

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

Факультет экономических наук
Школа финансов

**Рабочая программа дисциплины «Инвестиционный анализ» (Investment
analysis)**

для образовательной программы «Экономика»
направления 38.03.01 «Экономика»
подготовки бакалавра

Разработчик программы

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Одобрена на заседании Школы финансов

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Утверждена Академическим советом образовательной программы «Экономика»

«__» _____ 201_ г., № протокола _____

Академический руководитель образовательной программы

К.А. Букин _____

Москва, 2017

*Настоящая программа не может быть использована другими подразделениями университета и
другими вузами без разрешения подразделения-разработчика программы.*



1 Компетенции обучающегося, формируемые в результате освоения дисциплины

В результате освоения дисциплины студент должен:

- Знать
- Уметь
- Иметь навыки (приобрести опыт)

В результате освоения дисциплины студент осваивает следующие компетенции:

Компетенция	Код по ФГОС/ НИУ	Дескрипторы – основные признаки освоения (показатели достижения результата)	Формы и методы обучения, способствующие формированию и развитию компетенции
а) общекультурные:			
- способен совершенствовать и развивать свой интеллектуальный и общекультурный уровень;	ОК-1	демонстрирует уровень интеллектуального и общекультурного развития	Лекции, самостоятельное освоение специальной научной литературы
- способен к самостоятельному освоению новых методов исследования, к изменению научного и научно-производственного профиля своей профессиональной деятельности;	ОК-2	самостоятельно осваивает новые методы исследования; применяет имеющиеся знания при изменении научного и научно-производственного профиля своей профессиональной деятельности;	Самостоятельная подготовка проекта по учебной дисциплине
- способен самостоятельно приобретать (в том числе с помощью информационных технологий) и использовать в практической деятельности новые знания и умения, включая новые области знаний, непосредственно не связанных со сферой деятельности;	ОК-3	использует в практической деятельности новые знания;	Самостоятельный поиск данных для оценки эффективности инвестиционных проектов
- владеет навыками публичной и научной речи;	ОК-6	Демонстрирует способность к ведению публичных дискуссий;	Изложение результатов самостоятельной работы на семинарских занятиях в форме защиты проектов, постановки вопросов и их обсуждении в аудитории.
б) профессиональные:			
научно-исследовательская			



деятельность			
- способен проводить самостоятельные исследования в соответствии с разработанной программой;	ПК-3	Владеет современными информационными технологиями; Демонстрирует знание основных информационных систем и умение применять их;	Самостоятельный поиск данных, которые будут использованы для оценки инвестиционных проектов и их презентации на семинарах.
- способен представлять результаты проведенного исследования научному сообществу в виде статьи или доклада;	ПК-4	Демонстрирует способность представлять результаты проведенного исследования;	Самостоятельная подготовка проекта и его презентация на семинарах
- способен осуществлять сбор, анализ и обработку статистических данных, информации, научно-аналитических материалов, необходимых для решения поставленных экономических задач	ПК-5	Демонстрирует знание основных информационных систем и умение применять их	Самостоятельный поиск, изучение и использование данных на практических и семинарских занятиях
- способен выбрать инструментальные средства для обработки экономических данных в соответствии с поставленной задачей, проанализировать результаты расчетов и обосновать полученные выводы	ПК-6		Самостоятельная подготовка проекта по учебной дисциплине
• аналитическая деятельность			
- способен анализировать и использовать различные источники информации для проведения экономических расчетов.	ПК-9	Владеет методами поиска источников информации;	Самостоятельное проведение расчетов по оценке проекта, его эффективности, анализу рисков проекта

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-1, Accounting.

Teaching method:

- lectures;
- practical exercises;
- case studies;
- analytical tasks;
- team projects;



- self-study;
- final exam.

Course texts:

Main texts:

1. Bierman Harold, Smidt Seymour, The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects, Routledge, 2007
2. Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011 (hse electronic library)

Supplementary texts:

1. Peterson Pamela P., Fabozzi Frank J. (2002) Capital Budgeting: Theory and Practice, JOHN WILEY & SONS (hse electronic library)
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. 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.
5. 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
6. Borgonovo E., Peccati L. (2004) Sensitivity analysis in investment project evaluation, International Journal of Production Economics, Vol. 90, pp. 17 -25
7. 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
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. Boyer F. The real option solution. Finding total value in a high-risk world. – Wiley, 2002.
10. 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
11. Broyles J. Financial management and real options. – San Francisco: Wiley, 2003.
12. Bulan, Laarni T., (2005) Real Options, Irreversible Investment and Firm Uncertainty: New Evidence from US firms, Review of Financial Economics, 14, pp. 255-279
13. Catherine, F. and Vermeulen, P. (2004) Firms' investment decisions in response to demand and price uncertainty, NBB Working Paper, 45
14. Damodaran A. Investment Valuation: Tools and Techniques for Determining the Value of Any Asset. Wiley&Sons. 2002
15. 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

