

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ
«САМАРСКИЙ НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ
УНИВЕРСИТЕТ ИМЕНИ АКАДЕМИКА С.П. КОРОЛЕВА»

ФИНАНСОВЫЙ МЕНЕДЖМЕНТ,
БЮДЖЕТИРОВАНИЕ
И ФИНАНСОВЫЙ АНАЛИЗ:
МЕТОДИЧЕСКИЕ УКАЗАНИЯ
К ЛАБОРАТОРНЫМ РАБОТАМ

FINANCIAL MANAGEMENT,
BUDGETING
& FINANCIAL ANALYSIS:
METHODOLOGICAL GUIDELINES
TO LABORATORY WORKS

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

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В методических указаниях приведена структура лабораторного цикла по курсу «Финансовый менеджмент, бюджетирование и финансовый анализ» («Инвестиционный анализ»). Цикл лабораторных работ представлен в форме последовательно разворачивающихся проблемных заданий и краткой методики их решения, что способствует формированию у студентов системного и четкого мышления.

Предназначены для студентов, обучающихся по направлению подготовки 38.04.02 Менеджмент, Master Program in High-Technology Business Management.

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INTRODUCTION

Laboratory work on course of «Financial management, budgeting and financial analysis» is one of the most important kinds of educational process and it is implemented by the students according to approved educational plans. Laboratory work will allow to judge about that thing, how much has the student learned theoretical course and what are the possibilities of practical application of knowledge to solve complex economic problems. The value of laboratory work is that in the process of its implementation the student not only reinforces but also deepens the theoretical knowledge, learn to use them effectively in the practical material.

During the laboratory work the student must acquire the skills to work with technology and budgeting techniques and different methods of financial analysis and prediction.

It is also important, that the initial data for each of the laboratory work should be a practical material of real Russian enterprises. This allows you to link laboratory work with the subject and content of the course projects. Thus, in most cases, each of the laboratory work can be part of future course of student's project.

The result of the whole cycle of laboratory work should be solution of the following key tasks:

- formation of practical skills to use budgeting tools in a commercial organization to assess the impact of management decisions on the further development of the company in the short and long term;

- formation of applied competence, allow you to create and explore financial models of companies with a view to adopting the most efficient investment and financial decisions.

Knowledge, which was obtained in the course of a cycle of laboratory work, will find its application in the passage of educational and scientific-industrial practices, the implementation of research work and writing a thesis.

1. INTRAFIRM BUDGETING

1.1. Development of the general budget of a manufacturing company

(Laboratory №1)

1.2.1. Task of the laboratory №1

Work aim: work out general budget of a manufacturing company based on the budgeting techniques.

Order of work:

1. To develop operating budget of a manufacturing company.
2. To develop a financial budget of a manufacturing company.
3. To create projected balance.
4. On the basis of the preliminary analysis of projected balance make general conclusion about the prospective financial position of the analyzed company.

1.1.2. The structure and content of the laboratory №1 report

Order of implementation:

1. Development operating budget of a manufacturing company.
 - 1.1. Develop a budget of company sales. To present calculations in table 1.

Table 1. Sales budget JSC «Alpha»

Product	Quantity, nat.u	price per unit, rub.	Summary, rub.
product №1			
product №2			
.....			
Sum	-	-	

- 1.2. To develop company production budget. To present calculations in table 2.

Table 2. Production budget in natural units JSC «Alpha»

Indicators	product	
	product №1	product №2
Planned sales		
+ Expected reserves at the end of the period		
= Total necessary		
- Stocks at the beginning of the period		
= Planned production		

1.3. To develop a budget of cost of materials and materials procurement budget. To present calculations in tables 3, 4, 5.

Table 3. The costs of materials necessary for the production of the planned amount of finished products in natural units

Materials	product №1		product №2		Summary
	pieces	rub.	pieces	rub.	
Material №1					
Material №2					
.....					

Table 4. Budget of direct material costs, in natural and monetary terms

№ p/ p	Indicators	Material №1	Material №2	Summary
1	Total material requirement, nat. unit			
2	Used inventory, nat. unit			
3	Price for 1 nat. unit, rub.			
4	The cost of available stocks of materials used in production, ths. rub.			
5	The volume of purchases of materials necessary to execute the production plan (p1-p2), nat. unit			
6	Price for 1 nat. unit			
7	The cost of procurement of materials necessary to execute the production plan (p5*p6), rub.			
8	Total material cost (p4+p7), rub.			

