

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ
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УНИВЕРСИТЕТ ИМЕНИ АКАДЕМИКА С.П. КОРОЛЕВА»

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ФИНАНСОВЫЙ
МЕНЕДЖМЕНТ,
БЮДЖЕТИРОВАНИЕ
И ФИНАНСОВЫЙ АНАЛИЗ

T.S. KOROSTELEVA

FINANCIAL
MANAGEMENT,
BUDGETING
& FINANCIAL ANALYSIS

Рекомендовано редакционно-издательским советом федерального государственного автономного образовательного учреждения высшего образования «Самарский национальный исследовательский университет имени академика С.П. Королева» в качестве учебного пособия для студентов, обучающихся по основной образовательной программе высшего образования по направлению подготовки 38.04.02 Менеджмент

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В учебном пособии приведена структура и представлено краткое содержание лекционных занятий по курсу «Финансовый менеджмент, бюджетирование и финансовый анализ» («Инвестиционный анализ»). В пособии рассматриваются теоретические положения создания системы бюджетирования на предприятиях различного профиля, методологические и методические вопросы принятия финансовых и инвестиционных решений, определяющих содержание современного корпоративного финансового менеджмента, а также теоретические аспекты финансового анализа и прогнозирования. Пособие дополнено оценочными средствами для текущего и промежуточного контроля освоения дисциплины.

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INTRODUCTION

The materials of the training manual will allow the undergraduates to obtain necessary knowledge about the theory and practice of implementing one of the most important operational functions of the management system of a commercial organization - financial management.

The purpose of the training manual «*Financial management, budgeting & financial analysis*» is that students have the basic positions of financial management, budgeting and financial analysis, but also managed to effectively apply the knowledge gained in practice.

The objectives of the training manual «*Financial management, budgeting & financial analysis*» are:

- formation and deepening of knowledge in the field of the theory of budgeting activities of the organization; the study of quantitative and qualitative methods of analysis in making managerial decisions;

- formation and development of skills to develop draft budgets of the organization, as well as business plans for the creation and development of new organizations (activities, products); building economic, financial and organizational-management models.

- development of skills in the possession of financial planning and forecasting techniques; the ability to analyze financial statements and make informed investment, credit and financial decisions.

Structurally, the textbook consists of 4 sections, each of which includes several topics:

1. Intrafirm budgeting
2. The development of business plans for investment projects.
3. Financial analysis and predicting.
4. Assessment tools.

The course content corresponds to the Russian State educational standards for higher professional education and European programs for the study of financial management, budgeting and financial analysis. The manual is intended for students studying in the field of training 38.04.02 "Management", Master Program "High-Technology Business Management".

1. INTRAFIRM BUDGETING

1.1. BUDGETING PROCESS IN A COMMERCIAL ORGANIZATION

1.1.1. Purpose of intra-budgeting. General provisions and principles

There are at least three terms of budgeting:

1. **Strictly, budgeting** – is a financial planning at the enterprise, where forecast of three accounting reports is prepared: cash flow, profit and loss account, balance sheet.

2. **In an extended sense, budgeting** – is a technology of economic planning, where the company at regular intervals, compile not only a set of financial, but also operating budgets representing, in essence, a set of business enterprise plans.

3. **Finally, broadly, budgeting** – is a management technology of financial and economic activity of the enterprise. As part of these technologies planning, accounting, monitoring, analysis and control of all activities implemented by the company are performed.

The purpose of budgeting - improvement of efficiency (profitability) of the enterprise due to the detailed planning and targeted revenues and control expenses, obtained from certain activities at all levels of government (with the condition of the formation and maintenance of the financial stability of the enterprise at all stages of its development).

Advantages of budgeting include:

1. Budgeting forces management to plan for the future — to develop an overall direction for the organization, foresee problems, and develop future policies.

2. Budgeting helps convey significant information about the resource capabilities of an organization, making better decisions possible. Example: A cash budget points out potential shortfalls.

3. Budgeting helps set standards that can control the use of a company's resources and control and motivate employees.

4. Budgeting improves the communication of the plans of the organization to each employee. Budgets also encourage coordination because the various areas and activities of the organization must all work together to achieve the stated objectives.

As the **object of budgeting** can be released:

- One or another kind of business where in the same enterprise there are several activities;
- Territorially isolated, technically, or market segment of a structural unit of the enterprise;
- Structure of the enterprise, providing its effective functioning, cooperation and synchronization of technology and management processes.

Intra-firm budgeting includes:

1. Technology of budgeting.
2. Organization of budgeting.
3. Information and methodological support of budgeting.

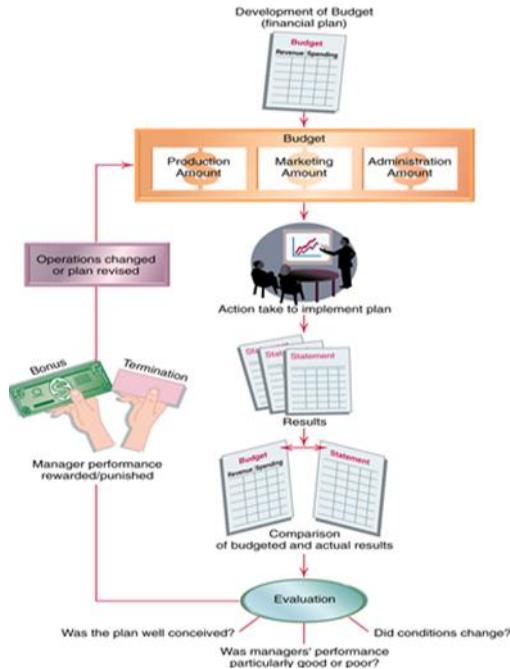
The principles of effective budgeting:

1. The principle of «sliding» - implies the continuity of budgeting.
2. The unity of standards. All budget form (tables) should be the same for all centers of responsibility.
3. The principle of detailed expenses. Analysis of realized consulting projects allows the owner to recommend the details of all costs, the share of which exceeds 1% of the total fraction of the cost, although it is necessary to take into account the size of the company.
4. The principle of "financial structure". Before implementing budgeting, company need to create a financial structure that can be built on another principles than organizational structure. Some units can be combined into a single financial center responsibility. On the other hand, in a single unit, you can select different responsibility centers (by product or business lines). Depending on the category of responsibility center (whether it is a profit center or cost center source) various criteria should be developed for evaluating the efficiency of these units.
5. 'Transparency' of information. To eliminate the possibility of information distortion and strengthen the control over budget execution, a specialist who analyzes the data of final budget forms must have an access to the budget for each accounting center and also to the operating budget under the registration centers themselves, down to the lower level.

Budgeting plays a crucial **role in planning and control**.

Budgets are the quantitative expressions of plans that identify an organization's objectives and the actions needed to achieve them. They form the basis for operations.

Control is the process of setting standards, receiving feedback on actual performance, and taking corrective action. Budgets can be used to compare actual outcomes with planned outcomes (pic.1).



Picture 1. The Role of Budgeting in Planning and Control

1.1.2. General budgeting technology

Budgeting process should be carried out in three directions:

I. Preparation of functional budgets, i.e. budgets of the enterprise units. Accordingly, the unit of the enterprise for which a separate budget and implemented monitoring of its execution can made, is a budget center.

II. Development of standards (norms) cost of production of certain types of the range of products, periodical monitoring of expenses and carrying out assortment analysis after changing planned selling prices.

III. Creating and maintaining the information base for budgeting.

Based on the budgets of the individual units by the rate of distribution of overhead costs between different types of products is determined. Based on the budgets of all departments the basic (consolidated) budget of the enterprise is being prepared.

The main stages of company's budget preparation are:

- establishing common enterprise development goals (is made at the senior management level);
- forecast and justification of planned sales volumes;
- definition of the limiting factors;
- specification of the general objectives and detection of specific tasks for each individual unit;
- preparation of operating budgets of departments;
- analysis of the budgets which is prepared by senior management and their adjustment;
- preparation of the main (consolidated) budget;
- coordination and analysis of the first version of the core budget, making adjustments;
- approval of the budget management of the enterprise;
- follow-up, analysis and adjustment of the budget in accordance with the changing conditions.

1.1.3. Building the Master Budget

The master budget is a comprehensive financial plan made up of various individual departmental and activity budgets for the year. A master budget can be divided into:

1. Operating budgets, which outline the income-generating activities of a firm (sales, production, and finished goods inventories).

The outcome of the operating budgets is a pro forma (budgeted) income statement.

2. Financial budgets, which outline the inflows and outflows of cash and the financial position.

The outcome of the financial budgets includes a cash budget and a pro forma (budgeted) balance sheet.

The master budget is usually prepared for a one-year period corresponding to the company's fiscal year.

The yearly master budget can be broken down into quarterly and monthly budgets to allow managers to compare actual data with budgeted data as the year unfolds and to make timely corrections.

1.1.4. Operating budgets

Operating budget – is a system of budgets reflecting the current (production) activities of the company and describing income or expenses on operations for the planning period for the segment or separate functions of the organization. The operating budget includes:

1. Sales Budget. The sales budget is the projection approved by the budget committee that describes expected sales for each product in units and dollars for the coming period. Sales budget is the first step in the budget process. It comes first because other budgets cannot be prepared without an estimate of sales.

Example: production estimates are based on forecast sales (1.1.1).

$$\text{Sales} = \text{Units} \times \text{Unit selling price.} \quad (1.1.1)$$

The sales budget may reveal seasonal fluctuations in sales.

Companies use a variety of methods to estimate sales:

1. Econometric models.
2. Previous sales trends.
3. Trade journals and magazines.
4. Sales force estimates.

2. Production budget. The production budget describes how many units must be produced to meet sales needs and satisfy ending inventory requirements.

The production budget must consider the company's inventory policy and, thus, the beginning inventory and desirable ending inventory levels (1.1.2).

$$\begin{aligned} \text{Finished units to be produced} &= \text{expected sales in units} + \\ &+ \text{desired ending inventory of finished units} - \\ &- \text{beginning inventory of finished units.} \end{aligned} \quad (1.1.2)$$

3. Direct materials purchase budget. The direct materials (DM) budget outlines the expected usage of materials for production, inventories, and purchases of the direct materials required.

The direct materials usage is determined by the input-output relationship of each product as follows (1.1.3-1.1.5):

$$\begin{aligned} \text{Expected DM usage} &= \text{DM units needed per unit of output} \times \\ &\times \text{Units of output;} \end{aligned} \quad (1.1.3)$$

$$\begin{aligned} \text{Budgeted DM purchases in units} &= \text{Desired ending DM units} + \\ &+ \text{Expected DM usage} - \text{Beginning DM units;} \end{aligned} \quad (1.1.4)$$

$$\begin{aligned} \text{DM purchase costs} &= \text{Budgeted DM purchases in units} \times \\ &\times \text{Unit price.} \end{aligned} \quad (1.1.5)$$

Note that a separate schedule is prepared for each kind of direct material.

