

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

Department of Economics



DIPLOMA THESIS

Economic Evaluation of Selected Residential Development Project

Author: Bc. Cyril Pohl

Supervisor: Ing. Petr Procházka, Msc. Ph.D.

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Declaration

I declare that the Diploma Thesis titled:“Feasibility Study of a Selected Real Estate Rural Development Project” was written with use of literature and other sources which are all included in the List of Sources at the end of the Thesis and especially with help of my Thesis supervisor Ing. Petr Procházka, Msc. Ph.D.

Cyril Pohl

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I would like to thank Ing. Petr Procházka, Msc. Ph.D. For his guidance, theoretical and practical suggestions when writing this Thesis and for his patient but serious approach. Furthermore I would like to thank to the employees of the Nádražní 23 s.r.o. development company for providing necessary information and study material.

Economic Evaluation of Selected Residential Development Project

(Ekonomické zhodnocení vybraného rezidenčního
developerského projektu)

Summary

The aim of this Diploma Thesis is to conduct a Financial Feasibility Study of a Selected Real Estate Rural Development Project. Construction of this project will begin in 2015 and is scheduled to finish in 2017. Material and data necessary to complete this work have been obtained from various sources of information such as Czech Statistical Office, interviews with important employees taking part in the real estate project, real estate development industry analyses, project documentations etc. Utilization of these materials helped the author to make calculations and assumptions in order to assess financial feasibility of the selected real estate project.

This Diploma Thesis can be according to its content divided into two main bodies titled Literature Review and Practical Part. Literature review is essential part of the thesis containing necessary theoretical information and procedures to conduct the financial feasibility analysis. Practical part of the Diploma Thesis contains chapters including introduction of the selected project, vertical and horizontal analysis of development of real estate market and financial statements of the developer company, analysis of financial indicators.

Estimated costs to construct the whole project were estimated to 385.5 mil. CZK. Revenues from sale of all 144 apartment units, kindergarten, theatre, underground garage and all parking spots will be about 480 mil. CZK to 500 mil. CZK. Based on calculations of indicators, the profitability of the real estate project is 20.05%.

Key Words: Financial Analysis, Residential Development, Real Estate Market

Souhrn

Cílem této Diplomové Práce je vytvořit Studii Proveditelnosti vybraného Developerského Projektu. Stavba tohoto projektu začne roku 2015 a bude dokončena roku 2017. Data a materiály potřebné k vytvoření této práce byly získány z různých zdrojů informací jako například Český Statistický Úřad, interview se zamestnanci developerské firmy, analýzy developerských projektů, projektové dokumentace atd. Využití těchto materiálů pomohlo autorovi této práce vytvořit kalkulace a předpoklady ke zhodnocení finanční proveditelnosti vybraného developerského projektu.

Diplomová práce může být rozdělena na základě obsahu na dvě hlavní části nazvané Přehled Literatury a Praktická Část. Přehled Literatury je nezbytnou součástí Diplomové Práce obsahující potřebné teoretické informace a procedury k vytvoření ekonomické studie proveditelnosti. Praktická Část obsahuje kapitoly jako představení vybraného projektu, vertikální a horizontální analýza finančních výkazů firmy a trhu s nemovitostmi a analýza finančních indikátorů.

Předpokládané výdaje na potavení developerského projektu byly odhadnuty na 385.5 milionů korun. Příjmy z prodeje 144 bytových jednotek, školky, divadla, podzemních garáží a ostatních parkovacích míst se vyšplhají na 480 až 500 milionů korun. Na základě kalkulací indikátorů a odhadů se bude výnosnost projektu pohybovat kolem 20.5%.

Klíčová Slova: Rezidenční výstavba, finanční analýza, trh nemovitostí

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1. Introduction

Real Estate Development Project is an Real estate development, or property development, is a broad business, including activities such purchase of raw land, the sale of improved land, and sale of results of their construction. Developers are the coordinators of the activities, converting ideas on paper into real property investments. The main aim of such projects is profit maximization however they all contribute to local development especially in rural areas.

The aim of the feasibility study is assessment of economic health of the real estate project, its financial feasibility based on various financial indicators and development of the project with predictions for the future. Economic feasibility study analyzes data from various sources such as Czech Statistical Office, Územní Analýza Aktuálních Developerských Projektů Zaměřených na Výstavbu Bytových Domů (2014) and also financial statements of the Nádražní 23 sro developer company etc.

This study utilizes these data and translates them into consolidated and understandable information. These information can be used by investors of the project to evaluate, make comparisons with competition, observe expected development of the project and make necessary decisions and actions to alter or improve the project.

2. Objectives and Methodology

2.1. Aim

The main goal of this thesis is to conduct a Financial Feasibility Analysis of a Real estate rural development project. It is necessary to explain theoretical aspects of the financial feasibility study in real estate construction industry and to evaluate a development project in reality from financial point of view. The aim is to analyze the project and make decisions about its economic feasibility. The project will be compared and evaluated based on industry averages as well as with its close competitors.

2.2. Methodology

Methodology of this thesis can be divided into two main parts. First part titled Literature Review is an important part of the research since it contains necessary theoretical information which is essential for completion of the Thesis. Various literature sources have been used to explain definitions and theory which will contribute to clarify the basic purpose and nature of the Financial Feasibility Study.

The second part titled Practical Part comprises of examining the real estate rural development project with fundamental and technical analysis. Fundamental analysis was conducted with use of literature as well as contribution from strategic employees of the developer company in form of 10 informal interviews. The interviews broadened information and insight into the real estate market and dynamics of development projects in general.

Technical analysis was conducted using computation software. Further the project will be valued with use of horizontal and vertical analysis and trend analysis of various financial statements and expectations for upcoming years of operation of the project.

With use of developer's financial statements the author conducted vertical analysis of cash flows as well as analysis of total costs and revenues. Using computation software the author has analyzed various indicators of financial feasibility including Payback Period, Internal Rate of Return, Net Present Value, Profitability Index etc.

