Федеральное государственное автономное образовательное учреждение высшего образования
"Национальный исследовательский университет "Высшая школа экономики"

Факультет экономических наук
Школа финансов

Программа учебной дисциплины Инвестиционный анализ

Утверждена
Академическим советом ООП
Протокол от « » г.

Автор	Черкасова Виктория Артуровна
Число кредитов	3
Контактная работа (час.)	22
Самостоятельная работа (час.)	92
Курс	4
Формат изучения дисциплины	с использованием онлайн курса

Москва, 2019

Syllabus

Investment analysis

Bachelor level

Coordinator: Victoria A. Cherkasova

Lecturers: Victoria A. Cherkasova, B. Yatsenko (E&Y)

Course description:

The course aims to study methods of investment projects efficiency, to receive investment analysis skills required in developing company's strategy. The main topics covered include: (1) project evaluation criteria (2) justification for required level of cost of capital (3) project evaluation under uncertainty (4) investment program creation.

In the course are used the adapted situations from the practice of Russian companies. Participants will have the opportunity to apply this knowledge to the investment projects evaluation in real companies in emerging capital markets.

As a result, students obtain theoretical knowledge and practical skills in the analysis of the investment project; use these results in justification of optimal management decisions, in the strategy development and tactics of financial and investment activities.

The course is taught in collaboration with the managers and partners of Ernst & Young Company.

Course objectives:

After completing the course the student will be able to:

- apply the current models and methods of assessment of investment projects efficiency and algorithms to develop the investment program;
- understand the interests of key participants in investment projects and consider them in investment program creation;
- include methods of risk assessment in project evaluation as a negative factor;
- prove the structure and perform the calculation of the cost of capital;
- optimize complex of projects within the budget;
- carry out the ranking of independent projects, realize the choice between alternative projects.

Competencies:

After completing the course the student develops the following competencies:

- to work with information from a variety of sources (ИК- 4) – analytical tasks that assume the calculation cost of capital, cash flows based on the data from financial statements;
- to work in teams (СЛК-7) – cases, analytical tasks based on real information;
- to apply traditional criteria of project valuation (ПК-2) – cases, practical exercises, analytical tasks;
- to analyze and interpret financial and analytical information, work with data from company’s financial statements (ПК-7) – cases, practical exercises, analytical tasks.
- to get and use the necessary information from open excess to apply it to project valuation (ПК-4) – cases, analytical tasks.

Recommended Prerequisites:

Statistics, Microeconomics, Corporate Finance, Accounting, Financial economics

Teaching method:

- lectures;
- practical exercises;
- case studies;
- analytical tasks;
- team projects;
- self-study;
- final exam.

Course texts:

Main texts:

1. Don Dayananda, Richard Irons, Steve Harrison, John Herbohn, Patrick Rowland, and Patrick Rowland (2002) Capital Budgeting: Financial Appraisal of Investment Projects Cambridge University Press https://ebookcentral.proquest.com/lib/hselibrary-ebooks/detail.action?docID=202400

2. Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011

   https://ebookcentral.proquest.com/lib/hselibrary-ebooks/reader.action?docID=697536&ppg=1

Supplementary texts:

1. Bierman Harold, Smidt Seymour, The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects, Routledge, 2007

2. Peterson Pamela P., Fabozzi Frank J. (2002) Capital Budgeting: Theory and Practice, JOHN WILEY & SONS https://proxylibrary.hse.ru:2258/toc.aspx?bookid=3767

3. Sandeep Goel (2015) Capital Budgeting// Business Expert Press https://ebookcentral.proquest.com/lib/hselibrary-ebooks/detail.action?docID=1934293

4. Shapiro Alan C. (2005) Capital Budgeting and Investment Analysis, Upper Saddle River, NJ: Prentice Hall

5. Clark J., Hindelang Thomas J., Pritchard Robert E. (1989) Capital Budgeting: Planning and Control of Capital Expenditures, Prentice Hall College Div, 3 Sub edition

6. Belli, P., Anderson, J., Barnum, H., Dixon, J., Tan, J. P. (2004) Economic Analysis of Investment Operations. Analytical Tools and Practical Applications. The World Bank, WBI Development Series, Washington**.**

7. Bokpin G. A., Onumah J. M. (2009). An Empirical Analysis of the Determinants of Corporate Investment Decisions: Evidence from Emerging Market Firms, International Research Journal of Finance and Economics ISSN 1450-2887 Issue 33