Table 5. Budget of procurement of basic materials in natural and in monetary terms

№ p/ p	Indicators	Material №1	Material №2	Sum- mary
1	Material need for production, nat. u. (table №3)			
2	Stocks materials at the end of the period, nat. unit			
3	Total necessary in materials (p1-p2), nat. unit			
4	Stocks materials at the beginning of the period, nat. unit			
5	Purchase amount (p3-p4), nat. u.			
6	Price for 1 nat. u.			
7	The amount of materials procurement (p5*p6), rub.			

1.4. To develop a budget of direct labor costs. To present calculations in table 6.

Table 6. Budget of the labor costs in natural and monetary terms

Indicators	Number of out- put, nat. u.	Working time costs per unit of output, hour	The total cost of work, hour	Hourly rate, rub.	Total, rub.
product№1					
product №2					
Summary					

1.5. To develop overhead budget. To present calculations in table 7.

Table 7. Budget of overheads

Overheads	Sum, ths. rub.
Variable overhead - totally including:	
Fixed overhead - totally including:	
Summary	

1.6. To develop a budget of stocks of finished products at the end of the reporting period in natural and monetary terms. To present calculations in tables 8 and 9.

Table 8. Calculation of the cost of the finished product

Indicators	Unit cost, rub.	Costs (product №1)		Costs (product №2)	
		Nat.unit	Rub.	Nat.unit	Rub.
Material №1					
Material №2					
Work time					
Overheads					
Summary	-	-		-	

Table 9. Budget of stocks of materials and finished products at the end of the planning period

Indicators	Measure	Quantity	Cost unit, rub.	Total, ths. rub.
Material stocks:				
Material №1				
Material №2				
Finished products				
stocks:				
product №1				
product №2				
Summary	-	-	-	

1.7. To develop a budget of sales cost. To present calculations in table 10.

Table 10. Budget of sales cost

№ p/p	Indicators	Source of information	Sum, ths. rub.
1	Beginning finished goods inventory	initial data	
2	Material costs	table 4	
3	Labor costs	table 6	
4	Overhead costs	initial data	
5	Cost of produced goods	p.2+p.3+ p.4	
6	Stocks of finished production	table 9	
7	Cost of realized production	p.1+p.5-p.6	

Table 11. Budget of administrative expenses, ths. rub

Indicators	Sum
.....	
.....	
Summary	

Table 12. Budget for marketing costs, ths. rub

Indicators	Sum
.....	
.....	
.....	
Summary	

Table 13. Budget of commercial costs, ths. rub

Indicators	Sum
.....	
.....	
Summary	

Table 14. Budget of other recurrent costs, ths. rub

Indicators	Sum
.....	
.....	
Summary	

1.9. To develop a plan of profits and losses. To present calculations in table 15.

Table 15. Forecast of profits and losses

№ p/p	Indicators	Source of in- formation	Sum, ths. Rub.
1	Sales revenue	table1	
2	Sales cost	table10	
3	Gross profit	p.1-p.2	
4	Operating expenses:		
	-administrative costs;	table 11	
	-marketing costs;	table 12	
	-commercial costs;	table 13	
	- others. periodic expenses	table 14	
	Total operating expenses	-	
5	Operating profit	p .3- p.4	

2. The development of financial budget of industrial enterprise.

2.1. To develop budget of funds. To present calculations in tables 16, 17, 18.

Table 16. Expected cash flows in the III quarter, 2018

Indicators	May	June	July	August	September	Summary
Sales:						
-with deferred payment, 90%						
-without deferred payment, 10%						
Summary						
Getting cash from sales:						
- 10% current month						
- 50% of debts of the previous month	-	-				
- 50% of a two-month debt	-	-				
	-	-				
Summary	-	-				

Table 17. Expected payments for purchased materials, rub

Indicators	Quarters				Summary
	I	II	III	IV	
Procurement of materials - Total					
Form of payment:					
in the same month					-
with deferred payment					-
Payment of funds					
- 50% of the current month					-
- 50% of the previous month					-
Summary					

Table 18. Budget of funds of JSC «Alpha»

Indicators	Quarters				Total for year
	I	II	III	IV	
Procurement of materials - Total					
Balance of funds at beginning of period					
Flow of funds from sales					
Total cash					
Payouts:					
- for materials					
- wage					
-					
- other					
Total payments					
Minimum balance					
Demand for monetary funds					
Excess (shortage) of funds					
Attract borrowed funds					
Loan payments					