3. Literature Review

Development project usually means a business plan and its subject is construction of real estate for the purpose of its lease or sale. It also may be a project aiming to purchase existing property, its reconstruction or modernization and its subsequent lease or sale. One of the key features of the development activity is primarily sale or rent of newly built or renovated buildings to third parties. As the development project is therefore not considered cases where the entrepreneur builds or renovates a property for their needs and requirements. (15)

Developer is an investor of the project, but it is not his final investor. The final investor is interested in owning the resulting project (either directly or at least a company that own this property), but does not want to take the risk of construction. The developer, however usually does not build the himself/herself (although some exceptions exist). It is common that investor hires a contractor, which is a construction company. In addition to the contractor, during the project there are also involved a number of other people, especially architects, designers, lawyers, consultants and other project managers.(13)

A typical features of development projects are relatively high spending and cost of its realization, which is needed at the beginning of the project in order to for example buy land or real estate, and its reconstruction or construction. These costs shall be returned to the developer in form of profit for the sale of the property as purchase price of real estate and in case of a lease in the form of rent. Due to the high initial costs, the developer is not able to finance the initial phase of a development project from their own resources. Therefore in the preparatory phase of the project it is necessary to address the question of how to finance the development project.

Development projects can be categorized as follows:

Housing Projects (residential) - predominance of residential space include apartment complexes or houses, or multipurpose units.

Commercial construction projects (non-residential) - predominance of commercial space include business parks or logistical facilities and retail, hotel or office complexes or multi-functional units.
(13)

3.1. Feasibility study

This introductory chapter will define basic elements and purpose of the feasibility study. The author will also identify several types of analyzes or studies that are usually associated with investment project preparation. Their relationship to the feasibility study and some important properties of this document will be highlighted later in the text. This material is used in various forms in the preparation of investment projects in the private and the public sector. Its purpose is to evaluate all implementation alternatives and assess the feasibility of the investment project, as well as provide any basis for investment decisions themselves.

In construction industry similarly to other industries feasibility studies are conducted to assess whether an organization can realistically take on a project and make profit. Such reports outline material, labor, capital and time requirements for the project and tell us whether we are realistically able to meet those needs. Feasibility studies show the best possible project strategy or several strategies to be offered to the client. Finally they judge how successful will the project be and thus informing us about financial viability and profit. (10)

Most of the construction companies or developers will conduct any kind of feasibility study during the project at one point or another. However it is apparent from the specified purpose of the analysis that the study is processed in the preparatory and pre-investment phase of the project. Such studies are very useful source of information based on which important decisions can be made about the project. They force companies to assess strenghts and weaknesses of the project giving them insight into its potential as well as its limits.

The feasibility study is defined as an instrument which may offer a technical, economic and financial base in the taking of the decision to finance an investment project. The concept of a feasibility study implies the running of analysis and evaluations of a complex nature at the level of the future investment objective, in a given time span, while taking into account uncertainty and risk factors.(2)

Literature also defines feasibility study as *“An analysis of the ability to complete a project successfully, taking into account legal, economic, technological, scheduling and other factors. Rather than just diving into a project and hoping for the best, a feasibility study allows project managers to investigate the possible negative and positive outcomes of a project before investing too much time and money.”* (11) And the purpose of the feasibility study results from its quality as a technical-economic instrument, on the basis of which the viability of the firm is attested. From a wider angle, the purpose is constituted by facilitating the functioning of the firm, on the basis of the principles and mechanisms specific to competition economy

Feasibility study is in a sense the most complex and detailed descriptive analysis of a project. Because it is the vital source of information the developer is able to make decision whether to follow through or to cancel the project. When conducting a feasibility study there is no fixed structure of criteria obey, however there are elements or chapters that should not be neglected and are necessary to be included in the study. At same time, what is and in not included in the study depends on whether the project is financed by private or public sector (own funds, bank loans, state or international funding).

Feasibility studies are mainly created by consulting companies specializing on preparatory phases of projects. Such companies handle marketing studies, economic analyzes, co-financing projects (public sources such as state budget, EU funds) and project management etc. A feasibility study is processed in parallel with the land management documentation from which also takes over particular technical solution for design of the project. (14) Therefore in comparison to the preliminary feasibility study it is on a much higher level of accuracy in for example costs estimates.

The most frequently identified objectives within feasibility studies include: the development of a company in a examined activity sector, attracting external financing, quality improvement and defining a long or medium term strategy, etc. Based on these often very complex objectives, we can identify several types of feasibility studies: *„studies for new objectives; studies for the development of existing firms, with a well defined profile, without profit or with low profit, studies for the analysis of the economic viability of operations of privatization, dissolution, separation or unification of two or more separate entities.*(10) The specific functions of the feasibility study may identified following:

1. The testing function of the organization through which the analysis of economic and technical systems is ensured, through the spectrum of the existing, available and potential factors which may be attracted in current activity, the way in which resources are capitalized on and prior economic results through specific financial and economic efficiency indicators.
2. The identification function of the place of the firm in the competition economic environment, the market position which it occupies, the long and medium term current and potential influence factors.
3. The forecast function regarding the firm's future strategic orientation, the formulation of alternative and probable coordinates within which this might evolve.
4. The function of a static and dynamic analysis tool reflected by its very content, which constitutes the base of forecasts, viability or risk analysis, etc. (2)

In preparation of investment projects, reader can still meet with other terms than only a

feasibility study. Other types of studies and analyzes can be conducted and are part of the crucial documentation that usually emerges from the pre-investment stage. Most people who are working in business are more familiar with feasibility study than pre-feasibility and opportunity study. However the principle of both study are similar. The major difference is how deep the analysis will be.