8. Borgonovo E., Peccati L. (2004) Sensitivity analysis in investment project evaluation,

International Journal of Production Economics, Vol. 90, pp. 17 -25

9. Borgonovo E., Peccati L. (2006) Uncertainty and global sensitivity analysis in the evaluation of investment projects, International Journal of Production Economics, Vol. 104, pp. 62 -73
10. Börjeson L., Höjer M., Dreborg K.-H., Ekvall T., Finnveden G. (September 2006) Scenario types and techniques: towards a user's guide. Futures, Vol. 38, No. 7, pp. 723-739
11. Boyer F. The real option solution. Finding total value in a high-risk world. – Wiley, 2002.
12. Bradfield R., Wright G., Burt G., Cairns G., Van der Heijden K. (2005) The origins and evaluation of scenario techniques in long range business planning. Futures, Vol. 37,pp. 795-812
13. Broyles J. Financial management and real options. – San Francisco: Wiley, 2003.
14. Bulan, Laarni T., (2005) Real Options, Irreversible Investment and Firm Uncertainty: New Evidence from US firms, Review of Financial Economics, 14, pp. 255-279
15. Catherine, F. and Vermeulen, P. (2004) Firms' investment decisions in response to demand and price uncertainty, NBB Working Paper, 45
16. Damodaran A. Investment Valuation: Tools and Techniques for Determining the Value of Any Asset. Wiley&Sons. 2002
17. Demir, F. (2008) Financial liberalization, private investment and portfolio choice: Financialization of real sectors in emerging markets, Journal of Development Economics, 88, pp. 314–324
18. Dimitrakopoulos, Sabour (2007) Evaluating mine plans under uncertainty: Can the real options make a difference?
19. Eklund J., Palmberg J., & Wiberg D. (2009) Ownership Structure, Board Composition and Investment Performance, Corporate ownership and control, 7(1), pp.120-130.
20. Gatchev V.A., Spindt P., Tarhan V. (2009) How do firms finance their investments? The relative importance of equity issuance and debt contracting costs, Journal of Corporate Finance, 15, pp. 179-195
21. Greg Nini, David C. Smith, Amir Sufi, The Value Implications of Creditor Intervention, 2008.
22. Jean-Paul D´ecamps, Thomas Mariotti, Stephane Villeneuve, (2003) Irreversible Investment in Alternative Projects, Economic Theory, Springer, 28 (2006), 425–448
23. Simanauskas Leonas, Didlauskas Skirmantas, Presumptive evaluation of investment project efficiency, 2006.
24. Martínez-Cesena,(2011) Application of an advanced real options approach for renewable energy generation projects planning, Renewable and Sustainable energy reviews, 15, pp. 2087-2094
25. Muharam, SMEs In Natural Resources: Project Evaluation Through Real Option Analysis, 2010
26. Nini, Greg, David C. Smith, and Amir Sufi, (2008). Creditor control rights and firm investment policy, Journal of Financial Economics.
27. O'Connor,Uncertainty, Policy, and the Risk of New Nuclear Build— a Real Options Approach// Working paper, 2010
28. Tong T., J. Reuer, (2004) Corporate Investment Decisions and the Value of Growth Options, www.realoptions.org

29. Umutlu M. (2010) Firm leverage and investment decisions in an emerging market, Quality and Quantity 44 (5), pp. 1005-1013

Grading:

Grading in the course will be based on the following criteria:

- Class participation 5%
- Team projects 15%
- Midterm test 1 40%
- Midterm test 2 40%

Total 100%

The accumulated mark is the final result and is rounded according to the rule of mathematical rounding.

The first midterm consists of 4 cases, the second midterm - of 5 cases. It is necessary to write solutions to these cases. Time of writing for first midterm is 1 hour 20 min, for second midterm - 2 hours.

Grades criteria:

From	To	Mark
0	3	Not passed
4	5	Satisfactory
6	7	Good
8	10	Excellent

Teaching hours for topics and activities:

Topic	*Total (hours)*	*Class (hours) including*		*Self-study*
		Lectures	*Practice*	
1. Financial modelling in project evaluation	23	4	-	15
2. Project analysis under certainty	21	4	2	15
3. Investment program creation	23	4	2	15
4. Experience of international consultants in Russia		-	6 *E&Y*	15
Total	**82**	**12**	**10**	**60**
5. Project analysis under risk		6 *online*		
6. Coordination of project participants		4 *online*		
Total	**92**	**22**	**10**	**60**

Lectures – 12 hours Cherkasova V.,
Practice – 4 hours Cherkasova V., 6 hours *E&Y*,
Online self-study – 10 hours.