3. Making predicted balance sheet.

3.1. To develop forecast balance. To present calculations in table 19.

Table 19. Forecast balance JSC «Alpha» on 1.01.2019

Assets	Sum, rub.	Liabilities	Sum, rub.
Fixed assets		Share capital	
Finished products		Retained earnings	
Materials		Payables	
Account receivable		Payments to the national budget	
Cash account , payment account			
Summary		Summary	

4. General conclusion about the long-term financial position of the analyzed enterprise.

It is done on the basis of the preliminary analysis of the forecast balance sheet. The purpose of the analysis – is to give information to the directors, how plans will impact on the financial condition of the organization.

1.2. Development of the general budget of *trading* organization

(Laboratory №2)

1.2.1. Task of the laboratory №2

Work aim: work out general budget of the trade organization based on budgeting techniques

Order of work:

1. To develop operating budget of trading company
2. To develop financial plan of trading company.
3. To make a forecast balance sheet.
4. To make general conclusion about the prospective financial position of the analyzed organization based on preliminary analysis of the forecast balance sheet.

1.2.2. The structure and content of the laboratory №2 report

Order of implementation:

1. Development of operational budget of the trading organization.
 - 1.1. To develop sales budget of the company. To present calculations in table 20.

Table 20. Sales budget JSC «Omega»

Items	Quantity, nat. u.	Price per 1, rub.	Sum, rub.
Item №1			
Item №2			
.....			
Summary	-	-	

- 1.2. To develop budget purchases of goods. To present calculations in table 21.

Table 21. Budget procurement of goods in natural units in JSC«Omega»

Indicators	Items	
	Item №1	Item №2
Sales according to plan		
- Inventories at beginning of period		
= Planned purchases		

1.3. To develop budget of a stock of goods at the end of the planning period. To present calculations in table 22.

Table 22. Budget of a stock of goods at the end of the planning period

Indicators	Measure	Quantity	Price per 1, rub.	Sum, ths. rub.
Items stock:				
Item №1				
Item №2				
Summary	-	-	-	

1.4. To develop budget of cost of sales. To present calculations in table 22.

Table 23. Budget of cost of sales

№ p/p	Indicators	Information source	Sum, ths. rub.
1	Stocks of goods at the beginning of the period	Initial data	
2	Planned purchases	table 21	
3	Cost of sales	p.1+p.2	

1.5. To develop budget of marketing and commercial costs. To present calculations in tables 24 and 25.

Table 24. Budget of marketing costs, ths. rub

Indicators	Sum
.....	
.....	
.....	
Summary	

Table 25. Budget of commercial costs, ths. rub

Indicators	Sum
.....	
.....	
Summary	

1.6. To develop plan of profits and losses. To present calculations in table 26.

Table 26. Forecast of profits and losses

№ Of line	Indicators	Information source	Sum, ths. rub.
1	Revenue from sale	table 20	
2	Cost of goods	table 23	
3	Gross profit	p.1-p.2	
4	Operating expenses: - Marketing costs; - Commercial costs	table 24 table 25	
5	Total operating expenses Operating profit	p.3-p.4	

2. Development of financial budget of trading organization.

2.1. To develop budget of funds. To present calculations in tables 27, 28,

29.

Table 27. Expected cash flows in the III quarter, 2018, ths. rub

Indicators	May	June	July	Au- gust	Septem- ber	Sum- mary
Sales: with deferred payment, 90%						
without deferred payment, 10%						
Summary						
Getting funds from the sales of:						
10% of the current month	-	-				
50% of the previous month debt	-	-				
50% of the two-month debt	-	-				
Summary	-	-				

Table 28. Expected payments for purchased goods, ths. rub

Indicators	Quarters				Summary
	I	II	III	IV	
Procurement goods-Total					
Form of payment:					
-in the same month					
-with deferred payment					
Payment of funds:					
50% of the current month					
50% of the previous month					
Summary					

Table 29. Budget of funds of JSC «Omega», ths. rub

Indicators	Quarters				Total for year
	I	II	III	IV	
Purchases of goods - Total					
Balance of funds at the beginning of the period					
Flow of funds from sales					
Total funds					
Payouts:					
- for materials					
- wage					
-					
- other					
Total payments					
Minimum balance					
Demand for monetary funds					
Excess (shortage) of funds					
Attract borrowed funds					
Loan payments					
Payment of interest on the loan					
Balance of funds at end of period					

