity;

ChA - chronological age.

Sometimes "Effective age" is equated to the typical economic life, then the calculation is carried out as follows:

$$\frac{EA}{SL}=\% depreciation of replacement cost.$$

$$\frac{20 years(EA)}{60 years(SL)}=0.333 or wear=33.3\%.$$

To calculate depreciation, in some cases it is very important to take into account the remaining economic life of an object, then depreciation is calculated as follows:

$$\frac{W}{W+RL} or \frac{EA}{EA+RL} ,$$

where RL is the remaining economic life.

***EXAMPLE OF CALCULATION***

Typical economic life of an object is 80 years. Its chronological age is 15 years. The effective age was determined by an appraiser based on an analysis of the condition, design, nature of the environment and is equal to 20 years (due to poor operation and lack of proper repair).

$$\frac{20 years(EA)}{80 years(SL)}=0.25 or wear=25\%.$$

This method is easy to understand and use and is based (as noted earlier) on visual inspection and judgment by the evaluator. However, its accuracy depends to a large extent on the knowledge and experience of the evaluator.

***PARTITION METHOD***

The method of splitting provides for calculations for all types of wear: physical, functional and external, followed by summation.

Physical deterioration reflects changes in the physical properties of an object after the expiration of its operation time, or under the influence of natural and natural factors. Wear and tear is calculated using expert and cost methods. So to determine the physical wear and tear of the Wph building is divided into elements and the wear is calculated using the formula:

$$W\_{ph}=\frac{spec. weight of structural element ×\% wear}{100\%} ,$$

Physical wear **Wph** of the entire building is determined as a weighted average over all elements of the building. Taking into account the age of the object and its condition, physical wear is expressed as a percentage of its replacement cost. With the cost method, the physical wear and tear of an object is determined taking into account the cost of reproducing each element of the object.

Functional wear characterizes the loss of competitiveness of an object due to the appearance on the market of new, more advanced analogues. Functional wear is a consequence of the impact on the value of the object of the achievements of the scientific and technical process in the field of technology, technology and materials. Functional wear and tear should be considered by the appraiser as a consequence of the use of the object for its main functional purpose in comparison with a new analogue. The main method for determining functional wear is the method of comparing the evaluated object with a more perfect analogue. The amount of functional depreciation is calculated as the amount of losses from rent when the object is leased, multiplied by the multiplier of the gross monthly rent, typical for a given, but more advanced type of property. Functional depreciation is determined by capitalizing rental losses.

*External wear* is a decrease in the value of an object due to changes in its external environment caused by political, economic or other factors. The reasons for external wear are: general decline of the country (region) in which the object is located; price changes; insurance conditions, taxation, etc. If physical and functional wear can be eliminated by modernization, reconstruction of major repairs, then external wear is in most cases irreparable.

To assess external depreciation, two methods are used: capitalization of income losses related to external influences and comparison of sales of similar objects. When using the method of capitalization of income losses, the appraiser determines the amount of losses for the enterprise as a whole, and then the share of losses attributable to the evaluated object is allocated. The share of losses is then capitalized based on the prevailing capitalization rate for the property being assessed. The sales comparison method can only be used if there are enough sales.

***SALES COMPARISON METHOD***

Using a sales comparison method, the evaluator must determine the market response to different types and degrees of wear and tear. The selling price of each compared object is calculated from its original replacement cost. As a result, the costs of accumulated depreciation for each of the compared objects are obtained, on the basis of which the accumulated depreciation of the evaluated object is determined. The sales comparison method “does not consider” the causes of depreciation.