3.1.1. Opportunity study

Opportunity study is an analysis in the pre-investment phase of the project. Its aim is to define and present all the possible investment opportunities that are under consideration and are potentially profitable. The usefulness of the opportunity study in the design of an investment project is made clear also by the relatively high percentage of projects which stop at this phase. It is the first step to assess investment alternatives, which at the very beginning of the decision making process form the basis of pre-investment phase. It is necessary to define the desired investment opportunities before some of them are decided for more detailed and therefore more expensive assessment for example in the form of a pre-feasibility or feasibility study. The output of this study is selected set of potentially profitable investments. The reason for the rejection one of the alternative projects at this stage of preparation may be the obvious high risk or low profitability, usually also excessive capital intensity.(3)

If it were not for this study, these projects may be run, but most importantly, may consume considerable resources, only to find in the end that the result given by a pre-feasibility or feasibility study also show nonconformity with the established objectives. Each of the alternative projects included in this document is assessed in order to evaluate possible success of the projects based on company opportunities. Details of the data processed in this document is relatively low. Such studies are relatively inexpensive and use aggregated information and data instead of detailed analysis to show essential aspects of these opportunities.(10)

While the purpose of an opportunity study is now established, it is not as easy to differentiate between “feasibility study” and “pre-feasibility study”. The literature claims that the fact that the opportunity study has as its main objective the identification of investment opportunities and the promoting of investment projects, in a specific field of activity or area. The main instrument used to quantify parameters, information and data necessary to develop an idea from a project into a business proposal is the opportunity study.(4)

3.1.2. Pre-feasibility study

Opportunity Study should be produced, especially where there are no mapped potential investment opportunities. Without conducting this analysis it is very likely that investment projects implemented by a company are being prepared on the basis of momentary, impulsive and sometimes incidental decision from responsible personnel. These may often results in neglecting business opportunities that would be of much greater value than other. In contrast, conducting pre-feasibility study is meaningful process especially in a situation where we have several investment alternatives and Feasibility Study for each of them is too costly. In such a case pre-selection of several options for further processing based on a more detailed Pre-feasibility Study appears to be economically efficient solution.(16)

Pre-feasibility study is a preliminary study undertaken to determine, analyze, and select the best business scenarios .It is a kind of intermediate step between Feasibility Study and the Opportunity Study. That's why even before allocating larger funds to such a study, a deeper project evaluation is necessary.

The structure of the information is de facto no different from the feasibility study. The difference is in the detail and accuracy of processing. The content of this study is therefore project strategy, technical and technological solutions, marketing concept, location and size of the planned operation, as well as a brief timetable for implementation.(16) In this study, we assume we have more than one business scenario. Investor wants to know which one is the best, both technically and financially. In pre-feasibility we select the best idea. If the selected scenario is considered feasible, it is recommended to continue with the feasibility study to get deeper analysis of the project plan. With a pre-feasibility study, the main objective is preliminary selection in order to establish whether or not all possible alternatives of the project have been examined. On the basis of this study investor should decide whether to release additional financial and other resources for completion of a detailed feasibility study or, conversely, whether to stop further preparatory work on the project.

3.1.3. Specifications of the feasibility study and its general structure

After defining the feasibility study and its relations with other documents and material, this chapter shall lay down methodological foundations of this study. Specifications for processing and determining basic structure of the study will be highlighted. At the beginning it is necessary to mention that outline of sub chapters and their content in the case of feasibility study are strongly dependent on the type of the analyzed project. Important is that the study is able accurately describe, optimize and valuate investment project with all the its arising specifications. A feasibility study is usually divided into separate chapters which are thematically grouped according to issues arising in connection with the examined investment plan.

Process for conducting a feasibility study is of interactive nature. It is important maintain refinement of individual chapters of the study. This is one of the reasons why the feasibility study cannot be conducted step by step without checking consistency of newly created parts and continual repairs and interventions in all the chapters that are done individually but are very interconnected. This is common conception in any project planning.

Next important feature of the study can be necessary variability in individual approaches to solve problems and secondly generally creative approach to the study. Having a plan for an uncertain future and in particular also uncertain, but for the realization of the project significant assumptions that eventually deeply affect feasibility of the project and various options of its processing. Another essential feature, which is characterized by a feasibility study is variability of proposed solutions and the necessity of setting assumptions. Author may often find him/her self in a situation of uncertainty and is not able or is not possible to estimate a parameter which is crucial for overall outcome of the study. Such uncertainty is mostly about the amount of anticipated demand, consumption, and prices achieved.(8)

The estimated level of demand (number of customers or users) usually has a significant impact on calculations of capacity and chosen size of the business unit. If it is a case of a project where the amount of demand is very difficult to estimate and also depends on a number of uncertain circumstances, it is very sensible to consider several variants of development of this factor. Outcome of these uncertainties may greatly affect financial flows within the project and follow-up arrangements of certain processes. At this point of the project, it is necessary to continue solving the problem by setting or determining certain assumptions and alternative scenarios. It is therefore a defining the potential development of one of the key variable factors.(16)

Very often in this case are used pessimistic estimate (lower limit demand), medium (middle value demand or the size of demand is most likely to occur) and optimistic variant (upper limit of the planned demand). These options cannot be influenced or are only modifiable factors that correspond to three different versions of the financial plan and outcomes. Ideal is possibility to shift move during the execution of one variant to another without significant loss for example in case where demand starts to behave differently than we had predicted. Further evaluations and conclusions must take into account all considered variants. Therefore it is not possible to conduct this study routinely or according to some template or based on clearly pre-specified scenario.(6)

Even though the projects and their elements are often handled in a similar way, every real investment plan is something new and original. Investment plans differ in various aspects such as the environment in which it is implemented, or the subject deciding about its implementation, and time, for example, in which the investment plan is to be executed. All of these differences can have an impact on the fact that every investment plan should be conducted from the beginning as a completely brand new project that has never been done before. This is not denying possibility of using the experience and analogy, but it is important to avoid conducting projects so to speak "over the carbon paper."

3.1.4. Suggested outline for feasibility study

In the previous sub-section it was considered that the feasibility study has certain topics and issues that have to be dealt with. These are de facto building blocks for feasibility study which must be answered respectively they must be asked.

1. Content
2. Introductory information
3. A brief evaluation of the project
4. Brief description of the nature of the project and its phases
5. Analysis of the market, marketing strategy and marketing mix
6. Impact of the project on the environment
7. Financial Plan and Project Analysis
8. Analysis and Risk Management (sensitivity analysis)
9. Final summary and evaluation of the project

(16)

3.1.4.1. **Content** - contains information about the number and structure of the chapters and on what page can be found.

3.1.4.2. **Introduction** – Here should be listed the following information: the purpose for which the Feasibility Study is being prepared and on what date. Also identification data of the contracting authority, author of the study and relevant contact persons.