3. Development of the forecast balance of trading organization.

3.1. To develop forecast balance. To present calculations in table 30.

Table 30. Forecast balance of JSC «Omega» on 1.01.2018

Assets	Sum, rub.	Liabilities	Sum, rub.
Fixed assets		Share capital	
Stock		Retained earnings	
Account receivable		payables	
Cash account , payment account		Payments to the national budget	
Summary		Summary	

4. General conclusion about the long-term financial position of the analyzed organization.

It is done on the basis of the preliminary analysis of the forecast balance sheet. The purpose of the analysis – is to give information to the directors, how plans will impact on the financial condition of the organization.

2. DEVELOPMENT OF BUSINESS PLAN FOR INVESTMENT PROJECTS

2.1. Selection and evaluation of the best variant of investments

(Laboratory №3)

2.1.1. Task of the laboratory №3

Work aim: to choose the best option for the enterprise investments.

Order of work:

1. To substantiate the alternative threshold rate of return.
2. Calculate the performance indicators of investment projects on the basis of the proposed investments in alternative options and not alternative investment projects.
3. Based on the analysis of the results choose the best option for investment enterprise.

2.1.2. The structure and content of the laboratory № 3 report

Order of implementation:

1. Rates substantiation of alternative rates of return.
 - 1.1. Calculate the weighted average cost of capital for each of the four proposed investment projects, taking into account various financing options:
Investment capital structure:
 1. The share of equity in the investment structure 20% the share of borrowed - 80%.
 2. The share of investment in the share capital structure 40% the share of borrowed capital- 60%.
 3. 60% and 40% respectively.
 4. 80% and 20% respectively.
 - 1.2. To summarize calculation results in table 31.

Table 31. The weighted average capital value as an alternative rate of return in the various schemes of financing of investment projects

Project / Variant of financing	Project 1	Project 2	Project 3	Project 4
20/80				
40/60				
60/40				
80/20				

1.3. Draw the preliminary conclusion about:

- a) the best mode of funding for each project;
- b) preference of a project based on a specific version of its funding.

2. Calculation of efficiency of investment projects.

2.1. To calculate the amount of net cash flow for the selected scheme of financing for each of the four proposed investment projects. To summarize calculation results in table 32 (totally 4 tables).

2.2. To calculate values of the indicators of efficiency of investment (NPV, PI, IRR, T) for each of the 4 options for investment in investment projects. To summarize calculation results in table 33.

2.3. Draw the graphs of "change of the net present value of the project, depending on the discount rate" and "payback period" for each of the projects.

3. Choosing the best investment option for enterprise. It is implemented by the following rules:

1) choose the project with *the least* payback period, all other things being equal, and given the fact that the payback period for all projects satisfy the normative deadline;

2) choose the project, where *the net present value* is higher under the condition that all projects $NPV \geq 0$

3) choose the project, where *the internal rates of return* is higher under the condition that IRR of all projects is higher in the discount rate;

4) choose the project, where *the profitability index* is higher under the condition that for all projects. $PI \geq 1$.

Table 32. Calculation of net cash flow for the 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						
Net Cash flow (NCF)						
investing activities						
capital investment						
Cashflow (NCF)						
discount coefficient						
DCF (discount cash flow)						

Table 33. Comparative analysis of the effectiveness of different investment projects

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

2.2. Risk assessment of investment projects and the formation of a portfolio of investment projects

(Laboratory №4)

2.2.1. Task of the laboratory №4

Work aim: learn the methods of risk assessment of investment projects and the formation of the investment portfolio.

Order of work:

1. Calculate the risk of each investment project.
2. Create several investment portfolio to define the parameters to generate a portfolio.
3. Select the best option portfolio.

2.2.2. The structure and content of the laboratory №4 report

Order of implementation:

1. Calculation and risk assessment of investment projects.
 - 1.1. To calculate the expected return on projects A and B.
 - 1.2. To estimate the risk for each of the investment projects on the following parameters: range, variance, standard deviation.
 - 1.3. To determine the coefficient of variation for each project.
 - 1.4. To summarize calculation results in table 34.

