INVESTMENT AND METHODS OF THEIR EVALUATION.

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Аннотация. Мазкур тезисда инвестиция дастурлари самарадорлигини баҳолаш усуллари билан яқиндан танишиб ўтилган. Бунда ҳар бир усулнинг ўзига хос хусусиятлари, инвестицион лойиҳа самарадорлигини баҳолашдаги афзалликлари ва камчиликлари ҳақида алоҳида тўхталиб ўтилган.

Калит сўзлар: инвестиция, инвестицион лойиҳа, рентабеллик, лойиҳа эксплуатацияси, NPV, IRR, PI

Аннотация. В данной тезис подробно ознакомлены методы оценки эффективности инвестиционных программ. Отдельно рассмотрены особенности каждого метода, преимущества и недостатки при оценке эффективности инвестиционного проекта и портфельных инвестиций.

Ключевые слова: инвестиции, инвестиционный проект, доходность, индекс рентабельности, NPV, IRR, PI

Abstract. In this thesis, the methods of evaluating the efficiency of investment programs are closely familiarized. The specific features of each method, advantages and disadvantages in evaluating the efficiency of the investment project, and portfolio investments are discussed separately.

Keywords: investment, investment project, profitability, project operation, NPV, IRR,PI

The effectiveness of investment projects is characterized by a system of indicators that form the ratio of costs and obtained results. These indicators allow us to judge the superiority of one option over another.

Classification of performance indicators of investment projects:

1. Depending on the appearance of the generalizing indicator:

- absolute, in which summarizing indicators are defined as the difference between the costs associated with the implementation of the project and the value assessment of the obtained result;

- relative, in which summarizing indicators are defined as the ratio of costs related to the implementation of the project and the cost estimates of the obtained result;

- temporary, the payback period of investment costs is evaluated.

2. According to the method of comparing costs and results obtained at different times:

- static, in which cash flows appearing at different moments of time are assumed to have the same value;

- dynamic, in which the cash flows related to the implementation of the project are brought to an equivalent basis by discounting them, and this provides the possibility of comparing cash flows at different times.

Dynamic evaluation methods

1. Net discounted income, net present value, Net Present Value, NPV [3].

For constant rate of discount and one-time initial investment

$$NPV = -I_0 + \sum_{t=1}^{T} C_t (1+i)^{-t}$$

where IO is the amount of initial investment,

Ct - cash flows from the implementation of the project at the moment of time,

t– calculation step (year, quarter, month),

i – discount rate,

T is the number of the last step of the calculation cycle.

If the project does not involve one-time investments, but the investment of financial resources in a certain sequence over several years:

$$NPV = -\sum_{t=1}^{T} I_t (1+i)^{-t} + \sum_{t=1}^{T} C_t (1+i)^{-t}$$

If NPV> 0, then the project is profitable;

If NPV< 0, the project is unprofitable;

If NPV = 0, the discount rate i = IRR, Internal Rate of Return, that is, the internal rate of profitability.

2. Profitability Index (Profitability Index, PI)

$$PI = \sum_{k} \frac{P_k}{(1+i)^k} : I_0 \qquad \text{or} \qquad PI = \frac{\sum_{t=1}^{T} C_t (1+i)^{-t}}{I_0}$$

The profitability index is calculated as the ratio of the net present value of the inflow to the net present value of the outflow (taking into account the initial investment).

It can be seen that if,

If PI >1, the project can be accepted;

If PI <1, the project should not be accepted;

If PI =1, the project is neither profitable nor harmful.

The difference between profitability index and net profit (NVP) is that it is a relative indicator. It shows the level of income per unit of cost, the efficiency of attraction, that is, the higher this indicator, the higher the return of each dollar invested in the project. The PI criterion is very convenient when choosing one of several projects with the same NVP indicators (more precisely, if two projects have the same NVP indicators and require different amounts of investment, it is possible to determine which

one can provide the highest efficiency), or It is very convenient to maximize the amount of total NVP in the recovery of the investment portfolio.

3. Internal rate of return – IRR. If the internal rate of return is greater than the bank's interest rate, the project will be profitable, on the contrary, if the internal rate of return is less than the bank's interest rate, the project will make a loss. That is, we can easily determine whether the project will be profitable or unprofitable in advance using the IRR and the bank interest rate (Discount rate).

Internal rate of return - IRR should always be greater than the bank interest rate (Discount rate). IRR is sometimes called audit discount because it efficient and is the level that allows separation into ineffective types.

For this, it is accepted as a standard in the company compared with the level of reimbursement of funds. Such standard rate of return on investments barer coefficient is also called HR (hurdle rate).

- if **IRR >DR (HR)** - the project is acceptable;
- if **IRR < DR (HR)** - the project is not acceptable;
- if **IRR = DR (HR)** - make any decision on the project can be done.

If IRR >NR, NPV is positive, investment and profitability is higher than one. If IRR < NR, NPV is negative, PI and will be less than one.

Thus, IRR by separating the projects that are not favorable acts as a receiving type.

In addition, this indicator is the risk of project risk is a level indicator. From the barer coefficient of IRR, the larger the reserve of strength of the project will be big. This is the way to estimate future cash flows there is little risk of damage caused by errors ensures that.

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