3.1.4.3. **A brief evaluation of the project** – in the range of 1-2 pages there should be pointed out basic assumptions and conclusions that arise from the feasibility study. Here in a brief summary the financial efficiency of the project is assessed, general feasibility of the project is examined and results of the risk analysis are presented.

3.1.4.4. **Description of the nature of the project and its phases** - contains a complex description of the main characteristics of the project and its phases. There are answers to basic question concerning the project such as: what is the name, purpose and nature of the project, what services or products will the project provide, who is the investor (client or owner) of the project, what is the size (capacity) of the project and where is it located, list of stages or phases through which the project will advance, what are other important specifications about the project.

The user of this study should be able to quickly identify what is the project basically about and it should also be possible to distinguish between investment options that is or that is not going to be operated. The author of the study should also show number of processed investment options. The project content and summary includes name, purpose and focus of the project. Furthermore there should mainly be identified product or service itself, what customer segment is it focused on, what advantages it brings to customers and what are the disadvantages of existing solutions. For better orientation within the text, the study may include the description and define the various stages of the project.(16)

Pre-investment phase

This is the period of preparatory work in which the investor handles all important data for decision to accept or to reject the project. In terms of cash flows there are generally included costs associated with project documentation, administrative and preparation costs, processing costs and economic studies (feasibility study, CBA or any other documents). It is important to say that all revenue and expenditure incurred during this period are irrelevant when assessing meaningfulness of the investment and therefore should not affect its ratings. These are called sunk costs. Sunk costs can be defined as: *“A cost that has already been incurred and thus cannot be recovered. A sunk cost differs from other, future costs that a business may face, such as inventory costs or R&D expenses, because it has already happened. Sunk costs are independent of any event that may occur in the future.”* (11)

Investment Stage

This is the period from the beginning of the construction project to the launch of the operation. The investment phase includes a larger number of activities which constitute the realization of the project (project financing, the project team creation, acquisition of land, conclude the relevant contracts etc.). It is typical mainly by higher negative financial flows. In terms of cash flow is this period usually associated with large amount of expenditures exceeding over income. Significant differences can be identify even in described sub-problems. Especially for larger and organizationally challenging investment projects it can be assumed that during this stage the composition of the team members, the organization and management processes will be significantly different from the operational phase which will follow. (16) All these and other differences therefore clearly define and differentiate the structure and level of income and expenditure among the stages.

Investment phase can be divided into the following stages:

- Processing of construction documentation
- Processing of the initial project design documentation for the zoning and building permits
- Processing operational project documentation
- Construction process
- Preparation, implementation and commissioning, trial run

The basic requirements for the successful implementation of the project is well-prepared plan and effective self-management of the project. These must work together to ensure that all key implementation activities (such as construction, supply and installation of equipment, recruitment and training of workers etc.) are completed in time. (3)

Operational Phase

Sometimes also called the life of the project. It is a part of the project, whose aspects should be processed in the most detailed form as possible in the study. The part of evaluation of the feasibility study at this stage are issues of management, marketing, technical and technological aspects, supplier-customer relations, environmental concerns. This phase can be evaluated from the long and short term point of view. Short-term view refers to implementing the project into operation, including its operation. At this stage there may arise some difficulties for example from mismanagement of the technological process or workers lack of skills. Most of these problems may find their origin in the implementation stage of the project. The long-term view refers to the overall strategy that the project was based upon and related costs and revenues. (4)

These parts of the project operation mix are in considerable number of projects critical to their success. It is important to note that the investment phase is not the only dangerous phase of a project. By investing and completing the construction phase does not end the struggle for efficiency, but often begins. Effectively managing construction projects can be completely ruined simply by its inefficient operation. Therefore, for the projects the operational phase is the most analyzed and sophisticated part of the study.

Post-operational phase

Part of this phase are the elements that affect income or spending after the operational phase. Most common is the cost for disposal of certain equipment or revenue from its sale. It is a period in which the project is no longer engaged, but still may or may not affect revenues and expenditures of the investor as well as its organizational and other related activities. The author of the study should not omit the identification of various phases of the project. Similarly also in this part of the study there should be description of individual variants of the project. This is important because alternative solutions are not based solely on changes in a particular factor or cash flow, but have an impact on the organization and project structure.(16)

The divided phases of the investment project should be only seen as a fundamental and general. It may be useful, for example for separation of a mesophase which is a transition bridge between the individual stages. For a typical example of such interphase can be considered a boot operation. It is typically gradual transition from the organization and investment phase towards the operational phase. This may also be showing some temporary measures that were not on the agenda, nor in the previous stage investment and are not part of the full operational phase. The opposite interphase operation can be termination operation stage, which is the usual period between the fully operational stage and phase of liquidation. Processing demands of individual stages vary from project to project. Therefore there is no defined procedure how detailed should any of the phases be.

3.1.5. Market Analysis, Forecasting, marketing strategy and marketing mix

This chapter includes a description of all marketing aspects of the project. There are solved all estimates and recommendations regarding the needs of customers or end users, competitiveness of outputs both for public and private projects. Following structure is based on research and analysis, continues with parts, that include addressing and solving given issues.

Market Research and Analysis

The real estate market can be like other markets divided into objects and entities participating in the market and the links between them. Objects in the real estate market are of course real estate, specifically the property rights that relate to real estate.

On the market there are two fundamental entities that make up the supply and demand for real estate. On the demand side stands the buyer (or tenants) who want to buy a property (or hire), and on the supply side, the seller (or landlords) who want to sell property (or rent). There are also a number of other entities (eg. Real estate agents, real estate development company).

Investor wants to buy property to gain the benefits from it. This benefit may be in form of a need to acquire property for personal use (eg. private housing), or to use for business purposes (eg. Office space). An alternative to buying a property is a rental. In this case, however, the tenant does not transfer ownership rights, as is the case with the buyer, but has only the right to use the property. The purchase price and the amount of rent expense for demander(inquirer), therefore, have a direct impact on the size of the demand for real estate. Another benefit is the purchase of property as an investment for the purpose of renting it. In this case there is a benefit as income in the form of rent. Another way to get the benefit of real estate in the Czech Republic but rarely used is leasing. In the Czech Republic, however, more common way to finance the purchase of real estate is a mortgage loan provided by banking institutions.(12)

Another important subjects that constitutes the supply, are the developers. These are usually companies that provide the necessary capital from financial institutions, land and building and other contractors. Their main job is the construction of new buildings for profit and their subsequent resale. This is the case both for the housing sector (eg. Apartments, houses) and for commercial properties (eg. Offices, warehouses, production halls).