Feasibility study of the project for Ernst&Young company includes (*it is necessary*

to choose a project either with state participation or with foreign investor):
1. The main participants of the project
2. The preparation of technical and economic proposals
3. Determination of the capital structure and its cost
4. Determination of the main technical and economic parameters
5. Preparation of a financial model with forecasts of future cash flows
6. Industry analysis as the most important stage in the preparation of the technical and economic proposals
7. Calculations of financial indicators
8. Conducting sensitivity analysis
9. Using of scenario method to assess project risks.

Course outline:

1. Financial modelling in project evaluation

Groundwork of financial models with future cash flows forecasts. Industry analysis as an important stage in the preparation of the feasibility study. Applications of the NPV, profitability index, modified internal rate of return, equivalent cash flow. The choice of a suitable criterion for unlimited (very long) and limited projects. Abnormally profitable projects. Features of projects accounting in emerging markets.

Analysis of incremental cash flows. Typical common mistakes in the evaluation of incremental cash flow for different types of projects.

Features of the incremental cash flow for various types of intercompany projects. Calculation of incremental cash flow in projects that are related to the replacement of existing assets. Nominal and real cash flows. Methodological mistakes in the accounting of inflation. Impact of taxes on cash flow. Fiscal, marginal and effective tax rates.

Self-study:

1) *MIT video lecture 10. Capital Budgeting (https://ocw.mit.edu/courses/sloan-school-of-management/15-401-finance-theory-i-fall-2008/video-lectures-and-slides/capital-budgeting/)*
2) *Damodaran From Earnings to Incremental Cash Flows https://www.youtube.com/watch?v=4hIu7Gs0-H0*

Main texts:

1. *Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011, ch. 2,4,6.*
2. *Don Dayananda, Richard Irons, Steve Harrison, John Herbohn, Patrick Rowland, and Patrick Rowland (2002) Capital Budgeting: Financial Appraisal of Investment Projects Cambridge University Press, ch. 1,2,3,4.*

Supplementary texts:

1. *Bierman Harold, Smidt Seymour, The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects, Routledge, 2007, ch. 1,3,4.*
2. *Peterson Pamela P., Fabozzi Frank J. (2002) Capital Budgeting: Theory and Practice, JOHN WILEY & SONS (hse electronic library)*
3. *Shapiro Alan C. (2005) Capital Budgeting and Investment Analysis, Upper Saddle River, NJ: Prentice Hall*

4. *Clark J., Hindelang Thomas J., Pritchard Robert E. (1989) Capital Budgeting: Planning and Control of Capital Expenditures, Prentice Hall College Div, 3 Sub edition*
5. *Leonas Simanauskas, Skirmantas Didlauskas, Presumptive evaluation of investment project efficiency, 2006.*
6. *Belli, P., Anderson, J., Barnum, H., Dixon, J., Tan, J. P. (2004) Economic Analysis of Investment Operations. Analytical Tools and Practical Applications. The World Bank, WBI Development Series, Washington.*
7. *Jonathan B. Cohn, Stephen M. Ross Investment, Cash Flow and Financial Markets: Evidence from Tax Loss Carryforwards, 2007*

2. Project analysis under certainty

Cash flow evaluation for a separate and integrated into the existing company project. Main problems associated with cash flows estimation of the project: correct prices determination, transfer pricing, infrastructure capital costs, sunk costs, opportunity costs.

Choice of the discount rate for a separate project and integrated into the company. Change in the cost of capital of the company as result of project implementation. Structure justification of sources of financing. Capital structure of the project and structure of sources of external financing. Justification of the cost of capital in the case of non-marketable debt. Features of accounting in the cost of the additional capital payments (fees, insurance, deposit) to lender.

Application the technique of adjusted present value (APV) for various types of projects. Comparison of methods NPV and APV. Problem of underinvestment, overinvestment, and the adoption of risky projects.