4. Direct labor budget. The direct labor (DL) budget shows the total direct labor hours needed and the associated cost based on the input-output relationship of each product.

Direct labor budget calculated by multiplying (1.1.6):

$$\begin{aligned} \text{Direct labor budget} &= \text{Number of units to be produced} \times \text{Labor hours} \\ &\text{per unit} \times \text{Rate per hour.} \end{aligned} \quad (1.1.6)$$

5. Manufacturing overhead budget. The overhead budget shows the expected cost of all indirect manufacturing items.

The calculation is based on overhead costs broken down by items: depreciation, electricity, insurance costs, etc.

The estimated overhead is divided into variable and fixed components (1.1.7):

$$\begin{aligned} \text{Total overhead} &= (\text{Variable overhead rate} \times \text{Activity level per chosen} \\ &\text{cost driver}) + \text{Budgeted total fixed overhead.} \end{aligned} \quad (1.1.7)$$

6. Marketing expense budget. The marketing expense budget outlines planned expenditures for selling and distribution activities.

The estimated marketing expense is divided into variable and fixed components (1.1.8):

$$\begin{aligned} \text{Total marketing expense} &= (\text{Variable marketing rate} \times \text{Sales activity} \\ &\text{level}) + \text{Budgeted total fixed marketing expenses.} \end{aligned} \quad (1.1.8)$$

Marketing expense budget include: advertising, entertainment expenses, packaging, salaries of marketing department employees, etc.

7. Administrative expense budget. The administrative expense budget consists of estimated expenditures for the overall organization and operation of the company. Most of the administrative expenses are fixed costs with respect to sales.

The administrative expense budget include: management costs such as the salaries of management personnel, maintenance and repair of buildings and structures, taxes, etc.

8. Budgeted income statement. The budgeted income statement is based on all of the component budgets:

- sales figures come from the sales budget;
- cost of goods sold is based on unit cost of production (and the direct materials budget);
- labor cost information comes from the direct labor budget;
- overhead cost information is provided by the manufacturing overhead budget provides.

1.1.5. Preparing the Financial Budget

The Financial budgets are the second part of the Master budget. The financial budgets usually include the capital expenditures budget, cash budget, the budgeted statement of cash flows, and the budgeted balance sheet.

Note that the master budget and the associated financial budget are plans for one year.

The capital expenditures budget is a financial plan outlining the expected acquisition of long-term assets, typically over a number of years.

Capital expenditures budget include acquisitions of capital assets such as:

- property;
- plant;
- equipment.

Must be carefully planned because they consume substantial cash reserves.

The cash budget is a detailed plan that shows all expected sources and uses of cash. Much of the information needed to prepare the cash budget

comes from the operating budgets. The cash budget includes five main sections:

1. The total cash available section shows that (1.1.9):

$$\text{Total cash available} = \text{Beginning balance} + \text{Cash receipts.} \quad (1.1.9)$$

Cash receipts include primarily:

- cash sales;
- collection from sales on account (credit sales).

The collection pattern of credit sales can be determined by past experience using an accounts receivable aging schedule.

2. The total cash disbursements section includes all planned cash outlays for the period, including the purchase of materials, payment of wages, and payment of other expenses. The cash disbursements section does not include:

- interest payment on short-term loans (these appear in the financing section)
- noncash expenses such as depreciation

3. The cash excess or deficiency section compares the cash available with the cash needed. (1.1.10)

$$\text{Total cash needed} = \text{Total cash disbursements} + \text{Minimum cash balance.} \quad (1.1.10)$$

The minimum cash balance is the lowest amount of cash on hand that the firm finds acceptable.

4. The financing section of the cash budget consists of:

- borrowings;
- planned repayments, including interest.

5. The planned ending cash balance section reflects the inclusion of the minimum cash balance, which was subtracted to find the cash excess or deficiency.

The cash budget is important because it helps the business owner manage the net working capital of the company. Business owners normally prepare a cash budget every month, although some business owners choose to prepare the cash budget quarterly. Thus, the cash budget is a short-term financial instrument; it's less formal than a comprehensive statement of cash flows and, therefore, easier and faster to prepare. It describes how much cash any firm is taking in and how much cash it is taking out. The cash budget document, therefore, tells manager how much cash is available to the firm at the end of each month.

If the cash budget shows an increase in net working capital, manager may use that increase to reduce operating costs - by repaying borrowed money, for example. If the cash budget shows a decrease in net working capital, manager may need to find some way of increasing available cash - by drawing on a line of credit, taking out a bank loan or by factoring.

The Statement of Cash Flows is a more comprehensive statement prepared along with the Income Statement and Balance Sheet. Generally speaking, the Statement of Cash Flows is a more formal presentation of the credit and debit items presented in the cash budget. It looks at many of the same sources and uses of cash presented in the Cash Budget document over a longer period of time, normally at the end of the fiscal quarter and again a year's end.

A statement of cash flows is a financial statement which summarizes cash transactions of a business during a given accounting period and classifies them under three heads, namely, cash flows from operating, investing and financing activities. It shows how cash moved during the period by indicating whether a particular line item is a cash in-flow or a cash out-flow. The term cash as used in the statement of cash flows refers to both cash and cash equivalents. Cash flow statement provides relevant information in assessing a company's liquidity, quality of earnings and solvency.

A statement of cash flows comprises of three sections:

1. **Cash Flows from Operating Activities.** This section includes cash flows from the principal revenue generation activities such as sale and purchase of goods and services. Cash flows from operating activities can be computed using two methods. One is the Direct Method and the other Indirect Method.

2. **Cash Flows from Investing Activities.** Cash flows from investing activities are cash in-flows and out-flows related to activities that are intended to generate income and cash flows in future. This includes cash in-flows and out-flows from sale and purchase of long-term assets.

3. **Cash Flows from Financing Activities.** Cash flows from financing activities are the cash flows related to transactions with stockholders and creditors such as issuance of share capital, purchase of treasury stock, dividend payments etc.

The direct method to calculate cash flow from operating activities involves determination of various types of cash receipts and payments such as cash receipts from customers, cash paid to suppliers, cash paid for salaries,

etc. and then putting them together under the cash flow from operating section of cash flow statement. These figures are calculated using the beginning and ending balances of various accounts of the business and the net increase or decrease in the account. The exact formulas to calculate various cash inflows and outflows vary. The most important ones are given below (1.1.11):

$$\begin{aligned} \text{Cash Receipts from Customers} &= \\ + \text{ Net Sales} & \\ + \text{ Beginning Accounts Receivable} & \\ - \text{ Ending Accounts Receivable} & \\ \text{Interest Payments} &= \\ + \text{ Beginning Interest Payable} & \\ - \text{ Ending Interest Payable} & \\ + \text{ Interest Expense} & \qquad \qquad \qquad (1.1.11) \end{aligned}$$

Under the **indirect method** of presenting the statement of cash flows, the presentation of this statement begins with net income or loss, with subsequent additions to or deductions from that amount for non-cash revenue and expense items, resulting in net income provided by operating activities.

The distinguishing feature of the indirect method is that it takes into account the receipts from depreciation.

The indirect method is less favored by the standard-setting bodies, since it does not give a clear view of how cash flows through a business.

Differences between the Cash Budget and the Statement of Cash Flows. The first difference is that for public companies, the Statement of Cash Flows is part of the required financial statement that must be prepared and presented according to the standards of the FASB (the independent Financial Accounting Standards Board).

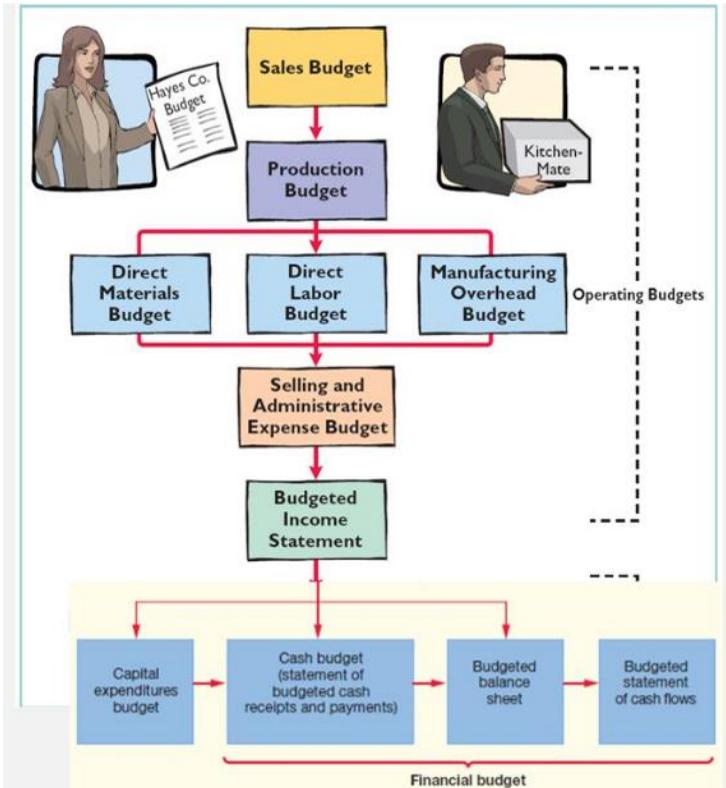
The second big difference between the short term Cash Budget and the longer term Statement of Cash Flows is that the latter includes depreciation. Although the depreciation expense does not change a company's net cash position, the real value of a company necessarily accounts for the decline in value of most business assets over time.

In order to adequately manage a company, manager must prepare both financial statements regularly and analyze them carefully.

1.2.2. General budget of the manufacturing enterprise

General budget of industrial enterprises also includes operational and financial budgets. As in trade organization, all private budgets are also interrelated.

The financial budget for the budget structure analogous trade organization, while operating budget is different. The first step in the planning - drawing up the sales budget. It is determined not by the production capacity of the enterprise, but with the help of sales opportunities in the market (pic.3).



Picture 3. Master budget for a manufacturer

Differences between Master budget for a manufacturing and non-manufacturing company:

- merchandising organizations typically purchase finished goods and sell them to retail or wholesale customers. Because merchandisers do not produce goods, they do not use production or production-related budgets;
- production and production-related budgets are not applicable to merchandising organizations. Direct materials are not needed, and all labor and overhead costs are included in the selling and administrative budget;
- the most important aspect of budgeting for merchandising organizations is the merchandise purchases budget. The merchandise purchases budget estimates the units of merchandise to be purchased and the cost per unit. Much like the production budget for a manufacturing company, the merchandise purchases budget estimates units to be purchased (instead of units to be produced) and is based on sales projections, as well as an estimate of desired ending merchandise inventory less beginning merchandise inventory.