**Example of calculation by the "sales comparison" method**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **А** | **В** | **С** | **mid value** |
| Sale price | 300000 | 320000 | 380000 | 33333 |
| Land value | 80000 | 70000 | 60000 | 70000 |
| Improvement value | 220000 | 250000 | 320000 | 263333 |
| Reproduction value | 310000 | 330000 | 390000 | 343333 |
| Total wear | 90000 | 800000 | 70000 | 80000 |
| Total wear % | 29,03 | 24,2 | 17,9 | 23,5 |

***STEP 5***

**CALCULATION OF THE RESTORATION COST OF EACH COMPONENT OF THE PROPERTY COMPLEX OF THE ENTERPRISE FOR A MINUS OF WEAR**

For each component of the property complex, its replacement cost is calculated minus accumulated depreciation.

***STEP 6***

**CALCULATION OF THE TOTAL VALUE OF THE PROPERTY OF THE ENTERPRISE**

The calculation of the total value of the property complex of the enterprise on the date of valuation is carried out by adding the replacement values ​​(less accumulated depreciation) of all components and the value of the land plot.

**5.2 The process of assessing the value of an enterprise**

The process of assessing the value of an enterprise is complex - it is a complex labor-intensive process, consisting of several stages and stages. The entire enterprise assessment process can be divided into eight main stages:

1. Definition of the problem.

2. Preliminary examination of the enterprise and the conclusion of a contract for the assessment.

3. Collection and analysis of data.

4. Valuation of the land plot.

5. Application of three approaches to assessing the value of an enterprise.

6. Harmonization of the results obtained using different approaches.

7. Preparation of the report and conclusion on the assessment.

8. Evaluation report.

**PROBLEM DEFINITION**

This assessment stage is subdivided into the following stages:

1. Enterprise identification.

2. Identification of the subject of assessment.

3. Determination of the assessment date.

4. Formulation of goals, evaluation functions, determination of the type of value.

5. Familiarization of the Customer with the restrictive conditions.

**IDENTIFICATION OF THE COMPANY**

When identifying an enterprise, its full and abbreviated name, organizational and legal form, place of its registration, location, industry, main types of products, etc. are indicated.

The Civil Code of the Kazakhstan provides for the following organizational and legal forms of enterprises: commercial organizations - a general business partnership, limited partnership, an open joint-stock company, a closed joint-stock company, a business limited liability company, a business company with additional liability, a production cooperative, state or municipal unitary enterprise; non-profit organizations consumer cooperatives (unions, societies), public and religious organizations (associations), associations of legal entities, (associations, unions) and institutions. If the assessed entity is a subsidiary or an associate, it is necessary to identify the main or dominant entity.

**IDENTIFICATION OF THE SUBJECT OF ASSESSMENT**

The most important stage of an enterprise assessment is to identify the subject of assessment, that is, to identify what is subject to assessment: the whole complex of property rights to the enterprise, rights to tangible assets of the enterprise, rights to the share capital of a joint-stock company, the share of the plot in the authorized capital of the enterprise, rights to a stake in the enterprise, or any other interest. Thus, the subject of assessment is a type of property rights.

 When selling an enterprise, from the point of view of taxation, the fact is how this transaction is considered: as a transfer of assets or as a transfer of equity participation (block of shares) in the enterprise.

If equity participation in an enterprise is subject to assessment, then the estimated percentage, the structure of the remaining shares of the authorized capital, is indicated in the assessment task. When evaluating a package of shares, the task indicates which shares are being evaluated - ordinary or preferred; the number of shares in circulation and the number of shares repurchased by the enterprise itself are noted.

The description of the estimated equity interest must include any restrictions on the relevant shares (for example, restrictions on their transfer). These restrictions tend to reduce costs.

**FORMULATION OF THE PURPOSE AND FUNCTIONS OF THE ASSESSMENT**

Determining the purpose of the assessment is an important step on which the choice of assessment methodology depends. An incorrectly formulated goal entails the use of inadequate methods and, as a result, an erroneous result in assessing the value of the enterprise.

The choice of method may also depend on the evaluation functions. For example, the methods used to value an enterprise for tax purposes may differ materially from those used to liquidate it. And this is logical, since in the first case the object is assessed as an operating enterprise. Determining the value of an equity interest in an enterprise and determining the value of an investment involves forecasting future cash flows and discounting them.