Table 34. Risk analysis and assessment of investment projects

Indicators	Project A	Project B
Expected return, %		
Range, %		
Dispersion		
The standard deviation, %		
The coefficient of variation, %		

1.5. On the basis of the calculated parameters choose according to "risk-profitability" the best investment project.

2. Designing of several variants of investment portfolio. The definition of their parameters.

2.1. Create three options for the investment portfolio based on the selection of specific weights of investments, for example:

1. $W_A=40\%$ and $W_B=60\%$;

2. $W_A=50\%$ and $W_B=50\%$;

3. $W_A=60\%$ and $W_B=40\%$.

2.2. Calculate the expected return of each of the formed portfolios.

2.3 Calculate the coefficient of variation for each of the portfolios.

2.4. Calculate the coefficient of covariation of each of the portfolios.

2.5. Estimate risk of portfolio based on calculation of standard deviation for each of the variants of portfolios.

2.6. To summarize calculation results in table 35.

Table 35. Risk analysis and assessment of portfolios of investment projects

Indicators	Portfolio1	Portfolio 2	Portfolio 3
Expected return, %			
Correlation coefficient			
The coefficient of variation			
The standard deviation, %			

3. Choosing the best option portfolio.

It is carried out on the basis of the calculated indicators based on the ratio of "profitability-risk" for investors.

3. FINANCIAL ANALYSIS AND FORECASTING

3.1. Financial and economic analysis of enterprise activity

(Laboratory №5)

3.1.1. Task of the laboratory №5

Work aim: describe the financial condition of the enterprise through:

- assessment of the property structure of the organization and sources of financing;
- assessment of the ability of the enterprise in a timely manner and fully implement short term liabilities due to current assets;
- assessment of the company's ability to repay their obligations and save ownership of the enterprise over the long term;
- assessment of the company's ability to generate income through the turnover «money – item – money»;
- assessment of the effectiveness of the enterprise.

Order of work:

1. To analyze the financial condition of the enterprise on the basis of the balance sheet structure analysis.
2. To analyze the financial condition of the company on the basis of internationally accepted methodologies.
3. To evaluate satisfactoriness of the balance sheet structure.
4. Make a general conclusion about the financial status of the analyzed company.

3.1.2. The structure and content of the laboratory work №5 report

Order of implementation:

1. Analysis of the financial condition of the company on the basis of the balance sheet structure analysis.
 - 1.1. According to aggregated balance conduct the vertical and horizontal analysis of the balance sheet structure. Present calculations in tables 36 and 37.

Table 36. The composition, structure and analysis of the company's assets for 2018

Balance-sheet items	end-of-quarter indicator							
	I		II		III		VI	
	Sum, ths. rub.	Unit weight, %	Sum, ths. rub.	Unit weight, %	Sum, ths. rub.	Unit weight, %	Sum, ths. rub.	Unit weight, %

Table 37. The composition, structure and analysis of enterprise liabilities for 2018

Balance-sheet items	end-of-quarter indicator							
	I		II		III		VI	
	Sum, ths. rub.	Unit weight, %	Sum, ths. rub.	Unit weight, %	Sum, ths. rub.	Unit weight, %	Sum, ths. rub.	Unit weight, %

1.2. To build diagrams illustrating the structure of assets, the structure of current assets, liabilities structure, and structure of current liabilities.

1.3. To determine the presence and proportion of problem balance sheet items (payable to the budget, accounts receivable, etc.) and to assess their impact on the solvency of the company.

1.4. To analyze the structure of working capital in terms of participation in the production process and of evaluating their liquidity.

2. Analysis of the financial condition of the company on the basis of internationally accepted methodologies.

2.1. To conduct analysis of a company liquidity coefficient. To present calculations in table 38. To present the dynamics of liquidity ratios in the form of charts and graphs. Draw conclusions.

2.2. To analyze the financial stability of the enterprise on the basis of financial stability ratios. To present calculations in table 39. To present the

dynamics of financial stability indicators in the form of charts and graphs.
Draw conclusions.

Table 38. Analysis of liquidity of the enterprise in 2018 year

Indicators	end-of-quarter indicator				Norm
	I	II	III	VI	
Current assets, ths.rub					
Stocks, ths.rub					
Monetary funds, ths.rub					
Receivables, ths.rub					
Value added tax (VAT), ths.rub					
Current liabilities, ths.rub					
liabilities, ths.rub					
Revenue of the future periods, ths.rub					
Liquidity indicators					
Current liquidity ratio					≥2
Quick liquidity ratio					≥1
Absolute liquidity ratio					≥0,2
Net working capital					
The share of net working capital in current assets, %					
The share of cash in current assets, %					

Table 39. Evaluation of relative indicators of financial stability of the enterprise

Indicators	end-of-quarter indicator				Norm
	I	II	III	VI	
Shareholders' funds					
Fixed assets					
Current asset					
Asset coverage					≥0,1
Current assets to equity ratio					≥0,5
Equity to total assets ratio					≥0,5

2.3. To analyze the asset turnover. To present calculations in table 40. To present the dynamics of the turnover periods in the form of charts and graphs.
Draw conclusions.