Self-study:

1) *ACCA, WACC and APV https://www.youtube.com/watch?v=2dVHHQ3HfXA*
2) *ACCA, WACC and APV https://www.youtube.com/watch?v=WxA6qdf0Jd8*
3) *WACC and APV https://www.youtube.com/watch?v=W4tSijMYUiQ*
4) *ACCA, Transfer pricing https://www.youtube.com/watch?v=T8IflJs4EAA*

Main texts:

1. *Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011, ch. 5,11,20.*
2. *Don Dayananda, Richard Irons, Steve Harrison, John Herbohn, Patrick Rowland, and Patrick Rowland (2002) Capital Budgeting: Financial Appraisal of Investment Projects Cambridge University Press, ch. 6.*

Supplementary texts:

1. *Bierman Harold, Smidt Seymour, The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects, Routledge, 2007, ch. 5,7,9,16.*
2. *Peterson Pamela P., Fabozzi Frank J. (2002) Capital Budgeting: Theory and Practice, JOHN WILEY & SONS*
3. *Shapiro Alan C. (2005) Capital Budgeting and Investment Analysis, Upper Saddle River, NJ: Prentice Hall*
4. *Clark J., Hindelang Thomas J., Pritchard Robert E. (1989) Capital Budgeting: Planning and Control of Capital Expenditures, Prentice Hall College Div, 3 Sub edition*

5. *Belli P., Anderson J., Barnum H., Dixon J., Tan J. P. (2004) Economic Analysis of Investment Operations. Analytical Tools and Practical Applications, The World Bank, WBI Development Series, Washington.*
6. *Damodaran A. Investment Valuation: Tools and Techniques for Determining the Value of Any Asset. Wiley&Sons. 2002*
7. *Gatchev V.A., Spindt P., Tarhan V. (2009) How do firms finance their investments? The relative importance of equity issuance and debt contracting costs, Journal of Corporate Finance, 15, pp. 179-195*
8. *Umutlu M. (2010) Firm leverage and investment decisions in an emerging market, Quality and Quantity 44 (5), pp. 1005-1013*

3. Investment program creation

Portfolio of investment projects of the company. Selection, justification and methods of assessment portfolio of projects. Analysis of interrelated projects. Evaluation of projects in the divisional structure and projects that are integrated into one complex. Creation of rational project complex. Coordination of the interests of the participants.

Assessment of the strategic prospects: evaluating the possibilities of entering new markets or refusing of the project. Using real CALL option in the analysis.

How to create the optimal capital budget, i.e. to distribute capital between projects? Creation of a rational combination of projects in time, evaluation of necessary delay projects. Graph of investment opportunities. Reasons for the growth of the cost of capital. Choice between substitutional projects. Optimization of the capital budget.

Cross-financing of the projects. Realization of loss-making project in case of increasing profitability of the entire complex. Implementation of specific projects - cross-holding and the growth of company value. Projects that reduce the risks of the entire complex.

Monitoring and reassessment projects. Control by the creditor and by the initiator. System financial effects in investment program: cross-funding, cross-subsidies, cross-hedging. System effects and financial strategy of the company.

Main texts:

1. *Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 201, ch. 22, 24.*
2. *Don Dayananda, Richard Irons, Steve Harrison, John Herbohn, Patrick Rowland, and Patrick Rowland (2002) Capital Budgeting: Financial Appraisal of Investment Projects Cambridge University Press, ch. 16.*

Supplementary texts:

1. *Bierman Harold*, Smidt Seymour, The *Capital Budgeting Decision, Ninth Edition*: *Economic Analysis* of *Investment Projects, Routledge, 2007, ch. 12.*
2. *Shapiro Alan C. (2005) Capital Budgeting and Investment Analysis, Upper Saddle River, NJ: Prentice Hall*
3. *Clark J., Hindelang Thomas J., Pritchard Robert E. (1989) Capital Budgeting: Planning and Control of Capital Expenditures, Prentice Hall College Div, 3 Sub edition*
4. *Eklund J., Palmberg J., & Wiberg D. (2009) Ownership Structure, Board Composition and Investment Performance, Corporate ownership and control, 7(1), pp.120-130.*
5. *Demir, F. (2008) Financial liberalization, private investment and portfolio choice:*

Financialization of real sectors in emerging markets, Journal of Development Economics, 88, pp. 314–324