1.2.3. Static and Flexible Budgets

Budgets as a standard for evaluation:

- budgets facilitate control by providing a standard for evaluation;
- the standard is the budgeted amount against which actual results are compared;
- differences between budgeted and actual amounts are called budget variances;
- material differences between actual and budgeted should be investigated.

Static Budget is a budget that remains constant, irrespective of the levels of activity, i.e. the budget is created for a standard volume of production.

Flexible Budget can be understood as the budget created for different production levels or capacity utilization, i.e. it changes in accordance with the activity level. While static budget operates in only one production level and under only one set of conditions, flexible budget comprises of several budgets and works in different conditions (pic.4).

BASIS FOR COMPARISON	FIXED BUDGET	FLEXIBLE BUDGET
Meaning	The budget designed to remain constant, regardless of the activity level reached is Fixed Budget.	The budget designed to change with the change in the activity levels is Flexible Budget.
Nature	Static	Dynamic
Activity Level	Only one	Multiple
Performance Evaluation	Comparison between actual and budgeted levels cannot be done accurately, if there is a distinction in their activity levels.	It provides a good base for making a comparison between the actual and budgeted levels.
Rigidity	Fixed Budget cannot be modified as per the actual volume.	Flexible budget can be easily modified in accordance with the activity level attained.
Estimates	Based on assumption	Realistic and Practical

Picture 4. Difference Between Fixed Budget and Flexible Budget

Investigating Budget Variances may have two causes:

- may be ill conceived;
- conditions have changed.

Variances should be investigated. Management by exception is an approach that is economical and often used. Only exceptional variances are investigated.

1.2.4. Management decisions based on budgeting

Implementation of the budgeting system will allow the company:

1. To plan of financial and economic activity with the expectation of achieving a certain financial result, ie. clearly define objectives and set measurable targets activity.

2. To direct the activities of all departments on achievement the target financial results, allocating responsibilities and distributing financial management functions between the heads of departments.

3. To improve the exchange of information and the interaction of structural divisions among themselves.

4. Optimize cash flow, pre-defined critical periods in the company's activities and the need for external financing.

5. Detect "narrow" places in management and time to take the necessary management decisions.

This technology aims to use the analysis of the "plan-fact" to correct deviations activities. Management decisions in the budgeting system is possible on the basis of scenario analysis "what if ...?"

2. DEVELOPMENT OF BUSINESS PLANS OF INVESTMENT PROJECTS

2.1. TECHNOLOGY AND STRUCTURE OF BUSINESS PLAN INVESTMENT PROJECT

2.1.1. The main provisions of investment projecting

Investments – long-term investment with a view to growth and profit.

Investment project - is a form of planning and implementation of investments. The investment project should provide answers to the following questions:

- what financial expenses are required for project realization;
- what is the efficiency (cost-effectiveness) of the project;
- when (in what period of time) all the expenses will be repaid.

The main **aim** of preparation of the investment project is to give to the leaders the most complete picture of the company and its growth opportunities.

Classification of investment projects

1. In terms of realization:

- short-term (up to 1 year);
- medium-term (from 1 to 3 years);
- long-term (more than 3 years).

2. The scale (in the international practice):

- small;
- average;
- large;
- grandiose.

3. In composition:

- **monoprojects (simple)** - individual particular projects with a clear focus (direction) and a certain scale. Accept simplification in design and realization, formation a project team;

- **multi-projects** – integrated projects that are made of monoprojects;

- **mega-projects** - integrated projects of development of regions, sectors of the economy. They are made of mono- and multi-projects, that are connected by the common goal.

4. According to target orientation:

- commercial;
- not commercial.

5. According to the character and fields of activity:

- industrial (direction on production and sale of new kinds of products);
- economic (direction to the privatization of enterprises, development of capital markets, reforming taxation and other.);
- organizational (direction to management improvement and system reforming);
- research (focused on research, development of software ...);
- social (connected with the reform of the social welfare system, health, environment, etc.).

Stages of investment projecting:

I stage- (when the project isn't ready yet) - idea

II stage - (when the project isn't already ready) – exploitation end.

Project life cycle – period between the appearance of the project until its closure.

The phases of the project cycle:

I phase (stage) - Pre-investment

(by the International Bank and the requirements of UNIDO) includes:

- studying trends and forecasts, the company's, region's, country's development;
- analysis of the conditions for the realization of concept;
- developing the project concept;
- business plan development and pre-investment feasibility study - evaluation of the viability of the project;
- environmental justification analysis and assessment;
- preliminary investment decision;
- development of a preliminary plan of the project.

II phase – Investment, includes:

- development of project documentation and preparation of the project to the materialization (construction);
- tendering, contracting, procurement and supply management;
- materialization of the project (construction).

III phase – Operating, includes completion of the project (start-up works, delivery to the customer, repair and development of production, closure of the project).

The importance of the phase of the project life cycle is evaluated by labor costs: for example, the development of the concept is about 2-3%, 4-5% of project planning, design, of 10-20%, 60-70% of the materialization of the project closing 10-12%. Each phase is a kind of mini-projects with relevant objectives, limits and approaches to management. *Successful completion of phase - it is an original feature (landmark) of the project, a reference point for its implementation.*

2.1.2. Business Planning Stages

Preliminary stage of evaluation and analysis of long-term projects is the development of business plan. Components of any business plan is the cost estimate and a financial plan with the calculation that prove the effectiveness of investment.

Business plan of the investment project includes:

1. Brief description of the investment project (summary).
2. Characteristics of goods (services).
3. Markets for goods (services).
4. Competition in the markets.
5. Marketing Plan.
6. Plan production.
7. The organizational plan.
8. Legal support of the project.
9. Financial plan of the project.
10. Funding Strategy.
11. The analysis and assessment of risks. Risk insurance.
12. Applications.

2.1.3. The investment needs of the project and the sources of their funding

The question of raising the resources necessary for the implementation of investment projects, plays an important role in the planning of investment activity of the enterprise, performing an essential element of the feasibility study of investment decisions. This aspect of the plan is subject to the following objectives:

- ensuring uninterrupted financing of investment activity;

- most effective use of its own funds (setting acceptable consumption and accumulation proportions);
- improvement of economic efficiency of the individual projects and the value of the firm as a whole;
- financial sustainability of individual projects existing enterprise where they are implemented.

There are sources and methods of financing of investment projects.

Sources of financing of investment projects consist of:

- own;
- loan.

Methods of financing of investment projects :

- self-financing – is carried out due to net profit and depreciation charges of the enterprise;
- shareholding - is realized through the additional issue of ordinary and preference shares and is typically used for large-scale projects;
- debt financing - is used, as a rule, when investing in highly efficient and quick-projects;
- Leasing - is used as a variant of the loan fund, not in the monetary but in material form.
- mixed financing - based on various combinations of methods set forth above and can be used for all forms of investment.

Used in specific circumstances methods should ensure the following tasks:

1. The reliability of funding according to with the schedule of implementation of the investment project through all its phases: the pre-investment, investment and operating.
2. Minimize investment costs in the cost-effective borders and revenue growth in equity.
3. Financial stability of the project and the company, where it is implemented.

The set of investment analysis procedures logically divided into three blocks:

1. The establishment of the investment needs of the project.
2. Search for sources of funding and to determine the cost of capital raised.
3. Assessment of the effectiveness of the investment project by comparing the forecasted cash flows to the initial amount of investment.

2.1.4. Drawing up a long-term loan repayment schedule

During the development of investment projects credit resources can be attracted, which are returned during the realization of the project. The loan amount is usually returned gradually over its term. There are two types of repayment order:

- periodic contributions ("balloon");
- "damping" (gradual payment in equal contributions - annuity payments).

Repayment by periodic payments. In this method, the principal amount of the loan is paid during the term of the loan. However, the procedure for redemption is that - at the end of the loan amount remains quite large proportion to repay.

Example 1. Let the enterprise receives a credit in the amount of 100,000 rubles. for a period of 5 years. Payments for repayment of the loan shall be made annually in the amount of 12,000 rubles. plus interest. Thus, at the end of the 5-year period, four have already been implemented by the payment 12,000 rub. (Sum 48,000 rub.), And remains unpaid amount of 52,000 rubles., Which is fully paid by the end of the loan term. This procedure is illustrated by the following table 1.

Table 1. Example 1

Year	The initial debt balance	Repayment of debt	Interest rate	Annual payments	End debt balance
1	100,000	12,000	60,000	72,000	88,000
2	88,000	12,000	52,800	64,800	76,000
3	76,000	12,000	45,600	57,600	64,000
4	64,000	12,000	38,400	50,400	52,000
5	52,000	52,000	31,200	83,200	-
Sum	100,000	228,000			

We note that the interest is always charged on the remaining debt.

Depreciation repayment. When "amortization" repayment of the principal amount of the loan is paid gradually over the life of the loan. Payments are made in equal amounts on a regular basis (usually monthly, quarterly or semi-annually), and they include some of the loan amount and interest rate. At the last installment loan amount is repayed. This principle is used in the

mortgage loan. Many Western credit investors use this scheme as a base schedule of repayment of the borrowing enterprises.

Example 2. Credit investor offers a company loan at 12 percent per annum for 4 years with semi-annual debt repayment scheme. The company plans to raise 800,000 US dollars. It is necessary to calculate the debt service schedule.

First, you need to calculate the value of the semi-annual payments. In calculating this amount, it uses the concept value of money in time. With regard to this issue, it is the sum of all payments shall be equal to the amount of credit given to the present moment. If **PMT** - unknown value of annual payments, and the **S** - value of the loan, then the loan at an interest rate **i** and the number of periodic payments **PMT** value of **n** can be calculated using the equation (2.1.1):

$$S = \frac{PMT}{(1+i)^1} + \frac{PMT}{(1+i)^2} + \dots + \frac{PMT}{(1+i)^n} \quad (2.1.1)$$

The solution of this equation can be made with the help of financial tables or electronic processor EXCEL. For this example, the amount of the annual payment is 128.829. Debt service coverage table is given by the table 2.

Table 2. Debt service

Year	The initial debt balance	Repayment of debt	Interest rate	Annual payments	End debt balance
1	800,000	80,829	48,000	128,829	719,171
2	719,171	85,678	43,150	128,829	633,493
3	633,493	90,819	38,010	128,829	542,674
4	542,674	96,268	32,560	128,829	446,405
5	446,405	102,044	26,784	128,829	344,361
6	344,361	108,167	20,662	128,829	236,194
7	236,194	114,657	14,172	128,829	121,537
8	121,537	121,537	7,292	128,829	0
Sum	800,000	230,630			

2.2. ANALYSIS AND ASSESSMENT OF EFFICIENCY OF INVESTMENT PROJECTS

2.2.1. *The equity valuation of the investment projects*

The concept of cost of capital is one of the basic theory of financial analysis. It characterizes the level of return on invested capital, which should provide the company not to reduce its market value. The less the cost of borrowed funds, the higher the investment opportunities of the company and the more profit it can get from the implementation of their projects, respectively the higher competitiveness and stronger position in the market.