Table 40. Analysis of turnover rates of assets and liabilities of the enterprise in 2018 year

Indicators	end-of-quarter indicator			
	I	II	III	VI
Turnover of fixed assets				
The turnover period of fixed assets, days				
Turnover of current assets				
The turnover period of current assets, days				
Turnover of all assets				
The turnover period of all assets				
Accounts payable turnover				
The turnover period of accounts payable, days				

2.4. To analyze enterprise profitability. To present calculations in table 41. To present dynamics of profitability indicators in the form of charts and graphs. Draw conclusions.

Table 41. Analysis of profitability indicators of the enterprise in 2018 year

Indicators	end-of-quarter indicator			
	I	II	III	VI
Revenue from product sales (excluding VAT)				
The total cost of realized goods				
Profit on sales				
The cost of property companies				
Product profitability				
Return on sales				
Return on assets				

3. Evaluation of satisfactoriness of balance sheet structure.

3.1. To calculate indicators rating satisfactorily (unsatisfactory) balance sheet structure. Draw a conclusion about the stability of financial position or insolvency (bankruptcy) of an economic entity. To present calculations in table 42.

Table 42. Evaluation of satisfactoriness of balance sheet structure

Indicators	end-of-quarter indicator			
	I	II	III	VI
Current liquidity ratio				
Asset coverage				
Coefficient of restitution (loss) to pay				

4. General conclusions about the financial condition of the analyzed company.

It is done on the basis of, firstly, the analysis of the values of the main factors studied enterprise financial status, and secondly, their dynamics over the study period.

3.2. Prediction of bankruptcy probability

(Laboratory №6)

3.2.1. Task of the laboratory №6

Work aim: *to estimate the probability of bankruptcy with the help of quantitative analysis methods.*

Order of work:

1. To assess probability of bankruptcy using Altman model.
2. To assess the probability of bankruptcy with the Lis model.
3. To assess the probability of bankruptcy, using Taffler and Tisshaw models.
4. To assess the probability of bankruptcy, Savitskaya model.
5. To conduct comparison and draw conclusions on the presence of the threat of bankruptcy for the analyzed company.

3.2.2. The structure and content of the laboratory №6 report

Order of implementation:

1. Evaluation of probability of bankruptcy using Altman model.
 - 1.1. To carry out the forecast on the basis of a two-factor Altman model. To present calculations in table 43.
 - 1.2. To carry out the forecast based on the four-factor Altman model. To present calculations in table 44.
 - 1.3. To carry out the forecast on the basis of the original and improved Altman five-factor model. To present calculations in tables 45 and 46.
 - 1.4. To carry out the forecast on the basis of the Emerging Market Scoring, (EM Z-score) Altman model. To present calculations in tables 47.

Table 43. The calculation of Z-score for the two-factor Altman model for analyzed enterprise, 2018 year

Indicators	end-of-quarter indicator			
	I	II	III	VI
Current actives				
Current liabilities				
Borrowed funds				
Total liabilities				
X_1				
X_2				
Z-score				

Table 44. The calculation of Z-score for the four-factor Altman model for analyzed enterprise

Indicators	end-of-quarter indicator			
	I	II	III	VI
Profit (loss) before taxation				
Property and equipment				
Current assets				
Current liabilities				
Revenues				
Operating assets				
Operating expenses				
X_1				
X_2				
X_3				
X_4				
Z-score				

Table 45. The calculation of Z-score for the five-factor original Altman model for analyzed enterprise, 2018 year

Indicators	end-of-quarter indicator			
	I	II	III	VI
Working Capital				
Retained Earnings				
Earnings Before Interest and Taxes				
Market Value Equity				
Book Value of Total Liabilities				
Sales				
Total Assets				
X_1				
X_2				
X_3				
X_4				
X_5				
Z-score				

Table 46. The calculation of Z-score for the five-factor improved Altman model for the analyzed enterprise, 2018 year