16. Dimitrakopoulos, Sabour (2007) Evaluating mine plans under uncertainty: Can the real options make a difference?
17. Eklund J., Palmberg J., & Wiberg D. (2009) Ownership Structure, Board Composition and Investment Performance, *Corporate ownership and control*, 7(1), pp.120-130.
18. 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
19. Greg Nini, David C. Smith, Amir Sufi, *The Value Implications of Creditor Intervention*, 2008.
20. Jean-Paul D’ecamps, Thomas Mariotti, Stephane Villeneuve, (2003) Irreversible Investment in Alternative Projects, *Economic Theory*, Springer, 28 (2006), 425–448
21. Simanauskas Leonas, Didlauskas Skirmantas, *Presumptive evaluation of investment project efficiency*, 2006.
22. 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
23. Muharam, *SMEs In Natural Resources: Project Evaluation Through Real Option Analysis*, 2010
24. Nini, Greg, David C. Smith, and Amir Sufi, (2008). Creditor control rights and firm investment policy, *Journal of Financial Economics*.
25. O’Connor, *Uncertainty, Policy, and the Risk of New Nuclear Build— a Real Options Approach// Working paper*, 2010
26. Tong T., J. Reuer, (2004) *Corporate Investment Decisions and the Value of Growth Options*, www.realoptions.org
27. 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%
•	Inspection test	40%
•	<u>Final exam</u>	<u>40%</u>
Total		100%

Grades criteria:

From	To	Mark
0	4	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	21	6	2 E&Y	15
2. Project analysis under certainty	26	4	2 E&Y	15
3. Project analysis under risk	26	4	2 online	15
4. Real options and Project analysis	20	4 online	2 online	15
5. Investment program creation	18	2	2 E&Y	16
Total	110	24	10	76

Lectures – 20 hours Cherkasova V., 4 hours – online self-study.

Practice – 6 hours E&Y, 4 hours – online self-study.

Course outline:

1. Financial modelling in project evaluation

Planning of feasibility studies of investment projects. Definition of the main technical and economic parameters. Groundwork of financial models with future cash flows forecasts. Industry analysis as an important stage in the preparation of the feasibility study. Stages of the financial justification for an investment decision.

Substitutional and complementary evaluation criteria. Different scale projects and intensity of inflows evaluation. Selecting and ranking projects methods. 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 (<http://ocw.mit.edu/courses/sloan-school-ofmanagement/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. Bierman Harold, Smidt Seymour, *The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects*, Routledge, 2007, ch. 1,3,4.
2. Baker H. Kent, English Philip, *Capital Budgeting Valuation: Financial analysis for today's investment projects*, John Wiley & Sons, 2011 (hse electronic library), ch. 2,4,6.



Supplementary texts:

1. Peterson Pamela P., Fabozzi Frank J. (2002) *Capital Budgeting: Theory and Practice*, JOHN WILEY & SONS (hse electronic library)
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. Leonas Simanauskas, Skirmantas Didlauskas, *Presumptive evaluation of investment project efficiency*, 2006.
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. 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. Free and residual cash flows. 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.

Net present value (NPV) method evaluation. Application the technique of adjusted present value (APV). 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=T8IfJJs4EAA>

Main 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. Baker H. Kent, English Philip, *Capital Budgeting Valuation: Financial analysis for today's investment projects*, John Wiley & Sons, 2011 (hse electronic library), ch. 5,11,20.

Supplementary texts:

1. Peterson Pamela P., Fabozzi Frank J. (2002) *Capital Budgeting: Theory and Practice*, JOHN WILEY



& SONS (hse electronic library)

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. 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.
5. Damodaran A. *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*. Wiley&Sons. 2002
6. 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
7. Umutlu M. (2010) *Firm leverage and investment decisions in an emerging market*, *Quality and Quantity* 44 (5), pp. 1005-1013

3. 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:

1. Bierman Harold, Smidt Seymour, *The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects*, Routledge, 2007, ch. 8.
2. Baker H. Kent, English Philip, *Capital Budgeting Valuation: Financial analysis for today's investment projects*, John Wiley & Sons, 2011 (hse electronic library), part IV.