Cost of a Source of Financing is the amount of money which is necessary to pay regularly for the use of a certain volume of attracted financial resources, expressed in percentage to this volume, i.e. presented in the form of annual interest rates. The concept of cost of capital must be distinguished from the concepts of "value" and "capital".

Long-term funding sources, which can be divided into equity and debt, are understood under the concept of capital.

Equity ones:

- share capital (ordinary and preference shares);
- net profit.

Capital ones:

- bank loan;
- bond loans.

The choice of the optimal structure of the capital's sources to minimize costs for attraction of financial resources of the investment project is the the problem of estimating the cost of capital.

The scheme of calculation the cost of the capital (2.2.1):

1. Calculate the cost of each source, I_j .
2. Determined the proportion of each source in total financing of investment project, W_j .
3. Calculate the weighted average cost of capital of the investment.

$$K_{wacc} = \sum_{j=1}^N W_j * I_j, \quad (2.2.1)$$

where, N – a number of funding sources.

Data must be comparable – the cost of sources is reduced to a post-tax basis.

The lower cost is the advantage of debt capital.

The benefits of debt financing:

- the increase return on equity if the return on assets is higher than the interest rate on the loan;
- the possibility of diversifying equity;
- interest payments on the loan capital are included in the cost and deductible.

The additional financial risk of owner's equity and the need for concentration of funds at the time of repayment of the loan are the disadvantages of debt financing.

Calculation of the cost of particular sources of funding is illustrated by simple examples. Let's consider debt financing. Common example of debt financing is a bank loan. Let's introduce the following notations:

I_{bank} – bank's interest rate;

I_b – cost of capital source.

Why these two values will be different? The reason lies in taxation system. According to existing legislation, interests on loans shall be classified as operating expenses, which means they reduce taxable profit. Consequently, interests on loans paid by the company will reduce the amount of income tax, which reduces the cost of this source. Simply, the cost of this source will be determined (2.2.2):

$$I_b = (1 - H) * I_{bank} \quad , \quad (2.2.2)$$

where, H - profit tax rate.

For example, if loan bears the interest rate 10%, its cost for a company, taking into consideration tax saving, will be equal to $(1-0,24)*10\% = 7,6\%$.

To make this calculation more accurate it is necessary to consider that interests on a loan are included in costs only in the amount not exceeding refinancing interest rate increased by 10%. An amount above the found value shall be paid out of net profit and shall not constitute the tax saving in respect of income tax. In this case the formula for calculating the cost of capital source will be as follows (2.2.3):

$$I_b = (1 - H) * 1,1 * I_r + \frac{I_{bank} - 1,1 * I_r}{1 - N} \quad , \quad (2.2.3)$$

where, I_r - key interest rate.

Bonded loans are also debt-based capital source, but they require particular issuing costs from the company. If these costs are expressed as a share of an aggregate amount of source(f), then formula for calculating the cost of a source will be written down as follows (2.2.4):

$$I_{ob} = \frac{(1-H)}{(1-f)} * I_0 , \quad (2.2.4)$$

where, I_0 - coupon yield;

I_{ob} - cost sources of funding.

For instance, if bonds are issued with coupon of 10% and issuing costs are equal to 2%, then the cost of this source for a company will be:

$$I_{ob} = \left(\frac{1 - 0,24}{(1 - 0,02)} * 10 \right) = 7,75\%$$

If bond is not sold at par, it is necessary to consider yield to maturity (I_{YTM}), not coupon yield.

Yield to maturity (I_{YTM}) will be written down as follows (2.2.5):

$$I_{YTM} = \frac{I_0 + \frac{B_n - B_0}{T}}{B_0} , \quad (2.2.5)$$

where, B_n и B_0 - par value, offer price of bond;

T - the number of years until payment of the bond

Debt sources have the lowest cost among all sources of capital, as from the investor's point of view, they are the safest financial assets and repayments reduce the taxable income.

Among own sources of capital the simplest is are preference shares, because dividends are fixed in the issuance and are not changed. Which, in this case, profitability to investors is determined according to formula (2.2.6):

$$I_p = \frac{d}{P_0} = \frac{\text{dividends}}{\text{market value}}. \quad (2.2.6)$$

Cost of a source to the enterprise (2.2.7):

$$I_n = \frac{d}{(1-f)P_0} = \frac{I_p}{(1-f)} \quad (2.2.7)$$

In this case, there is no tax shelter, because dividend is paid the net gain.

For example, if Joint-stock company were about to pay the dividends on the preferred shares 12%, and seigniorage costs would amount to 5%, the value of this source will be:

$$I_n = \frac{12\%}{1-0,05} = 12,6\%$$

Additional equity issuance is external source of external financing. Domestic financing entails the use of profits. In this case implicit a full or partial waiver of dividend payments. The required rate of return on own funds (ordinary share, net profit) reflects the opportunity cost, which can earn owners outside of the company - I_e . We can assume that the owner doesn't care to receive dividends or to reinvest profits in the business (the justification for the assumptions formulated in the theory of Modigliani-Miller). In this case, investors' requirements for profitability of ordinary shares and profitability reinvested profits are the same.

There are different assessment methods required by investors rate of return. One of the simplest and most common is called discounted dividend model. According to this model, the yield required by investors in general will be determined by the formula (2.2.8):

$$I_e = \frac{d_i}{P_0} + g, \quad (2.2.8)$$

where, d_i - the expecting dividends next year;

P_0 - market price of the share;

g - the estimated annual growth of dividends (in shares of unit).

Although from the point of view of investors total return and net profit are equal, from the point of view of the enterprise it is not. Upon issuance of shares the company has equity income. The cost of the sources will be determined by the formula (2.2.9; 2.2.10):

$$I_{ea} = \frac{d_1}{(1-f)P_0} + g \quad \text{for shares}; \quad (2.2.9)$$

$$I_{ra} = \frac{d_1}{P_0} + g \quad \text{for profit.} \quad (2.2.10)$$

For example, JSC made emissions of new shares and plans to receive next year a profit of 10 rubles per 1 share, of which 5 rubles will be paid as dividends. Emission costs account for 6% of the current share price, which is 50 rubles. Expected dividend growth is 8% per year.

$$I_{ea} = \frac{(10-5)}{(1-0.06)*50} + 0.08 = 18.6\%$$

$$I_{ra} = \frac{(10-5)}{50} + 0.08 = 18\%$$

From the point of view of the investor, their own funds are the most risky of all the components of capital, repayments made from net income and therefore they have the maximum value.

Knowing the maximum cost of each source is easy to calculate the average weighted cost of capital.

Example. Joint-stock company has three sources of long-term financing. The cost of each source was calculated previously. All parameters for the calculation are summarized in the table 3.

Table 3. Parameters calculation

Name	Face value, rub.	Amount, thousand pieces	The amount of funding, mln. rub.	Specific weight of the source, W_j
Bonds	1000	20	20	0.4
Preference shares	100	100	10	0.2
Ordinary shares	40	500	20	0.4
-	-	-	50	1.0

The cost of capital can be determined by the nominal value of the securities. The advantage of such a definition is the ease of calculation and stability of the result. But a more precise determination of capital structure on the basis of the market value of the sources. The market value of sources and the results of further calculations are presented in the table 4.

Table 4. The market value of sources and the results of further calculations

Name	Market price, rub.	\sum finance, mln.rub.	Specific weight of the source, W_j	The cost of capital, %	$W_j \cdot I_j, \%$
Bonds	900	18	0.321	7.75	2.49
Preference shares	80	8	0.143	12.6	1.8
Ordinary shares	60	30	0.536	18.0	9.6
Total	-	56	1.0	-	13.9

For each ruble of financing paid an average of 13.9 cents.

Economic implementation of WACC:

1. The cost of capital the company is the lower limit of the profitability of operating activities.

2. The cost of capital is used as criterial in the investment.

3. The cost of capital level of specific enterprise is the discount rate, which amount of net cash that contained in intrinsic value in the process to measure the performance of selected actual projects.

4. It also serves as a base of comparison with the internal rate of return on the considered investment project (IRR). If the IRR is lower than the company value, it must be rejected.

5. The level of enterprise capital is the most important element of the company market value. Decreasing capital costs leads to increasing the market value of the company, and vice versa. That dependence affects the activities of joint-stock companies of the open type. The stock price rises or falls in the related decreasing or increasing of the value of their capital.

2.2.2. The main criteria of efficiency of the investment project and methods of their assessment

Various indicators, which are based on the indicators proposed by UNIDO, are used to assess the feasibility of launching from a particular investment.

Cash flow is a set of distributed time receipts and cash payments resulting from business activities of the enterprise. There are three types of cash flows in projects:

1. Initial investments.

2. Current net cash flow (CF) is the difference between the receipt and expenditure of funds taking into account taxes (net profit) plus depreciation (CF=NP+D).

3. Final cash flow (associated with the completion of the project and includes the residual value of assets and reimbursement of working capital).

To evaluate the effectiveness of the investment the company needs:

1. To evaluate the cash flow.
2. To set the discount rate.
3. To formulate criteria for decision-making.

There are two basic types of decision making when investing:

1. The decision of "accept – reject".
2. The decision about mutually exclusive choice

Criteria for decision making are divided into two groups:

1. Not discounted.
2. Discounted.

The most popular rediscounting indicators – payback period – the period of time required to cover the initial project costs additional increase in cash.

If the incoming cash flow is an annuity, the payback period equals to (2.2.11):

$$\text{Payback period} = \frac{\text{initial investment}}{CF}, \quad (2.2.11)$$

If CF is annuitant payments, the payback period is determined by the consecutive subtraction of the amounts of initial investment amounts for incoming payments up to the moment of receiving zero.

Discounted criteria of decision making include:

- Discounted Payback Period , (the payback period);
- Net Present Value, NPV;
- Profitability Index, PI;
- Internal Rate of Return, IRR.

The payback period based on discounted cash flow (conditional formula 2.2.12):

$$\text{The payback period} = \frac{\text{Initial investments}}{\sum_{t=1}^T \frac{CF}{(1+i)^t}}, \quad (2.2.12)$$

where, *i*- the discount rate, the alternative rate of return.

t – the number of years of the project implementation.

The discounted payback period is determined by the consecutive subtraction of the amount of the initial investment amounts included discounted payments until the receipt of zero in practical calculations.

Net present value (NPV) represents the difference between the incoming and outgoing CF from the project (2.2.13):

$$NPV = \sum_{i=1}^T \frac{CF_t}{(1+i)^t} - \text{Initial investment}. \quad (2.2.13)$$

Criteria of project acceptance:

if $NPV > 0$ – the project is accepted;

if $NPV < 0$, the project is rejected;

if $NPV = 0$, the project is neither profitable nor unprofitable, however, if the average returns was used like the discount rate, then when $NPV = 0$ the project is the average for the market and can be recommended for implementation, however, the market share of business in its implementation does not increase.