There are other entities in the market, without which it would not be complete. The real estate market players include real estate brokers and agencies. Real estate agencies deal primarily with mediation of buying, selling and renting property. Among others, their activities include property management, advisory activities in buying and selling real estate or transfer of ownership in real estate. Another subject in real estate markets are financial institutions (eg. Banks, building societies) that are involved in financing the construction of real estate. An important subject in the real estate market is the government. It creates a legal environment based on which the property market works. The role of governments consists of setting the rules for the protection of property rights and rights of tenants. The state also affects the real estate market with its tax system and rent regulation.(4)

„The process of assessing the viability of a new product or service through techniques such as surveys, product testing and focus groups. Market research allows a company to discover who their target market is and what these consumers think about a product or service before it becomes available to the public. Market research may be conducted by the company itself or by a third-party company that specializes in market research. Test subjects are usually compensated with product samples and/or paid a small stipend for their time.(11)

The goal of market analysis is to determine whether it is attractive and feasible to be entered by an organisation. It is important because it helps us understand opportunities and threats as they relate to strengths and weaknesses of the firm. When conducting a market analysis we have to address following dimensions:

- Market Size
- Market Growth Rate
- Market Profitability
- Industry Cost Structure
- Distribution Channels
- Market Trends
- Key Success Factors

Forecasting

Forecasting is a tool for planning and helps management to cope with future uncertainty. It relies mainly on past and present data and analysis of trends. Forecasting is a process of making a statement about what will happen in the future. It starts with certain assumption based on management experience and knowledge. These estimates are projected into future months or years based on one of many forecasting techniques and methods such as Delphi method, moving averages, regression analysis and trend projections.

Prediction is very similar to forecast but more vague and general way to predict future trends. However still both use similar methods including time series, cross sectional and longitudinal data. Important aspect of forecasting and predictions is risk and uncertainty. Degree of uncertainty can be measured and should be attached with the forecast.

„The use of historic data to determine the direction of future trends. Forecasting is used by companies to determine how to allocate their budgets for an upcoming period of time. This is typically based on demand for the goods and services it offers, compared to the cost of producing them. Investors utilize forecasting to determine if events affecting a company, such as sales expectations, will increase or decrease the price of shares in that company. Forecasting also provides an important benchmark for firms which have a long-term perspective of operations.“(11)

Marketing Strategy

An organizations marketing strategy is an explanation of the goals we need to achieve with our market efforts.“It combines all of its marketing goals into one comprehensive plan. A good marketing strategy should be drawn from market research and focus on the right product mix in order to achieve the maximum profit potential and sustain the business.The marketing strategy is the foundation of a marketing plan.“(9) Marketing objectives should focus on how to increase sales by increasing number of customers. A marketing strategy helps organization to tailor its message and put the right mix of marketing approaches in place so that we bring sales and marketing activities together in an effective marketing plan.

Marketing Mix

Based on defined objectives and strategies marketing mix is going to be set up. This marketing mix will define and develop a given strategy into several designed individual aims. The marketing mix refers to the set of actions, or tactics, that a company uses to promote its brand or product in the market. Marketing mix can be defined as: *“A planned mix of the controllable elements of products marketing plan commonly termed as 4Ps: product, price, place, promotion. These four elements are adjusted until the right combination is found that serves the needs of the product's customers, while generating optimum income.”* (9) However, nowadays, the marketing mix increasingly includes several other Ps like Packaging, Positioning, People and even Politics as vital mix elements. All the elements of the marketing mix influence each other. They make up the business plan for a company and if handled properly, can give it great success. But handled wrong and the business could take years to recover. The marketing mix needs a lot of understanding, market research and consultations.

Product

A product is an item that is built or produced to satisfy the needs of a certain group of people. The product can be intangible or tangible as it can be in the form of services or goods. A lot of people don't understand that this applies to goods and services online as well. During the product development phase, the marketer must do an extensive research on the life cycle of the product. A product has a certain life cycle that includes the growth phase, the maturity phase, and the sales decline phase.

Price

The price of the product is basically the amount that a customer pays for to enjoy it. Price is a very important component of the marketing mix. It is also a very important component of a marketing plan as it determines your firm's profit and consequentially its survival. Adjusting the price of the product has a big impact on the entire marketing strategy and also can greatly affect the product sales and product demand. Sometimes it is needed to lower prices of the products. At other times, it may be appropriate to raise the prices. When setting the product price there are various ways to do so. Firstly perceived value of the product should be considered. However in order to decide on pricing strategy we first need to ask ourselves several important questions for example: How much did it cost you to produce the product? What is the customers' perceived product value? Could slight price decrease significantly increase your market share? Can the current price of the product

keep up with the price of the product's competitors? (12) Based on this information it can be said that organization can consider three major pricing strategies:

- Market penetration pricing
- Market skimming pricing
- Neutral pricing

Promotion

Promotion includes all the ways you tell your customers about your products or services and how you then market and sell to them. Small changes in the way you promote and sell your products can lead to dramatic changes in your results. Even small changes in your advertising can lead immediately to higher sales. Promotion is a very important component of marketing as it can boost brand recognition and sales. Promotion is comprised of various elements like sales organization, public relations, advertising and sales promotion. Advertising typically covers communication methods that are paid for like television advertisements, radio commercials, print media, and internet advertisements. There are also a wide number of ways which advertising can be done online. Public relations, on the other hand, are communications that are typically not paid for. This includes press releases, exhibitions, sponsorship deals, seminars, conferences, and events.(12)

Place

Another element in the marketing mix is the place where your product or service is actually sold.Placement or distribution is a very important part of the product mix definition. You have to position and distribute the product in a place that is accessible to potential buyers. It is possible to sell the product in many different places and there are many distribution strategies, including: Intensive distribution, exclusive distribution, selective distribution or franchising. Many companies use a combination of one or more of these methods.(12)

People

Employees of the organization are important part in marketing because they are the ones that deliver the service to the customer. Recruiting and training the right staff is required to create a competitive advantage. Customers make judgements about the product based on the people that represent the organization. In order to function properly staff is required to have certain skills and knowledge in order to deliver the quality service.