6. *Bokpin G. A., Onumah J. M. (2009). An Empirical Analysis of the Determinants of Corporate Investment Decisions: Evidence from Emerging Market Firms, International Research Journal of Finance and Economics ISSN 1450-2887 Issue 33*
7. *Jean-Paul D´ecamps, Thomas Mariotti, Stephane Villeneuve, (2003) Irreversible Investment in Alternative Projects, Economic Theory, Springer, 28 (2006), 425–448*
8. *Greg Nini, David C. Smith, Amir Sufi, The Value Implications of Creditor Intervention, 2008.*
9. *Nini, Greg, David C. Smith, and Amir Sufi, (2008). Creditor control rights and firm investment policy, Journal of Financial Economics.*

4. **Experience of international consultants in Russia (Ernst&Young).**

Preparation of a feasibility study of investment projects. Main participants of the project. Structuring of the project financing transaction. Determination of the main technical and economic parameters. Preparation of a financial model with forecasts of future cash flows. Analysis of the industry as the most important stage in the preparation of feasibility studies. Analysis of financial performance indicators of the project. Analysis of the results of the investment project.

Main texts:

1. *Don Dayananda, Richard Irons, Steve Harrison, John Herbohn, Patrick Rowland, and Patrick Rowland (2002) Capital Budgeting: Financial Appraisal of Investment Projects Cambridge University Press, ch. 10,13.*

5. **Project analysis under risk**

Risks forecasting and analyzing in projects. Methodology of the analysis of project risks. Risk management process. A sensitivity analysis. The technique of sensitivity analysis: a method of control points, method of rational ranges. Conditions of the Monte Carlo method application. Scenario method. Stages of creation scenarios. Analysis of the decision tree.

Self-study:

1) *University of Strathclyde, Glasgow, Capital Budgeting: Sensitivity Analysis, Scenario Analysis, Break-Even Analysis https://www.youtube.com/watch?v=REPnSbR_D04*
2) *https://www.youtube.com/watch?v=AOZu_DZVCuA*
3) *https://www.youtube.com/watch?v=AOZu_DZVCuA&t=32s*
4) *https://www.youtube.com/watch?v=hfZ6lznPf2U*

Main texts:

2. *Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011, part IV.*
3. *Don Dayananda, Richard Irons, Steve Harrison, John Herbohn, Patrick Rowland, and Patrick Rowland (2002) Capital Budgeting: Financial Appraisal of Investment Projects Cambridge University Press, ch. 7,8,9.*

Supplementary texts:

1. *Bierman Harold, Smidt Seymour, The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects, Routledge, 2007, ch. 8.*
2. *Peterson Pamela P., Fabozzi Frank J. (2002) Capital Budgeting: Theory and Practice, JOHN WILEY & SONS*
3. *Shapiro Alan C. (2005) Capital Budgeting and Investment Analysis, Upper Saddle River, NJ: Prentice Hall*
4. *Clark J., Hindelang Thomas J., Pritchard Robert E. (1989) Capital Budgeting: Planning and Control of Capital Expenditures, Prentice Hall College Div, 3 Sub edition*
5. *Borgonovo E., Peccati L. (2004) Sensitivity analysis in investment project evaluation, International Journal of Production Economics, Vol. 90, pp. 17 -25*
6. *Borgonovo E., Peccati L. (2006) Uncertainty and global sensitivity analysis in the evaluation of investment projects, International Journal of Production Economics, Vol. 104, pp. 62 -73*
7. *Bradfield R., Wright G., Burt G., Cairns G., Van der Heijden K. (2005) The origins and evaluation of scenario techniques in long range business planning. Futures, Vol. 37,pp. 795-812*
8. *Börjeson L., Höjer M., Dreborg K.-H., Ekvall T., Finnveden G. (September 2006) Scenario types and techniques: towards a user's guide. Futures, Vol. 38, No. 7, pp. 723-739*
9. *Catherine, F. and Vermeulen, P. (2004) Firms' investment decisions in response to demand and price uncertainty, NBB Working Paper, 45*

6. Coordination of project participants

Investment project as a set of interests of its participants. The main categories of project participants: equity investors and sponsors; creditors and guarantors; suppliers and contractors; consumers of products. The interests of the project participants. Demands on the coordination of interests between the main participants of the project.

Projects with the participation of the state. The role of the state in the implementation of the project: direct participant of the capital, guarantor. Tax holidays and benefits. Concessions. Public-Private Partnership (PPP). Concept, benefits and limitations.

Projects with participation of foreign investor. The specifics of the calculations of the capital budget of the international project. Multi-currency nature of the project. The comparability of rates of return. Purchasing power parity. Reduction of rates of return to one currency in the implementation of financial calculations. Multi-currency cash flows and principles of evaluation of international projects. Transformation of cash flows.