Profitability index (PI) - represents the ratio of incoming and outgoing CDP from the project (2.2.14):

$$PI = \sum_{i=1}^T \frac{CF_t}{(1+i)^t} / \text{Initial investment} . \quad (2.2.14)$$

Criteria of project acceptance:

if $PI > 1$ – then the project is accepted;

if $PI < 1$, then the project is rejected;

if $PI = 1$, then the project neither profitable nor unprofitable, however, if the the average yield was used like the discount rate, then at $PI = 1$ – the project is the average for the market and can be recommended for implementation.

Internal rate of return (IRR) represents the discount rate at which revenues are equal to the initial cost (2.2.15-2.2.17):

$$\text{Initial investment} = \sum_{i=1}^T \frac{CF_t}{(1+IRR)^t} . \quad (2.2.15)$$

If cash flow is an annuity, IRR can be roughly determined using the table of discount factors:

$$\text{Initial investment} = C \left[\frac{1 - (1+IRR)^{-t}}{IRR} \right]; \quad (2.2.16)$$

$$\text{Initial investment} = C \times K^{\text{a}}_{\text{H}} \text{ IRR}, t . \quad (2.2.17)$$

If cash flow is uneven series of payments, the calculation gets complicated. Here the decisions are made by trial and error or the computer.

In case when the calculation of the weighted average cost of capital was made preliminary, internal rate of return can be found as follows (2.2.18):

$$IRR = WACC + \frac{NPV(WACC)}{NPV(WACC) - NPV(r)} \times (r - WACC), \quad (2.2.18)$$

where, r - the adopted rate of return on investment, %.

Criteria of project acceptance:

If $IRR > i$ – then the project is accepted;

If $IRR < i$ – then the project is rejected;

If $IRR = i$ - then the project is neither profitable nor unprofitable except when for i was taken the average market return.

2.2.3. Analysis and risk assessment of investment projects

There is the problem of measuring risk and its impact on investment results in the financial analysis of investment. In analyzing the effectiveness of long-term investment projects, it is assumed that the values emerging payment flows is known and can be specified for each period. In reality, however, such cases are the exception rather than the norm. In the conditions of market, fluctuations of prices for raw materials, changing product demand, interest rates, exchange rates and equity cash flows may differ significantly from the planned. In this regard there is a need for predicting the probabilities of discrepancies between the real cash flows of the plan.

The basic methods of risk assessment:

- sensitivity analysis;
- scenario method.

Consider a scenario method.

A scenario method allows for the study of the sensitivity of the resulting indicator and the analysis of possible estimates of its variance. Analysis of investment risks this method is as follows: in the options, it is advisable to construct three scenarios: a pessimistic one (worst) and optimistic (best) and realistic (most likely). The construction of the pessimistic scenario because of the deteriorating values of the variables up to a certain reasonable level compared to the baseline. The probabilistic assessment is set by the expert

way for each option changes. The probable value of NPV criterion is calculated for each option. Then the average value of the NPV, standard deviation, and coefficient of variation are determined. The risk assessment of the project is on the basis of these calculations

The average net present value is calculated by the formula (2.2.19):

$$\overline{NPV} = \sum NPV_i * P_i, \quad (2.2.19)$$

where, \overline{NPV} – the average value of the net present value of the;
 NPV_i – the value of net present value for the i-th scenario;
 P_i – the probability of occurrence of the ith event.

The standard deviation is calculated by the formula (2.2.20):

$$\sigma = \sqrt{\sum_{t=1}^n (NPV_t - \overline{NPV})^2 * P_t}, \quad (2.2.20)$$

where, σ - the standard deviation.

The coefficient of variation is calculated to determine the degree of risk of the investment project using the formula (2.2.21):

$$V = \frac{\sigma}{\overline{NPV}}, \quad (2.2.21)$$

where, V - the coefficient of variation.

Outcome data for risk assessment is appropriate to bring to the table 5.

Table 5. Outcome data for risk assessment

Indicators	Designation
The value of the net present value of the worst-case scenario	NPV^x
The value of the net present value of the probable scenario	NPV^{pr}
The value of the net present value of the best scenario	NPV^{best}
The average value of the net present value of the	NPV
The standard deviation	σ
The coefficient of variation	V

The coefficient of variation will show how many units of risk per medium expected net cash flows from the project in this case. Obviously, the lower the coefficient of variation, the lower the risk of project implementation.

3. FINANCIAL ANALYSIS AND FORECASTING

3.1. FINANCIAL REPORTING AND ITS ANALYSIS

3.1.1. The structure of a typical reporting of industrial enterprises and trading organizations

Financial statements it is a set of reporting forms, based on the data of financial accounting with the aim of providing users with summarized information about the financial position and activities of the enterprise and the changes in its financial position for the reporting period in a convenient and understandable form for those users making certain business decisions.

The main forms of financial statements are the Balance sheet and statement of profit and loss (2013 renamed the "statement"). There are certain applications along with these approved forms:

- the statement of changes in equity;
- the report on movement of funds;
- the report on target use of received funds.

The main indicators reflecting the financial position of the company presented in the balance sheet. The balance sheet describes the financial position of an entity at a specific date and reflects enterprise resources in a uniform money value according to their composition and areas of use, one side (asset) and sources of their financing on the other (passive).

The financial results of the reporting year to a certain extent characterized by the data of the statement of financial performance. This report, compiled according to balance sheet contained in the ordered form data on income and expenditures of the company recognized in the reporting period. And net income (loss) as the difference between them. In fact, the report itself is an ordered collection of various revenues and expenditure Subtotal.

The statement of changes in capital report, which discloses information on the movement of share capital, reserve capital, additional paid-in capital, as well as information about changes in value retained earnings (uncovered loss) organization and shares own shares repurchased from shareholders. In addition, in this form indicate adjustments due to changes in accounting policy and correction of errors.

The statement of cash flows can also be used for cash flow analysis.

3.1.2. Basic principles and sequence analysis of the financial condition of the company

Financial analysis is a way of accumulation, transformation and use of information of a financial nature and aims:

1. To assess the current and prospective financial condition of the organization, to assess the feasibility and the possible pace of its development from a position of financial security.

2. To evaluate the possible sources of funds and to assess the possibility of their mobilization.

3. To predict the position of the organization on the capital market.

The purpose of financial analysis is:

1. Reduction to a balanced state if the organization is in crisis or pre-crisis condition.

2. To create conditions for the growth and maintenance of the development, resulting in the improvement in certain indicators.

3. The sustainable reproduction of the main characteristics.

Analysis of the financial condition of the company has several goals:

- the definition of the characteristics of the research object on the basis of experimental data that characterize the response to defined perturbations;

- detection of changes in the financial condition in the space-time cut;

- identifying the main factors that caused the change in the financial condition;

- forecasting major trends in the financial position.

Basic principles of financial analysis:

- consistency;

- complexity;

- regularity;

- continuity;

- objectivity, etc.

Financial condition can be characterized by both short-term and long-term. In the first case we speak about the liquidity and solvency of the enterprise, in the second case - about its financial stability.

Analysis of financial state of enterprise is carried out in **4 stages**:

1. The liquidity analysis.

2. The analysis of financial stability.

3. The analysis of business activity.

4. The analysis of profit and profitability of the company.

3.1.3. Analysis of the current activity of the enterprise

Liquidity is an ability to transform assets into cash without significant losses.

Liquidity ratios (financial indicators calculated based on the enterprise's reporting to determine the rated ability of the company to repay the current debt from existing current (circulating) assets) can be the instruments of evaluation of liquidity. Let's, consider the **liquidity analysis** on the base of generally accepted ratios. The following coefficient is applied as indicators characterizing the solvency:

The coefficient of total (current) liquidity (3.1.1):

$$\text{The coefficient of total (current) liquidity} = \frac{\text{assets}}{\text{liabilities} - (\text{deferred income} + \text{reserves})}, \quad (3.1.1)$$

where, assets - the current assets;

liabilities – current liabilities;

reserves – reserves of forthcoming expenses and payments.

The current liquidity ratio is characterized the payment capacity of the enterprise is measured on the condition not only of timely settlements with debtors and favorable sales of finished products, but sell in case of need, other material elements of working capital.

The coefficient term (intermediate) liquidity (3.1.2):

$$\text{The coefficient term (intermediate) liquidity} := \frac{\text{cash} + \text{investments} + \text{receivables} + \text{fp}}{\text{current liabilities} - (\text{deferred income} + \text{reserves})}, \quad (3.1.2)$$

where, fp – finished products,

The quick ratio determines the ability of the enterprise to meet its current obligations using liquid assets quickly. It shows the part of short-term obligations can be immediately paid off by cash balances in short-term financial investments and revenues on the accounts receivable.

The absolute liquidity ratio (3.1.3):

$$\text{The absolute liquidity ratio} = \frac{\text{cash} + \text{investments}}{\text{current liabilities} - (\text{deferred income} + \text{reserves})}, \quad (3.1.3)$$

where, investments - short-term investments.

The absolute liquidity ratio characterizes the ability of the company to immediately pay its short term liabilities with cash and marketable short-term investments.

To assess financial stability it is also possible to apply a system of coefficients. These coefficients are the most frequently used:

The coefficient of security with own current assets is characterized the availability of own circulating assets at the enterprise, necessary for its financial soundness and is calculated by the formula (3.1.4):

$$K = \frac{\text{capital} - \text{assets}}{\text{currentassets}} \geq 0,1, \quad (3.1.4)$$

where, capital - the capital and reserves (total of section III of the Balance sheet);

assets – non-current assets (total of section I Balance);

current assets - total of section II Balance.

The coefficient of maneuverability shows what part of the company's equity is in a flexible form that allows for relatively free maneuvering with these funds (3.1.5):

$$K_m = \frac{\text{capital} - \text{assets}}{\text{capital}} \geq 0,5. \quad (3.1.5)$$

The coefficient of autonomy determines the proportion of assets that are covered by the equity capital (provided by their own sources of formation). The remaining share of assets is covered by borrowed funds. The indicator characterizes the ratio of own and borrowed capital of the organization (3.1.6):

$$K_a = \frac{\text{capital}}{\text{assets} + \text{currentassets}} \geq 0,5. \quad (3.1.6)$$

At least half of the organization's assets must cover its own capital.

Business activity allows you to analyze how efficiently a company uses its funds. For evaluation of business activity are using the following coefficients.

The turnover ratio of assets (liabilities) (for the period) (3.1.7):

$$\text{The turnover ratio} = \frac{\text{revenue}}{\text{the average value of the asset}}, \quad (3.1.7)$$

where, the revenue is the revenue for the period, thousand rubles;

The average value of the asset is the average value of the asset in question in period, thousand rubles.