Process

The process of providing the product or service and the behavior of those who deliver it are crucial to customer satisfaction. This process is often overlooked by management. It is important that all services need to be underpinned by clearly defined and efficient processes. In other words these are the processes where everybody knows what to do and how to do it.

Physical Evidence

Physical evidence or as also referred to as Physical environment is about where the service is being delivered from. Customers will make judgements about the organization based on the physical evidence. Physical environment can be used to influence a product or to charge for example premium price for a service and establish positive experience by customer. For example when a customer walks in the organization and sees clean and friendly environment he or she will have a pleasant experience. In contrary if saw dirty and unfriendly environment he or she will leave the organization immediately.(12)

3.1.6. Impact of the project on the environment

This chapter will describe all the positive and negative impacts that arise from the implementation of the project in its various stages. This aspect is important in terms of meaningfulness of the project and it influences its evaluation especially in its overall socio-economic impact. Prior to the implementation of the investment project there should be considered also environmental questions concerning the project. It is essential especially in projects with certain negative effects on the environment. First, the negative effects are reflected in the choice of the utilized technology itself. Then are reflected also in the necessary security measures required by increasingly more strict legislation.(17) These measures can have a significant impact not only to the initial investment costs, but also to operating expenditures in the form of additional security measures. In many cases, the project supervisor uses externally processed document (Environmental Impact Assessment) or all the environmental issues are already mentioned in the technical or technological documentation.

In the case of significant negative impacts of the project on the environment the project supervisor is threatened by many additional costs. On one hand there are additional costs for elimination of real damage or to ensure smooth operation. On the other hand there are possible punitive sanctions by the regulatory authorities, which would in some extreme cases lead to the very end of the project. Possible sources of problematic impacts on the environment can be found in all stages of the project. It is necessary to anticipate all the potential threats to these problems and evaluate it in advance in terms of their impact on cash flows.

3.1.7. Financial plan and analysis of the project

We are now in a situation where we already have a very good and detailed idea about the project including all its life stages. Creating financial perspectives (financial plan) can be divided into several steps. The first is to perform basic calculations units of the resulting product or service, the other step is the break-even point, next is the creation itself of the financial perspective from which will then be calculated evaluation indicators.

Calculation

The main task is to calculate its own calculation of cost calculation unit, usually a performance (product or service). In order to do the main calculation for the total cost per unit of output, first author must be able to separate fixed costs from variable costs or direct costs from overhead costs. For illustration author provides definition from literature of the content of these concepts for the further interpretation, as well as an explanation of calculations

- Fixed costs - do not vary with the volume of production (eg rents space in which the services are provided or made final products) *“A cost that does not change with an increase or decrease in the amount of goods or services produced. Fixed costs are expenses that have to be paid by a company, independent of any business activity. It is one of the two components of the total cost of a good or service, along with variable cost.”*(11)
- Variable costs - increase with each additional unit of output (example can be consumed material) *“A corporate expense that varies with production output. Variable costs are those costs that vary depending on a company's production volume; they rise as production increases and fall as production decreases. Variable costs differ from fixed costs such as rent, advertising, insurance and office supplies, which tend to remain the same regardless of production output. Fixed costs and variable costs comprise total cost.”* (11)
- Direct costs (prime) - can be allocated directly to individual types of products or services (typically are consumed raw or direct wages) *“A price that can be completely attributed to the production of specific goods or services. Direct costs refer to materials, labor and expenses related to the production of a product. Other costs, such as depreciation or administrative expenses, are more difficult to assign to a specific product, and therefore are considered indirect costs.”* (11)
- Indirect costs (overhead) - costs incurred in the amount of some common products that can not be linked directly to a specific calculation unit (product). *“Costs which cannot be accurately attributed to specific cost objects are called indirect costs. These typically benefit multiple cost objects and it is impracticable to accurately trace them to individual products, activities or departments etc.”* (11)

In order for the author to create accurate financial plan and an analysis of the project budget, it is necessary to be perfectly clear about the previous sections and chapters of the project study. Sometimes it happens that the financial plan is merged with the previous chapter about investment and current assets. This previous chapter is a basis for creation of the project financial budget. Given that author has gathered information about the project and all the significant characteristics for all its stages decisions were made about: calculation of services, decision on prices and other commercial conditions for the provision of individual products and decisions about the size of the investment project and operation. Now it is necessary to summarize it all into a financial plan. If at the beginning of this methodology it was stressed that the creation of a Feasibility Study is an action that should be performed in certain repetitive cycles or iteratively, this can be said about the financial plan as well. Financial budget acts as a basic tool financial planning. Its goal is to determine all costs and revenues of the project in all its phases. Development projects have typically the following division of costs:

- Acquisition Costs (costs associated with land and property acquisition)
- Construction costs (hard costs)
- Other costs (soft costs, the costs of legal services, project work, marketing expenses, administrative costs, wages etc.)

(5)

In addition the author must also define costs related to the operational part of the project, which are derived from previous set of processes and the nature of the project itself. Further it is possible to divide the costs into several other groups such as direct and indirect in case of manufacturing processes and also when dividing costs by volume of production into variable and fixed costs. The study usually includes analysis of projects tipping point which indicates the minimum volume of production to ensure zero profit. Revenues from the project are often associated with level of uncertainty, it is therefore impossible to determine the with 100% accuracy. This reflects the influence of the particular market risks and uncertainties. In addition to the factors affecting the operational aspects of the project, there is another variable in the form of uncertain income. This can be dealt with by creating several additional variants and scenarios. That's why researchers often use pessimistic, realistic and optimistic variants. General division of earnings at real estate markets is as follows:

- Earnings from sale of land
- Earnings from sale of real estate
- Earnings from rental
- Revenues from providing services
- Interest income

(5)

After compiling a complete cost estimate and projection of revenues the author is now able to proceed to calculation of profit. The basic input data for the calculations are in sphere of a realistic option of the project. Profit projections based on the pessimistic and optimistic variants are complementary information however equally important as realistic option. Based on these results, the author can also create several operating scenarios for unexpected economic development.