The formulation of the purpose of the assessment makes it possible to establish what should be determined.

The purpose of the valuation determines the type of value that you want to determine. The purpose of the assessment may be to determine the market value of an enterprise, the market value of the founders' shares in the authorized capital of a joint-stock company, the liquidation value of a bankrupt enterprise, etc. When donating, inheriting and taxing the property of an enterprise, the reasonable market value of the enterprise is usually determined. The buyer of an enterprise is usually interested in the investment value of the enterprise. In the event of the liquidation of an enterprise - bankruptcy, the liquidation value is determined, in case of its reorganization - the market value of the enterprise.

**questions for self-control**

1. Formulate the steps for assessing the enterprise through a preliminary survey and familiarity with the administration
2. Explain how the background information and sources are determined when forming the composition of the assessors.
3. Formulate the functions and principles of appraisers when preparing and signing an assessment agreement
4. Evaluate the similarities and differences in collecting, organizing and analyzing general and specific data when generating an assessment report
5. The economic life of the object is 80 years. Its chronological age is 15 years. The effective age is determined by the evaluator based on an analysis of the condition, design and nature of the environment, and is equal to 30 years due to unsatisfactory operation and maintenance. Determine the level of wear on the object and analyze the results.
6. The value of the land included in the property complex is $ 100,000. The property generates a total return of $ 45,000. Analysis of comparable sales shows that investors expect a 14% land capitalization rate and a 17% modernization capitalization rate. Calculate and estimate the value of the property complex.
7. The property complex has 16 offices, each of which is rented out for $ 1800 a month. Indicate the breakeven load of the facility if the operating costs are $ 45,000, and the debt service is $ 80,000. Explain the results obtained and draw a conclusion.
8. The property complex includes 19 offices, each of which is rented for $ 600 per month. What will be the breakeven utilization of the facility if the operating costs are $ 34,000 and the debt service is $ 35,000? Compare the results and draw a conclusion.

**Test tasks**

1. Type of leasing, in which the owner of the property (supplier) independentlyleases the object (bilateral transaction) -

a. indirect leasing

b. leaseback

c. direct leasing

d. operational leasing

e. financial leasing

2. A document transmitted to the customer on the results of work on the assessment of the established form and corresponding to the requirements of the law -

a. balance sheet

b. charter

c. evaluation report

d. cost and income estimates

e. costing report

3. The price is -

a. monetary value of a commodity

b. asset value

c. monetary form of government

d. cost of disposal of tangible assets

e. collateral value

4. A set of certain conditions, including conditions restricting the use of property, clearly delineating the scope of the appraiser's actions when appraising an object -