In this case, it is customary to use as a test asset:

- summary of the asset, then we obtain the coefficient of total capital turnover shows how many times a year performed a full cycle of production and circulation or how many units of sales brought the currency balance;

- permanent assets, then we get the turnover ratio fixed assets;

- current assets, then we get the turnover ratio of current assets;

- equity, then we get the turnover ratio of equity capital. This indicator shows the various aspects of the activity. If the turnover ratio has a low value, it means the omission of parts of its own funds and indicates the need for the investment portion of equity in another source of income. High turnover ratio value of equity means a significant excess of sales over invested capital, which, in turn, entails an increase of credit resources and possibility of achieving the limit, when creditors are more involved in the business than owners. In this case, the ratio of debt to equity increases, it decreases the security of creditors and the firm may have serious difficulties in case of reduction of income;

- the total debt, then we'll get the turnover ratio total debt;

- receivables, etc.

The turnover period calculated by the formula (3.1.8):

$$\text{turnover period} = \frac{365 \text{ the average value of the asset}}{\text{revenue}}. \quad (3.1.8)$$

The higher the turnover ratios, the more committed working capital cycle, the better it characterizes economic activity. The higher the turnover, the less time required per revolution, less has to be a period of turnover.

3.1.4. A cost-effectiveness analysis

There are following groups of indicators of profitability:

- the efficiency of the enterprise's costs is characterized by the **product profitability** and is calculated as (3.1.9):

$$P = \frac{\text{profit}}{\text{cost}} \cdot 100\% , \quad (3.1.9)$$

where, the profit – profit from sales;

the cost - the cost of production;

- **the margin on sales** characterizes the efficiency of the price policy of the enterprise and is calculated as (3.1.10):

$$P_n = \frac{\text{profit}}{\text{revenue}} \cdot 100\% , \quad (3.1.10)$$

- **the margin property** describes the amount of profit per ruble of investment in the company and is calculated as (3.1.11):

$$\text{the margin property} = \frac{\text{profit}}{\text{property}} \cdot 100\% . \quad (3.1.11)$$

where, property is the value of the property business.

3.2. FORECASTING OF FINANCIAL AND ECONOMIC ACTIVITY OF THE ENTERPRISE

3.2.1. Models of dynamic analysis

The forecast of any index is a component of many methods of forecasting. The simplest forecasting technique based on application of formalized methods, which are based on expert assessment, built with the help of various complex statistical methods of data processing. Formal forecasting methods can be divided into two large groups (depending on the used model), based on the use of stochastic or, deterministic or fixed models. Linear models,

implemented in the framework have the greatest distribution among stochastic models:

- simple dynamic analysis;
- multivariate regression analysis;
- the analysis through autoregressive dependencies.

A simple dynamic analysis based on the premise that the predicted value (Y) varies directly (inversely) proportional over time. Therefore, to determine the predictive values of the indicator Y the following relationship is plotted (3.2.1):

$$Y_t = a + b \cdot t, \quad (3.2.1)$$

where, t - the the ordinal period.

The regression coefficients (a, b) are calculated by the method of least squares.

Multivariate regression analysis is the distribution of simple dynamic analysis on multi-dimensional case. Here, as a result of the qualitative analysis highlighted k factors (X1, X2, ... , Xk) affecting, according to the analyst, the change in the projected indicator (Y), and constructed a regression dependence of the type (3.2.2):

$$Y = A_0 + A_1 \cdot X_1 + A_2 \cdot X_2 + \dots + A_k \cdot X_k, \quad (3.2.2)$$

where, A_i are the regression coefficients, $i = 1, 2, \dots, k$.

Analysis through autoregressive dependencies. The specificity of economic processes is that they are characterized, first, by interdependence and, secondly, some inertia. This means that the value of almost any economic indicator at time t depends in a certain way to the status of this indicator in previous periods (in this case, we abstract from the influence of other factors), i.e. the values of the predicted rate in the past period should be considered as factorial characteristics. Equation autoregressive dependence in the most general form is (3.2.3):

$$Y_t = A_0 + A_1 \cdot Y_{t-1} + A_2 \cdot Y_{t-2} + \dots + A_k \cdot Y_{t-k}, \quad (3.2.3)$$

where, Y_t is the the predicted value of index Y at time t;

Y_{t-i} — the value of index Y at time (t — i);

A_i — the i-th regression coefficient.

Reasonably accurate predicted values can be obtained already for $k = 1$. In practice, people often use a modification of this equation by a factor of the period (moment) of time t . In this case, the regression equation would be (3.2.4):

$$Y_t = A_0 + A_1 \cdot Y_{t-1} + A_2 \cdot t. \quad (3.2.4)$$

The regression coefficients of this equation can be found using the least squares method. The corresponding system of normal equations will be (3.2.5):

$$\begin{cases} j \cdot A_0 + A_1 \cdot \sum Y_{t-1} + A_2 \cdot \sum t = \sum Y_t ; \\ A_0 \cdot \sum Y_{t-1} + A_1 \cdot \sum Y_{t-1}^2 + A_2 \cdot \sum t \cdot Y_{t-1} = \sum Y_t \cdot Y_{t-1} ; \\ A_0 \cdot \sum t + A_1 \cdot \sum t \cdot Y_{t-1} + A_2 \cdot \sum t \cdot t = \sum t \cdot Y_t , \end{cases} \quad (3.2.5)$$

To characterize the adequacy of the autoregressive dependencies, you can use the average relative linear deviation of v (3.2.6):

$$v = \frac{1}{j} \cdot \sum_{i=1}^j \frac{|Y_i - \tilde{Y}_i|}{Y_i} \cdot 100\% \quad (3.2.6)$$

where, \tilde{Y}_i is the estimated value of the indicator Y at time i ;

Y_i — the actual value of index Y at time i .

If $v < 15\%$, it is considered that the autoregression equation can be used in prognostic purposes.

3.2.2. Methods of financial results regulation

An integral part of the technique of forecasting of a financial condition is a generalization of the methods and practice of regulation of financial results by ways, legally existing under the current legislation and normative documents in the field of accounting.

There are the following specific methods of varying financial results.

1. The periodic revaluation of fixed assets is carry out in accordance with the decisions of the Federal authorities. In cases where financial and economic indicators of enterprises and organizations after the revaluation of fixed assets are deteriorate significantly after the revaluation of fixed assets, it is permitted to use reduction factors to amortizaciones deductions in the

amount of up to 0.5. The adoption of a decision affects profits.

2. Enterprises are entitled to apply accelerated depreciation of the active part of basic production assets (for some high-tech industries and efficient types of machinery and equipment; the list established by the Federal Executive authorities).

3. The regulations on accounting and reporting allow the use of different methods of valuation of inventories (FIFO, LIFO, average prices). The choice of method may have a significant effect on the amount of profit.

4. There are different accounting treatment of interest on Bank loans used for capital investments, which is reflected on not only current financial results, but also carrying some articles.

5. The property transferred in kind to the ownership of the company on account of contributions to the Charter capital is included in the assessment, as defined by agreement of the parties. This factor also affects the financial results.

6. There can be different order of separate types of costs attribution in the cost of sales (by direct disposal or by pre-formation of reserves of forthcoming expenses and payments), and others.

3.2.3. Build of forward-looking statements

The assessment of the financial position of the company at the end of the planning period is the main purpose of constructing such reporting. The forward-looking statements can be built in standard or enlarged nomenclature of articles. The accuracy of the forecast is largely determined by the quality of expert estimations di-dynamics of individual indicators. Each article (integrated article) of balance and report about financial results is forecasted based on the analysis of historical data. The result is compiled projected financial statements at the end of the planning period.

3.2.4. Models of forecasting the possible bankruptcy of the enterprise

The models of famous Western economist E. Altman, R. Taffler., G. Tishaw etc., which are designed using the multiplicative discriminant analysis, are widely used in foreign countries to assess the risk of bankruptcy and creditworthiness of the enterprise. Multiplicative discriminant analysis uses a methodology that considers the combined influence of several variables (in

our case financial ratios). The purpose of this analysis is to build a kind of imaginary line that divides all companies into two groups: if the firm is above the line, financial difficulties until the bankruptcy of her in the near future does not threaten, and Vice versa. This line of demarcation is called a discriminant index function or Z. (Table 6)

The discriminant function is represented in linear form (3.2.7):

$$Z = a_1X_1 + a_2X_2 + \dots + a_nX_n \quad (3.2.7)$$

where, Z - the the differential index (Z-score);

X_i – the independent variable;

a_i - the coefficient of the variable.

In Russia the five-factor model of Altman for diagnostics of bankruptcy threat is made to apply.

There are two types of models of Altman's original model and improved model.

The original model has the form (3.2.8):

$$Z = 1,2X_1 + 1,4X_2 + 3,3X_3 + 0,6X_4 + 1,0X_5 \quad (3.2.8)$$

where, X_1 - the net working capital (current assets- current liabilities) / Total assets;

current assets - the total current assets section (second section);

current liabilities – summary of Short-term liabilities section (the fifth section);

X_2 = Undistributed profit (uncovered loss) / Total assets;

X_3 = Pre-tax profit + Interest payable/ Total assets;

X_4 = The market value of equity / Value of total debt (current liabilities + long-term liabilities);

X_5 = Revenue (net) from sales / Total assets.

Table 6. Edge of the Z-score for the original model Altman

Z-score	The threat of bankruptcy with a probability of 95% within the next year
1,8 and less	Very high
1,81-2,7	High
2,8-2,9	Possible
2,99 and more	Very low

Z –ratio has a serious flaw – essentially it can be used only against large companies that listed their shares on the stock exchanges. For such companies it is possible to obtain an objective market valuation of equity. Therefore, it was later developed a modified version (improved model) for companies whose shares are not quoted on the stock exchange. (Table 7).

The improved model has the form (3.2.9):

- **for manufacturing companies:**

$$Z = 0,717 X_1 + 0,847 X_2 + 3,107 X_3 + 0,420 X_4 + 0,998 X_5 ; (3.2.9)$$

There is the nominal value of shares in the numerator X4 instead of market value of shares (3.2.10):

- **for non-manufacturing companies:**

$$Z = 6,56 X_1 + 3,26 X_2 + 6,72 X_3 + 1,05 X_4 \quad (3.2.10)$$

Table 7. Edge of the Z-score for the advanced model of Altman

The degree of threat	For manufacturing companies	For non-manufacturing companies
The high risk of bankruptcy	Less than 1,23	Less than 1,10
Area of ignorance	1,23-2,90	1,10-2,60
Low threat of bankruptcy	More than 2,90	More than 2,60

The studies of American analysts show that the model of Altman allow in 95% of cases to predict the bankruptcy of the company for the year ahead and in 83% of cases at 2 years.