As it was already mentioned the individual components of the financial plan interact. Attention is paid especially development of costs, revenues and pre planned balance of the project. In this case there can be two different scenarios. If assuming that the project is associated with the new entity whose only job is this project, then the financial plan corresponds substantially with the financial statements of this entity. However, if the project is one of several investments of larger entity, then it is necessary to look at the project and define it individually. Similarly it is important to separate the corresponding assets, resources, costs, revenues and cash flows associated with the investment itself.(7)

Effectiveness and feasibility of the project

The basis for the decision to adopt or to reject the project or the implementation of one of the variants is the calculation of certain indicators of economic efficiency. These criteria usually measure return of resources that will be on the necessary for the project. In order to evaluate the financial position of the project, or to compare several investment projects among themselves it is necessary to utilize certain criteria. Such criteria care in this case various indicators, which are calculated from the data presented in the financial plan. Sometimes are referred to as valuation indicators. They are designed to express profitability of the project. Furthermore, it is possible to create classical financial analysis of statements. The purpose of this chapter is to judge the financial solvency and sustainability of the project in other word financial efficiency.(16)Variables that are the result of the evaluation processes are called criterion indicators. Their construction is based on the

most accurate assessment of the financial rentability of the project and is influenced by a number of input parameters. These parameters must be pre defined by the author of the study.

In the private sector the criterion indicators that are calculated from the financial plan (or cash flow statements) are essential when deciding to accept or to reject implementation of the development project. Even though that in a case of public sector or community projects the investor is not always motivated only by returns on the invested funds, the criterion indicators say a lot about the project sustainability. Information output in form of assessment indicators calculated from financial flows are a partial output in cost benefit analysis, which in case of this study act as a basis for decision about meaningfulness of the investment.

The basis for the evaluation of criteria indicators are information on the cumulative cash flows and the initial capital expenditures. Here are mentioned the commonly used and generally the most meaningful criterion indicators.

The most commonly used are the following criteria:

- payback period
- net present value
- profitability index
- internal rate of return.

(11)

Net present value

Net present value can be defined as "The difference between the *present value* of cash inflows and the present value of cash outflows. NPV compares the value of a dollar today to the value of that same dollar in the future, taking inflation and returns into account. Net Present Value method is currently considered the best approach economic evaluation of investment projects. Net present value is the basis for all dynamic methods, most widely used and best because it gives the researcher comprehensive results and clear evaluation criteria. NPV is the difference between the current value of investment income and the present value of expenditures, all in the value of money at the time of acquisition of the investment. NPV then expresses how much money gets investor in addition to invested amount, in other words how much will enterprise increase in value. From this we can assume that the investment is appropriate to implement if $NPV > 0$. If $NPV < 0$ there would be no return on invested capital. When choosing an optimal investment options, we select the option that has the highest NPV. In addition all variants, where the $NPV > 0$ satisfy the required rate of return and its implementation would mean an increase in the market value of the company. (16)

The lack of disregard for the time value of money can be removed by discounting individual cash flows and thus expressing their present value. This way a static method becomes dynamic.

Formula:

$$NPV(i, N) = \sum_{t=0}^N \frac{R_t}{(1+i)^t}$$

NPV analysis is sensitive to the reliability of future cash inflows that an investment or project will yield and is used in capital budgeting to assess the profitability of an investment or project and measures the effect of the project between the present value of expected cash flows and costs of this investment. The present value of expected cash flows, therefore, requires discounting future cash flows from investing at a certain discount rate. The discount rate is dependent on the nature of cash flows. That means whether there are or not included foreign funding sources and a level of risk. Positive NPV increases the value of the business and therefore is effective to go ahead with such an investment.

The weakness of NPV is high dependence on the discount rate, which is difficult to state. The higher the discount rate, the lower values will reach indicator NPV. This method respects the time factor and takes into account income over the lifetime of the project and for the effect of the project considers the overall cash income rather than accounting profit. Another advantage is that its value directly reflects the contribution of the project to the market value of the company.

There is a certain disadvantage when it cannot be determined with certainty the amount of the future cost of capital, which is then reflected in the discount factor. Another significant disadvantage is the absolute result, which prevents comparison with other types of investments. The possible solution is to supplement this method with another criterion, specifically for example an internal rate of return.

Internal Rate of Return

Internal rate of return (IRR) is the discount rate at which the present value of future revenues equal to capital expenditures on this investment. Investopedia defines internal rate of return as follows: *"The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project. As such, IRR can be used to rank several prospective projects a firm is considering. Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first"*.(11)

Formula:
$$NPV = \sum_{n=0}^N \frac{C_n}{(1+r)^n} = 0$$

Internal rate of return expresses profitability of the project during its lifetime. IRR is the interest rate of the project, at which the NPV = 0. If the NPV = 0 it means for the company that the income from the investment will pay for all the cost of the project. IRR can be understood as the minimum required return on investment. Therefore, if IRR is higher than our required rate of return, then it will be acceptable for our project. When deciding between more comparatively risky projects, choose the one with the highest IRR.(1)

Payback period

The payback period can be defined as :”The length of time required to recover the cost of an investment. The payback period of a given investment or project is an important determinant of whether to undertake the position or project, as longer payback periods are typically not desirable for investment positions.” It is the number of years that is required, for the discounted cash flows to be equaled to the amount of the initial investment. Besides evaluating the effectiveness of project by utilization of criterion variables such as NPV or IRR it is necessary to include another significant factor. Namely the risk that the project will be despite positive efficiency unfeasible due to lack of liquidity.

The payback period of the investment project is given by the number of years that are needed to ensure that the cash flows are equaled to the initial investment expenditure. It can be said that the shorter the payback period is, more favorable project evaluation. However, the company shouldn’t decide on the basis of the payback period only regardless of project lifetime. If company made decision based only on payback period than it would prefer short projects before long, although they were less effective.(1)

Formula: **Payback Period = Cost of Project / Annual Cash Inflows**

Another way is to calculate the gradual accumulation of cash flows until they outweigh the initial investment outlay. In the year in which this occurs, it is payback time. To pinpoint the part of the year in which this occurs, simply divide this year by the ratio of the remaining unpaid portion / cash flow this year. In addition to the general deficiencies that have static methods, the method in-

cludes a payback period another major flaw. It does not take into account income resulting from the investment after the payback period to the end of its life.