Supplementary texts:

1. Peterson Pamela P., Fabozzi Frank J. (2002) *Capital Budgeting: Theory and Practice*, JOHN WILEY & SONS (hse electronic library)
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. *Borgonovo E., Peccati L. (2004) Sensitivity analysis in investment project evaluation, International Journal of Production Economics, Vol. 90, pp. 17 -25*
5. *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*
6. *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*
7. *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*
8. *Catherine, F. and Vermeulen, P. (2004) Firms' investment decisions in response to demand and price uncertainty, NBB Working Paper, 45*

4. Real options and Project analysis

Alternative approach to assessment of investment projects. Types of real options on the side of assets and liabilities. Practical issues of evaluation of real options. Options to reduce and the output from the project. Real option on project development. Types of real options on development: scalable business, reserve capabilities, and expansion of experience. Options on the switch and the temporary stop of the project. The option on delay the start of the project. Limitations and disadvantages of real options analysis.

Self-study:

- 1) MIT video lecture 6. Options <http://ocw.mit.edu/courses/sloan-school-of-management/15-401-finance-theory-i-fall-2008/video-lectures-and-slides/options/>
- 2) University of Strathclyde, Glasgow, Capital Budgeting: real options <https://www.youtube.com/watch?v=UErgutT95yI>

Main texts:

1. *Bierman Harold, Smidt Seymour, The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects, Routledge, 2007, ch. 15.*
2. *Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011 (hse electronic library), part V.*

Supplementary texts:

1. *Shapiro Alan C. (2005) Capital Budgeting and Investment Analysis, Upper Saddle River, NJ: Prentice Hall*
2. *Clark J., Hindelang Thomas J., Pritchard Robert E. (1989) Capital Budgeting: Planning and Control of Capital Expenditures, Prentice Hall College Div, 3 Sub edition*
3. *Tong T., J. Reuer, (2004) Corporate Investment Decisions and the Value of Growth Options, www.realoptions.org*
4. *Bulan, Laarni T., (2005) Real Options, Irreversible Investment and Firm Uncertainty: New Evidence from US firms, Review of Financial Economics, 14, pp. 255-279*
5. *Broyles J. Financial management and real options. – San Francisco: Wiley, 2003.*



6. *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*
7. *Dimitrakopoulos, Sabour (2007) Evaluating mine plans under uncertainty: Can the real options make a difference?*
8. *Boyer F. The real option solution. Finding total value in a high-risk world. – Wiley, 2002.*
9. *O'Connor, Uncertainty, Policy, and the Risk of New Nuclear Build —a Real Options Approach// Working paper, 2010*
10. *Muharam, SMEs In Natural Resources: Project Evaluation Through Real Option Analysis, 2010*

5. 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. *Bierman Harold, Smidt Seymour, The Capital Budgeting Decision, Ninth Edition: Economic Analysis of Investment Projects, Routledge, 2007, ch. 12.*
2. *Baker H. Kent, English Philip, Capital Budgeting Valuation: Financial analysis for today's investment projects, John Wiley & Sons, 2011 (hse electronic library), ch. 22, 24.*

Supplementary texts:

1. *Shapiro Alan C. (2005) Capital Budgeting and Investment Analysis, Upper Saddle River, NJ: Prentice Hall*
2. *Clark J., Hindelang Thomas J., Pritchard Robert E. (1989) Capital Budgeting: Planning and Control of Capital Expenditures, Prentice Hall College Div, 3 Sub edition*
3. *Eklund J., Palmberg J., & Wiberg D. (2009) Ownership Structure, Board Composition and Investment Performance, Corporate ownership and control, 7(1), pp.120-130.*
4. *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*
5. *Bokpin G. A., Onumah J. M. (2009). An Empirical Analysis of the Determinants of Corporate*



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6. *Jean-Paul D'ecamps, Thomas Mariotti, Stephane Villeneuve, (2003) Irreversible Investment in Alternative Projects, Economic Theory, Springer, 28 (2006), 425–448*
7. *Greg Nini, David C. Smith, Amir Sufi, The Value Implications of Creditor Intervention, 2008.*
8. *Nini, Greg, David C. Smith, and Amir Sufi, (2008). Creditor control rights and firm investment policy, Journal of Financial Economics.*