Scientists of Irkutsk state economic Academy offered their own four-factors model of forecasting risk of bankruptcy (Model R-account). The model forecast the risk of bankruptcy is (3.2.11):

$$R = 8.38 K_1 + K_2 + 0.054 K_3 + 0.63 K_4 , \quad (3.2.11)$$

where, K_1 =Current assets / Total assets;

K_2 = Net income (loss)/ Capital and reserves;

K_3 = Revenue / Total assets;

K_4 = Net profit (loss) / Expenses for production and sales.

The probability of bankruptcy according to the model of R-account in table 8.

Table 8. The model of R-account

R- score	The probability of bankruptcy, %
Less than 0	maximum (90-100)
0-0,18	high (60-80)
0,18-0,32	average (35-50)
0,32-0,42	low (15-20)
more 0,42	minimum (до10)

Known Russian economist G. V. Savitskaya has proposed a system of indicators and their rating score, expressed in points, to predict the financial condition of the company. The technique: the most important indicators of the company's financial condition, each of possible values is assigned a score. Based on the total points attained by each enterprise can be attributed to one or another class (6 classes total).

4. ASSESSMENT TOOLS

Current certification of students is made by the teachers in process of development of discipline educational material in the following forms:

4.1 Testing.

4.2 Defense of the laboratory work and control of correctness the solution of tasks at workshops.

4.3 Protection of the course project.

Interim certification is held in the form of the final exam (4.4).

4.1. Self-Assessment Tests

Choose the right answers:

1. The collection of all area and activity budgets representing a firm's comprehensive plan of action is the:

- A. Operating budget
- B. Budget
- C. Master budget
- D. Sales budget.

2. The budget that shows how many units must be produced to meet sales needs and satisfy ending inventory requirements is the:

- A. Cash budget
- B. Production budget
- C. Manufacturing overhead budget
- D. Master budget.

3. Cash Flows from Financing Activities as a section of a Statement of Cash Flows:

A. Cash flows from the principal revenue generation activities such as sale and purchase of goods and services;

B. Cash in-flows and out-flows related to activities that are intended to generate income and cash flows in future;

C. The cash flows related to transactions with stockholders and creditors such as issuance of share capital, purchase of treasury stock, dividend payments etc.

4. The presentation of Cash Flow from Operating Activities begins with net income or loss when constructing a Statement using:

- A. Direct method;
- B. Indirect method.

5. Which of the following is not an advantage of budgeting?

- A. It forces managers to plan;
- B. It provides resource information that can be used to improve decision making;
- C. It aids in the use of resources and employees by setting a benchmark that can be used for the subsequent evaluation of performance;
- D. It provides organizational independence;
- E. It improves communication and coordination.

6. Which of the following budgets are calling financial:

- A. Salary budget; sale budget, production budget
- B. Budgeted balance sheet, cash budget, budgeted statement of cash flows, capital expenditures budget
- C. Purchase budget, production price budget, manufacturing overheads budget.

7. What operational budget is the departing point in the budgeting?

- A. Production budget
- B. Budget of cash flow
- C. Selling budget
- D. Budget of commercial expenses.

8. The work on financial budget is ending by drafting ... End the sentence:

- A. Budget on balance sheet
- B. Budget of cash flow
- C. Receipts and expenditures budget
- D. Selling budget.

9. Flexible Budget is:

- A. The budget that remains constant, irrespective of the levels of activity, i.e. the budget is created for a standard volume of production;

B. The budget created for different production levels or capacity utilization, i.e. it changes in accordance with the activity level.

10. Which measure of comparing the value of the internal rate of return when evaluating an investment project?

- A. The coefficient of efficiency of investments
- B. The cost of capital
- C. The rate of return of company property.

11. If the profitability index is one, this means that:

- A. The investment project unprofitable
- B. Discounted incomes are equal to discounted investment costs
- C. Investment project is highly profitable

12. An essential criterion for acceptance of the investment project is to:

- A. Low inflation;
- B. The written agreement with the investors;
- C. The surplus accumulated real money.

13. Criteria for investment value of the project is the net present value:

- A. $NPV > 0$
- B. $NPV < 0$
- C. $NPV = 0$

14. Investment Option in the enterprise assets considered acceptable if:

- A. The payback period is greater than one;
- B. The profitability index is less than one;
- C. The net present value of the project is positive;
- D. Internal rate of return is positive.

15. Choose from two alternative investment projects the best, if efficiency of their realization characterized by following indexes:

1) $NPV = 60$ thous. \$, $PI = 1,02$, $IRR = 17\%$, $T_{OK} = 4$ year;
2) $NPV = 45$ thous. \$, $PI = 1,05$, $IRR = 18\%$, $T_{OK} = 3,8$ year, if discount rate is 16%:

- A. more effective the first project
- B. more effective the second project

16. Choose from three alternative investment projects the best, if efficiency of their realization characterized by following indexes:

- 1) IRR=15%, $T_{OK}=4$ year;
- 2) IRR=16%, $T_{OK}=3,8$ year;
- 3) IRR=17%, $T_{OK}=3,9$ year, if discount rate is 16%:
 - A. More effective the first project;
 - B. More effective the second project;
 - C. More effective the third project.

17. What is the capital structure:

- A. The ratio of equity to borrowed capital
- B. The ratio of equity to long-term borrowed capital
- C. The ratio of equity to short-term borrowed capital.

18. The price of capital shows:

- A. Issuing costs for the issue of shares and bonds;
- B. The cost of servicing the elements of capital;
- C. The relative value of the cost of attracting a certain amount of financial resources.

19. The composition of sources of equity capital includes:

- A. Share capital, bond issue and retained earnings;
- B. Current liabilities and share capital;
- C. Share capital and retained earnings.

20. The composition of sources of borrowed capital includes:

- A. Bank credit, bond issue, share capital;
- B. Current liabilities and share capital;
- C. Bank credit, bond issue.

4.2. Tasks and Questions Examples to Workshops and Laboratory Work

Task 1.

1. From the table 9, select the term that best completes each statement and write it in the space provided:

Table 9. The list of basic definitions

<ul style="list-style-type: none"> - administrative expense budget; - budget; - budget director; - capital expenditures budget; - cash budget; - control; - direct labor budget; - direct materials purchases budget; 	<ul style="list-style-type: none"> - financial budgets; - marketing expense budget; - master budget; - operating budgets; - manufacturing overhead budget; - production budget; - research and development expense budget; - sales budget.
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1. _____ are financial plans associated with the income-producing activities of the organization.

2. The collection of all area and activity budgets representing a firm's comprehensive plan of action is the _____.

3. The _____ describes expected sales in units and dollars for the coming period.

4. The _____ shows the total direct labor hours needed and the associated cost for the number of units in the production budget.

5. The budget that shows how many units must be produced to meet sales needs and satisfy ending inventory requirements is the _____.

6. A plan of action expressed in financial terms is a(n) _____.

7. The financial plan outlining the acquisition of long-term assets is the _____.

8. The _____ is responsible for coordinating and directing the overall budgeting process.

9. The _____ outlines all sources and uses of cash.

10. The _____ outlines planned expenditures for selling and distribution activities.

11. The _____ is a financial plan that consists of estimated expenditures for the overall organization and operation of the company.

12. The _____ reveals the planned expenditures for all indirect manufacturing items.

13. _____ is the process of setting standards, receiving feedback on actual performance, and taking corrective action.

14. The _____ outlines the expected usage of materials production and purchases of the direct materials required.

15. The _____ are the part of the master budget that includes the budgeted balance sheet, statement of cash flows, and the capital budget.

16. The _____ outlines the estimated expenditures of research and development activities for the coming year.

Task 2.

Acorn Corp. has requested a cash budget for July and August. The following information has been gathered:

a. Cash balance as of July 1: \$35,000.

b. Actual and forecasted sales are as follows:

	May	June	July	August
Cash sales	\$25,000	\$30,000	\$ 40,000	\$ 50,000
Credit sales	<u>60,000</u>	<u>80,000</u>	<u>100,000</u>	<u>110,000</u>
Total	<u>\$75,000</u>	<u>\$110,000</u>	<u>\$140,000</u>	<u>\$160,000</u>

c. Credit sales are collected 40% in the month of the sale, 35% in the month following the sale, and 25% in the second month following the sale.

d. Inventory purchases average 55% of sales. Of these purchases, 65% are paid for in the month of the purchase, with the remainder paid in the following month.

e. Operating expenses are paid in the month incurred. Expenses include \$2,500 in rent, \$6,000 in salaries, and \$750 in utilities and miscellaneous expenses.

Required:

1. Prepare a schedule of cash collection for July and August.
2. What would the accounts receivable balance be on August 31?
3. Prepare a schedule of cash disbursements for July and August.
4. Prepare a cash budget for July and August.

Task 3.

The firm has the following information about the possibility of new long-term financing:

- bonds with a face value of 1000 \$, about a coupon of 7% are sold at a discount of 2%;

- ordinary shares of 20 \$ par.

The firm expects to receive a profit of \$ 3 per share in the foreseeable future and all of it will be paid in the form of dividends. The structure of the company's liabilities in the recent past is as follows:

- own funds - \$ 200 million;
- long-term loans - \$ 300 million;
- current liabilities - \$ 100 million;
- TOTAL – 600 million \$.

Assuming that the financing proportions remain the same, calculate the cost of the company's capital:

1. Using the nominal value.
2. Using the market value and assuming that the price of the shares on the market is \$ 25 and the bond price is 5% higher than the nominal value.

Task 4.

The financial manager should evaluate the investment projects that are not alternative. The cost of capital is 8%. What projects, from table 10, will be recommended by an investment company under the constraint of funding 600 000\$. How the company will lose in price because of the limited funding? The calculations take into account the criteria – **NPV and payback period (PP)**.

Table 10. Source data

Projects	Investment, ths. \$.	Term, years	NCF per year, \$	NPV	PP
I	300	6	72 680		
II	100	3	46 560		
III	100	5	27 047		
IV	200	4	69 444		
V	200	7	36 496		
VI	300	8	57 421		

Task 5 (for laboratory work).

In accordance with the original data, are shown in table 11, it is necessary to compare different schemes of financing of the investment project. The calculations use the following criteria for evaluation of investment activities:

1. Net present value (NPV);
2. Internal rate of return (of return) (IRR);
3. Coefficient of profitability of investments (PI);
4. The period of return on investment, payback period (T_{payback}).

Table 11. Source data

Indicators	year					
	0	1	2	3	4	5
investment, thous. Conventional units	1100					
production volume, units/year		2200	2 500	2 500	2 400	2 100
sale price, monetary unit/units		1000	1010	1000	950	900
average total costs, monetary units/pieces.		780	800	810	850	860
liquidation value						100

The calculations should be used for the following conditions:

- the average interest rate on Bank loans is 7 %;
- amortization period for purchased equipment is 5 years;
- rate of income tax of 20 %;
- property tax of 2 %;
- the payout on preferred stock is 5% a year;
- bank loan is repaid by equal installments over 5 years;
- costs interest payable on Bank loans included in the cost of products;
- depreciation is not included in the average of total costs (see table 12).