Indicators	end-of-quarter indicator			
	I	II	III	VI
Working Capital				
Retained Earnings				
Earnings Before Interest and Taxes				
Value Equity				
Book Value of Total Liabilities				
Sales				
Total Assets				
X_1				
X_2				
X_3				
X_4				
X_5				
Z-score				

Table 47. The calculation of Z-score for the Emerging Market Scoring Altman model for the analyzed enterprise, 2018 year

Indicators	end-of-quarter indicator			
	I	II	III	VI
Working Capital				
Total Assets				
Retained Earnings				
Earnings Before Interest and Taxes				
Book Value of Equity				
Total Liabilities				
X_1				
X_2				
X_3				
X_4				
Z-score				

1.5. On the basis of calculations taking into account the degree of reliability of Altman model (table 48) draw conclusions about the stability of the enterprise, the possible threat of bankruptcy in the short (up 1 year) and long (up to 5 years) terms.

2. Evaluation of the threat of bankruptcy using the Lis model.

2.1. Calculation of Z-score for the Lis model for the analyzed enterprise. To present calculations in table 49.

Table 48. The reliability of the bankruptcy models for different periods

Model	The probability of up to 1 year, %	The probability of up to 2 years, %	Probability after 2 years, %	Advantages and drawbacks
Two-factor	65	60	74	The variety of financial processes are not always reflected in the solvency ratios
Four-factor	71	67	68	It does not take into account factors of financial stability and market activity
Original five-factor	85	51	37	Lack of information regarding the market value of the company's capital
Improved five-factor	88	66	29	Corrected the lack of the original model, adapted to the Russian accounting standards

Table 49. The calculation of Z-score for the Lis model for the analyzed enterprise, 2018 year

Indicators	end-of-quarter indicator			
	I	II	III	VI
Working capital				
Total assets				
Earnings before interest and tax				
Retained earnings adjusted for scrip issues				
Net worth				
Total debt				
X_1				
X_2				
X_3				
X_4				
Z-score				

2.2. On the basis of the calculations performed by the Lis model draw conclusions about the stability of the enterprise.

3. Evaluation of the threat of bankruptcy, using Taffler and Tisshaw model.

3.1. To carry out the forecast on the basis of the Taffler and Tisshaw model. To present calculations in table 50.

Table 50. Calculation of Z-score Taffler and Tisshaw model for analyzed enterprise

Indicators	end-of-quarter indicator			
	I	II	III	VI
Profit before tax				
Current liabilities				
Current assets				
Total liabilities				
No-credit interval				
Total assets				
X_1				
X_2				
X_3				
X_4				
Z-score				

3.2. On the basis of Taffler and Tisshaw model calculations draw conclusions about the stability of the enterprise.

4. Evaluation of the threat of bankruptcy, using Savitskaya model.

4.1. To carry out the forecast on the basis of the Savitskaya model. To present calculations in table 51.

Table 51. Summative Evaluation of financial stability on the basis of Savitskaya methodology

Indicators	end-of-quarter indicator							
	I		II		III		VI	
	Fact	Score	Fact	Score	Fact	Score	Fact	Score
Absolute liquidity ratio								
Quick liquidity ratio								
Current liquidity ratio								
Equity to total assets ratio								
Asset coverage								
Coefficient of coverage their own working capital								

4.2. Based on the obtained values of the rating classify the company to a particular class and to describe its financial position.

5. General conclusions about the presence of the threat of bankruptcy for analyzed company.

It is done on the basis of, firstly, comparing the results of calculations on different models, and secondly, the degree of reliability models for different

periods and in the third, taking into account the results of the financial condition of the enterprise valuation (laboratory №5).

CONCLUSION

Work on laboratory assignments on the course "Financial management, budgeting and financial analysis" on the part of the student assumes a constant transition from theoretical studies to practice and vice versa, which allows the student not only to effectively apply the knowledge gained on the basis of a real object, but also to gain sufficient experience of this application.

The management of students' work on the part of the teacher in laboratory classes is carried out in control:

- the correctness of the work. Based on the results of the laboratory work, the student must form and present a report to the teacher for protection. On protection, the student should be well-versed in the presented work, be able to explain the sources of digital data, answer questions both theoretical and practical, related to the topic of the work;

- timeliness of the work. A student who has not defended laboratory work on time is not allowed to pass the exam in the discipline "Financial management, budgeting and financial analysis."

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