Main texts:

1. *Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011, ch.7,8.*

Self-study:

1) *https://www.youtube.com/watch?v=cEBDDZ51uQg*
2) *https://www.youtube.com/watch?v=Ok1j3PoYofQ*
3) *https://www.youtube.com/watch?v=eMFQlAzq3S0*
4) *https://www.youtube.com/watch?v=Zpdz7RHwBeA*
5) *https://www.youtube.com/watch?v=WYoXWNm62Zw*

6) https://www.youtube.com/watch?v=lgVmPNGVtz4

Cases for self-evaluation of knowledge by students.

Case 1.

An automobile plant is planning to implement two small projects, typical for the enterprise:

- Release of a new model of a specialized vehicle, adapted to the north-east Russian conditions;
- Production of tinted windows for a new car model, using imported equipment.

Project financing has almost no effect on the capital structure of the plant. Weighted average cost of capital adjusted for non-commercial investments amounts to 17.5% per annum in a currency. Projects are integrated into the existing production system and have different lifetimes.

Cash flows on the projects, calculated by managers of the corporation, are listed in the table:

	Cash flow, million CUR, by year				
	0 period	1st	from 2nd to 5th	from 6th to 9th	10th
1. Project 1	-14,6	3,15	4,02	4,02	4,79
2. Project 2	-7,5	2,30	2,91	-	-

The lifetime of the project is due to the useful life of the equipment. Assess the efficiency of the projects 1 and 2, using a variety of evaluation criteria.

Case 2.

1) Project for the release of the mini-rover on the operating automobile plant is designed for 10 years. The product of the project is a unique, environmentally friendly road vehicle designed for year-round operation in the tundra, and the sandy area.

Here are the original data for the evaluation of the project cash flows, calculated in constant prices of the zero period, thousand, rub.:

Investments of the zero period *(inv)*	54 450
Annual revenue from sales *(S)*	94 500
Annual costs (excluding depreciation) *(C)*	58 170
Annual depreciation *(DP)*	4 800
Annual profit 94,500 – (58,170 + 4,800) =	31 530
Annual taxes at the rate of 35% *(T)*: 31,530 x 0.35 =	11 035.5
Residual value in the 10th year including taxes *(SV)*	3 450

Project is typical for the plant and small, compared to the size of the enterprise as a whole. Weighted average cost of capital of the automobile plant is 28% per annum in rubles. The expected increase in prices is 18% per year.

It is required to evaluate the project using the technique of calculation in fixed (real) and variable (nominal) prices.

2) What will happen if we predict the inflation incorrectly*?*

Suppose that in fact its pace will be uneven: during the first five years, the Russian government and the Central Bank of the Russian Federation will be able to keep inflation at 18% per annum, but from the 6th year, the annual growth of prices in the economy will reach 25%.

3) Suppose, that for the implementation of the investment project we granted a 10 million rubles loan at interest of 20% per annum for two years (interest is paid at the end of each year, and the credit - at the end of the 2nd year). However, our own requirements for project profitability remained at 28% per annum, despite the increased financial risk. Analyze the project on a real basis and use a technique of residual cash flow.

Case 3.

Scientific-production enterprise Ecotech is developing, implementing and maintaining environmentally friendly technologies at large enterprises of ferrous and non-ferrous metallurgy, chemical industry. Equity capital of the company amounts to $184,220. Borrowed capital, represented in the form of short-term loan, amounts to $30,252. The loan was granted at an interest rate of 16% per annum, while the rate of the Central Bank of the Russian Federation is 18%. The coefficient β of the company is estimated at 0.83. Income tax rate is 35%.

The company plans to carry out untypical project of production of secondary aluminum in the Moscow region. According to experts of the company, the production of non-ferrous metals from scrap and waste is more advantageous compared to smelting from ore raw materials, which, in particular, can be seen from a comparison of the main economic indicators of these two different methods.

The need for investment makes up $105,000. This money are going to be received in a commercial bank in the form of credit line at a rate of 18% per annum. Since the project is very profitable, the repayment of obligations is planned within a year. The recipient of the credit line is the Ecotech company.

Details of the financial market:

- Risk-free rate is 5.5%
- Market risk premium for investing in the equity of Russian companies is 25% per annum
- Unlevered β_0 for the industry of nonferrous metallurgy is 0.95

It is necessary to determine WACC of the project and WACC of the company.