a. special valuation conditions

b. augmenting evaluation conditions

c. interrelated valuation terms

d. environmental assessment conditions

e. evaluation constraint

5. The main approaches in the assessment are

a. costly, profitable

b. market, profitable

c. value

d. cost, market

e. profitable, costly, marketable

6. The period of time from the date of installation to the date of removal of the object from operation

a. grade

b. effective age

c. chronological age

d. remaining service life

e. life time

7. The comparative approach is based on the principles

a. supply and demand

b. supply and demand, substitution, contribution

c. expectations

d. contribution

e. substitution

8. Type of leasing, in which the transfer of property occurs through an intermediary

a. indirect leasing

b. financial leasing

c. direct leasing

d. operational leasing

e. leaseback

9. Encumbrance is -

a. expansion of real estate rights

b. right to manage property

c. lifetime tenure

d. restriction of rights to real estate

e. right of perpetual use

10. Valuation activity in the Republic of Kazakhstan is regulated by:

a. power law

b. the law on joint-stock companies

c. law on business entities

d. bankruptcy law

e. law on valuation activities in the Republic of Kazakhstan

11. When lease payments are made either in goods or by providing a counter service to the lessor, this

a. chargebacks

b. operational payments

c. compensation payments

d. mixed payments

e. cash payments

12. The market in which all subsequent transactions after privatization are made

a. over-the-counter market

b. primary market

c. organized market

d. secondary market

e. unorganized market

13. Types of assessment in accordance with the legislation of the Republic of Kazakhstan

a. obligatory, proactive

b. state

c. international

d. forced

e. at the request of the customer

14. Period of storage of copies of prepared reports

a. 8 years

b. 15 years

c. 5 years

d. 3 years

e. 10 years

15. Using the breakdown method, determine the coefficient of total (cumulative) depreciation, if the coefficients of physical (kfiz = 0.3), functional (kfunk = 0.2) and economic (kvn = 0.25) depreciation are given

a. 0.75

b. 0.58

c. 0.4

d. 0.53

e. 0.35

16. The total of all costs for the production of goods and services

a. manufacturer's profit

b. insurance value

c. cost price

d. market price

e. price

17. Main sources of information in a comparative approach

a. appraiser archives

b. insurance company data

c. real estate broker data

d. real estate appraisal textbooks and tutorials

e. media

18. The period of time that has elapsed from the day the facility was put into operation until the date of assessment is

a. full age

b. economic life

c. chronological age

d. the physical life of the building

e. effective age

19. The period of operation of the building, during which the state of the load-bearing structural elements of the building meet certain criteria is -

a. chronological age

b. effective age

c. economic life

d. full age

e. physical term

20. In world practice, it is customary to single out:

a. 9 groups of evaluation principles

b. 2 groups of evaluation principles

c. 3 groups of evaluation principles

d. 6 groups of evaluation principles

e. 4 groups of evaluation principles

**IMPORTANT CONCEPTS AND KEY ISSUES**

1. Income capitalization is a set of techniques and methods that allow you to evaluate the value of a property based on its potential income-generating ability.
2. The process of converting net operating income into property value can be accomplished by dividing net operating income by the capitalization rate.
3. Types of capitalization rates:
4. total - calculated as the ratio of net operating income to the total value of the object;
5. for equity - represents the ratio of cash flow (before tax) to equity invested in the acquired property;
6. for borrowed funds (mortgage constant) - expresses the ratio of annual loan payments to the amount of the loan itself.
7. Internal Rate of Return is the annual rate of return on investment that the investor will receive over the holding period as a result of (positive and negative) cash flows:
8. On own funds - when calculating this indicator, the own funds invested in the acquisition of the object are used, the income remaining after payments on the loan and the proceeds from the sale of the object upon closing the loan;
9. For borrowed funds - when calculating this indicator, the cash flows received by the bank are used: a loan issued, recurring income, the balance of the loan amount.
10. The reversal is the present value of the investment returned at the end of the investment period.
11. Investment value is the present value of recurring cash flows plus reversals.
12. The value of the property can be determined (using the discounted income method) as the sum of the present value of the periodic income stream and the present value of the reversion.
13. The discount rate (R) is the sum of the risk-free rate and the risk premium:

$$R=R\_{rf}+R\_{p}.$$

1. Methods for calculating the risk-free rate.
2. First way: $R=R\_{ar}+i ,$

Where $R\_{ar}$ – the average annual refinancing rate of the Central Bank of Kazakhstan;

$i$ – annual inflation rate.

1. Selection of the discount of the interbank long-term interest rate in hard foreign currency.

10. The essence of the cost approach is the determination of its current value based on the calculation of the replacement cost of the assessed object (or replacement cost) and the determination of its physical, technical condition and functional compliance on the date of assessment.

11. Methods for assessing replacement cost. These are: the method of unit costs per unit area (volume); method of element-by-element calculation; method of estimate calculation.

12. Methods for determining wear: expert, normative, cost.

Methods for determining the cumulative depreciation: method of "life"; sales comparison method; splitting method.

13. Removable physical wear - the cost of repair.

14. Physical depreciation is irreparable - calculated on the basis of the residual value of the elements of the property, the cost of fixing which exceeds the addition to the value of the property by fixing them.

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