An investment plan should be drawn up and then the calculation of indicators.

Efficiency assessment is to be made for four variants of investment capital structure. In the first one equity capital in the investment structure amounts to 20%, and borrowed funds – 80%. In the second case equity capital amounts to 40%, borrowed funds – 60. In the third scenario – 60% and 40% respectively. In the fourth case – 80% and 20% respectively.

Provide a comparative analysis of the results. In the calculation of the internal rate of return use of the formula 4.2.1:

$$IRR = WACC + \frac{NPV(WACC)}{NPV(WACC) - NPV(r)} \times (r - WACC), \quad (4.2.1)$$

where, r - yield on investment;

Content of work:

1. Calculate WACC (Weighted Average Capital Cost) for each of the 4 capital structure variants.
2. Calculate the volume of the project net cash flow (add to the table 12).
3. Calculate investment efficiency indicators (NPV, PI, IRR, DPP).
4. Draw a conclusion about feasibility of the project.
5. Conduct a comparative analysis of the 4 financing variants. The results will present in the form of the table 13.

Table 12. Calculation of net cash flow to project

Index	year					
	0	1	2	3	4	5
operating activities						
revenue excluding added value tax						
carrying outlays						
balance sheet value of the property						
amortization quota						
amortization						
remaining value						
- as at the start of year						
- at the year-end						
property tax						
principal redemption						
debt at beginning of year						
debt at the end of the year						
interest on loan						
asseassble profit						
tax on profits						
Net profit						
payments to the owners						
NCF						
investing activities						
capital investment						
Cashflow (NCF)						
discount coefficient						
DCF (discount cash flow)						

Table 13. Comparative analysis of the 4 financing variants

Project	NPV	PI	IRR	T _{payback}
20/80				
40/60				
60/40				
80/20				

Questions Examples:

1. What is the difference in particularity of budgeting in the *manufacturing enterprise* from *trading organization*?
2. With what budget built is beginning the formation of Master budget in *trading organization*?
3. Which quantitative risk indices are known for you? What is their economic interpretation?
4. Explain the term «liquidity». Rank the assets of organization from the least liquid to the most liquid.
5. What is “diversification”?
6. What efficiency rating indexes are recommended by UNIDO?
7. Interpret obtained values NPV, IRR for different projects.
8. Interpret obtained values of autonomy.
9. On the basis of what indicators are talking about satisfactoriness of company’s balance structure?
10. What prognostication models of the probability of bankruptcy can be used for the joint stock company? For the others company’s forms of incorporation.

4.3. Course Project Assessment

Course Project Topics Examples:*

1. Budgeting in the financial planning company.
2. The system of financial budgets and its practical application.
3. Organizing budgetary control by services of the management of the company.
4. Automation of budgeting system by financial service companies.
5. Development of the system of budgeting in the enterprise.
6. Analysis and improvement of the budgeting system of the enterprise.
7. Operating budgeting and its improvement in the enterprise.
8. Planning of cash flows of the enterprise.
9. Investment planning at the enterprises.
10. Selection and evaluation of investment projects.
11. Analysis of the structure and capital cost of investment project.
12. Choosing the sources of investment projects financing.
13. Analysis and risk assessment of investment project.
14. Development and implementation of a business plan for production of new type of product (organization of new kind of activity, opening a new enterprise ...).

15. Business – planning in the system of financial planning at the enterprise.

16. Analysis and evaluation of the financial state of the enterprise.

17. Management of financial stability and liquidity of the enterprise.

18. Predicting of profit and profitability.

19. Diagnostics and predicting of bankruptcy.

20. Methods of predicting bankruptcy of the enterprise.

*Note * Course projects are carried out on materials of specific enterprises.*

Questions Examples:

1. Describe the financial planning system of your company. What are its basic elements?

2. What is your suggestions about improvement the work on financial budgets in your company?

3. What are the quantitative and qualitative indicators of economic effect from implantation the budget system automation in your company?

4. Describe the sequence and technology of the financial budget development in your company.

5. Explain the getting of payback period value, NPV, PI, IRR for your investment project.

6. What is your suggestions to minimize the capital's cost?

7. What activities to reduce the risk were suggested by you?

8. Describe the methodology of business-planning in your company. What are the possible ways of its improvement?

9. Give a description of the financial environment of the enterprise you've been researched and its dynamic.

10. What scoring models of the profitability of bankruptcy threats you've been suggested and why?

4.4. Final Assessment

The list of questions for the exam:

1. Budgetary authority and its relationship with others management tools.

2. Budgetary functions.

3. The object of the budgetary.

4. The results of the implementation of budget management system in the commercial organization.

5. Financial goals and control indices of the operation of company.

6. The principles of the effective budgeting.

7. The budgeting automation.
8. The distinction between financial and organizational structures.
9. Types of responsibility centers.
10. Budgeting structure and the matrix of distribution of responsibility.
11. The scheme of formation the financial results of manufacturing organizations.
12. The scheme of formation the financial results of trade organizations.
13. Components of operating, investing, financing activities of the company. Their reflection in budgets.
14. Methods of cost allocation.
15. Approaches to cost planning.
16. The structure and purpose of operating and auxiliary budgets, their relationship with major budgets.
17. The sales budget and forecasting approaches.
18. Sales budget: a simplified procedure for the compilation. Chart of cash inflow from customers and suppliers.
19. The production budget and the budget of stocks of finished products.
20. Budget of direct costs on materials and the budget of industrial stocks. Payment chart of purchased materials: the designation and the simplified order of formation .
21. Budget of direct costs on remuneration of labor and the chart of payment the salary: the appointment and simplified construction.
22. Budget of overhead costs and other operating budgets.
23. The purpose and the simplified procedure of the drafting subsidiary budgets: credit, tax, investment plan.
24. The main objectives of financial budgets: the budgets of incomes and expenses.
25. The main objectives of financial budgets: the budget of cash flows.
26. The main objectives of financial budgets: the prognostication budget.
27. The interrelation of items of the operating and auxiliary budgets with the items in main budgets.
28. Selection and calculation of the key performance indicators.
29. Monitoring and adjustment of the budget. Flexible budget.
30. The budget of cash flows «Traveling wave».
31. The main provisions of the investment planning.
32. Business-plan of capital spending project.
33. Investment needs of the project and the sources of their funding.
34. The scheduling of long-term debt repayment.
35. The concept and classification of investment risks.

36. Methods of evaluating investment risks.
37. Methods to reduce investment risks.
38. Sensitivity analysis.
39. Scenario analysis.
40. Service-simulating test Monte-Carlo.
41. Approaches and models of definition the cost of capital spending project.
42. Models of determining the cost of owned capital of the capital spending project.
43. Models of determining the cost of borrowed capital of the capital spending project.
44. Weighted average cost of capital.
45. The efficiency of the capital spending project. The concept. Types.
46. The basic indicators of estimation the efficiency of the capital spending project.
47. The concept of capital spending portfolio. The purpose of capital spending portfolio formation
48. The main types of capital spending portfolios generated by the enterprise.
49. Principles of capital spending portfolio formation.
50. Peculiarities of formation and evaluation of real capital spending projects portfolio.
51. The changing paradigm of financial analysis.
52. Classification of methods and techniques of financial analysis.
53. The main types of models used in financial analysis and forecasting.
54. The models of dynamic analysis.
55. Basic principles and sequence of the analysis of the company's financial condition.
56. The analysis of liquidity and financial stability of the enterprise.
57. The analysis of business activity and profitability.
58. Evaluation of unsatisfactory structure of balance.
59. Methods of regulations of financial results.
60. Prognostication models of possible bankruptcy of the enterprise.

CONCLUSION

In this tutorial, theoretical and practical material is presented in a certain logical sequence, allowing students to master knowledge and acquire management skills in the organization's finances, budgeting, financial analysis and forecasting. Sections and topics of the discipline are grouped according to the principle of complementarity of knowledge and practical experience of financial management in enterprises of various profiles. The training manual describes both classical and modern approaches to financial management.

The content of the textbook corresponds to the state educational standard. The methods of solving financial problems suggested in the training manual can be used by financial managers and financial analysts in any situation. The material is intended to develop the financial thinking of students, to help choose a development strategy, supported by effective financial solutions and to teach the analysis of the results of these decisions.

Separate topics can be used not only by functional managers and financial analysts, but also by investors, creditors, and management consultants.

REFERENCES

1. *Bachelier, L.* Budgeting process / *L. Bachelier.* – Cambridge, MA: MIT Press, 2007.
2. *Boness, A. James, Chen, Andrew H.* Investigation and budgeting / *A. James Boness, Andrew H. Chen,* – Scranton, PA: International Textbook Company, 2013.
3. *Dubnoff, S.* How much income is enough? Financial management / *S. Dubnoff.* – London: Oxford–Press, 2006.
4. *Hirsch, D.* Financial management / *D. Hirsch.* – Special ed. –Vienna–Press, 2006.
5. *Nikollson L.* Budgeting process / *L. Nikollson.* – Bristol:BMS–Press, 2014.

Request references and recommended books:

1. *Borgeraas, E., Dahl, E.* Low income and ‘poverty lines’ comparison of three concepts / *E. Borgeraas, E. Dahl.* – Proceedings of the Nordic Consumer Policy Research Conference, 2007.
2. *Bradshaw, J., Middleton, S., Davis & Williams, J.* A minimum income standard for Britain / *J. Bradshaw, S. Middleton, J. Davis & Williams.* – London: Oxford–Press, 2014.
3. *Chen, Andrew H.* Investigation and budgeting / *Andrew H. Chen.* – Scranton, PA: International Textbook Company, 2002.
4. *Dollson, D.* Reference budgets in America / *D. Dollson.* – Chicago:CBS–Press, 2017.
5. *Gough, I.* Lists and thresholds: comparing the Doyal-Gough theory of human need with Nussbaum’s capabilities approach / *I. Gough.* – York: WeD Working Paper, 2016.
6. *Hirsch, A.* Reference budgets / *A. Hirsch.* – Vienna–Press, 2016.
7. *Storms, B., Van den Bosch, K.* What income do families need for social participation at the minimum? A budget standard for Flanders / *B. Storms, K. Van den Bosch.* – Special ed.–Chicago:CTE, 2015.
8. *Veit-Wilson, J.* Setting adequacy standards. How governments define minimum incomes? / *J. Veit-Wilson.* – Bristol: BMS–Press, 1999.
9. *Vrooman, C. J.* Rules of Relief; Institutions of Social Security, and their Impact / *C. J. Vrooman.* – Special ed. – Berlin:BLS-CF, 2015.
10. *Walson, B., Van Borchter, K.* A budget standard for Flanders / *B. Walson, K. Van Borchter,* – Cambridge: Cambridge – Press, 2015.

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