Rather than measure of the effectiveness of the investment project the payback period can be regarded as a measure of liquidity of the project, which may be in certain situations or for certain businesses equally important criterion. That is especially in situations where the liquidity of the project affects significantly the liquidity of the company, or for projects with long-term and uncertain revenues, or in situations where obtaining additional capital for the company is difficult.(1)

Liquidity

Liquidity is a “The degree to which an asset or security can be bought or sold in the market without affecting the asset's price. Liquidity is characterized by a high level of trading activity. Assets that can be easily bought or sold are known as liquid assets. ”In other words, will not be able to meet its obligations at a certain moment. This factor is also sometimes called the "quality" of cash flows. In the event that an organization is unable to repay short-term obligations, there is a possibility to use any of the tools of short-term financing to overcome this period. In the case of long-term insolvency, however this may lead to the closure of the project itself.

Profitability Index

The project can be analyzed more deeply. Despite the overall worthiness of the project demonstrated by high levels of NPV, IRR and profitability index, etc. it may at the end be unfeasible due to lack of liquidity, inability to meet at a certain time its commitments. Profitability index can be defined as: ”An index that attempts to identify the relationship between the costs and benefits of a proposed project through the use of a ratio is calculated as:

$$= \frac{\text{PV of Future Cash Flows}}{\text{Initial Investment}}$$

A ratio of 1.0 is logically the lowest acceptable measure on the index. Any value lower than 1.0 would indicate that the project's Present Value is less than the initial investment. As values on the profitability index increase, so does the financial attractiveness of the proposed project. ”This aspect of the project's feasibility is usually analyzed through a liquidity indicators known from the financial analysis. Monitoring the these methods of the project or of the company is an essential in order to prevent serious operational problems.(2)

It should be noted that even with high profitability of the project a various situations may occur. For example poor financial planning and cash management may lead to major problems or even closure of the project due to either short or long term inability to provide financing. In the case that there is a short-term fluctuation in revenue, this problem can be resolved by a series of short-term financing instruments (supplier credits, short-term bank loans, factoring, receiving advance payments from customers, etc.). In the case of long term or permanent loss rate of the project, which is desirable to construct, for exam ple, for of its overall social profitability, it is necessary to find a long-term source to cover these negative cash - flows. Such a source can be, for example, the budget of a town or municipalities. The major assessment result of the project from a financial point of view is its financial viability and its long-term and short-term financial sustainability.(3)

Cash Flow

Projections of cash flow is one of the most important components of the project plan. In a sence it is creating a timetable of revenues and expenditures. Properly planned cash flow is decisive for the choice of many factors associated with financing and evaluation of the project. Such factors include for example the choice of a bank loan and the terms of its maturity. Cash flow projections have a substantial impact on assessment of the investment effectiveness(the assessment of profitability, payback period, net present value and internal rate of return)(9) Within the plan of costs and revenues it is necessary to calculate and summarize the different types of cost items for each scheduled period (usually months or years), as well as to determine their final balance.

Discount rate

The discount rate often refers to the interest rate used in discounted cash flow analysis to determine the present value of future cash flows. The discount rate takes into account not just the time value of money, but also the risk or uncertainty of future cash flows. It can be said that the greater the uncertainty of future cash flows, the higher the discount rate.(11)

Formula:

$$NPV = \sum_{n=0}^N \frac{C_n}{(1+r)^n}$$

Discounted Cash flow

Method of assessment of long-term investment projects based on the time value of money. Value of the expected revenue flow from an investment as at today or on any given date. Because money can grow by itself (when placed in an interest earning account) a one monetary unit received today is less valuable than a unit received in the future. Therefore, there are techniques to be applied to 'bring-back' (discount) the anticipated returns to a common ground their present value (PV). Two basic methods are the net present value (NPV) method and the internal rate of return (IRR) method, both of which take into account the time-value of money. In NPV method, the anticipated total cash-inflows (returns) are multiplied with a discount-rate to bring them back to their PV. (9) The initial investment amount and other cash-outflows (costs) are subtracted from the PV to arrive at the net PV of the investment. A positive NPV indicates a desirable investment project. Second method the Internal Rate of Return (IRR) is that discount rate at which the PV of the anticipated total cash inflows is equal to the PV of the anticipated total cash outflows, or the rate at which NPV is zero.

This method is based on the detection of the expected cash flows of the company and their discounting by a certain discount rate that reflects the risks of doing business of the firms respectively of its the cash flows. The method can be used only if it is possible to estimate future cash flows. If there is a credible estimate for long enough, then the result of the method can be considered very objective. (9)

Estimate the value of the property

Each property has its own specific value, which is determined by its specific characteristics and potential use. The purpose of commercial real estate and land is primarily to bring some revenue to the owners. To determine the value of real estate author will utilize methods that correspond to the income based methods valuation of real estate specifically House Price Index, price at the real estate markets and valuation method with temporary rent.

Income Valuation Method is one of the standard methods for the estimation of the normal price, market price and is recognized and used internationally. The yield value expresses the ability of the property to generate income. The achievable yield is then characteristic performance. To determine the yeald value it was decided to calculate direct capitalization of a stabilized permanently achievable annual revenue. (6)

To put this simply the yield value of the property can be imagined as collateral stored in a financial institution. The interest will be the same as the annual return of the property. It is necessary to note that the yield, and the derived value of the property can not be regarded as a fixed value and needs to be updated in response to changes in the important inputs such as interest rate of capitalization, the development level of rents, prices of construction work, management and maintenance costs. It is therefore necessary to take this flexibility of property valuation yield method into account and consider it as one of the sources to estimate usual (market) prices.(6)

It is assumed that the investor aims to achieve consistent yield from his/her investment. Yield is calculated as the difference in rental income and expenses specifically costs arising from the ownership, operation and lease the building. Due to construction of the building now the land becomes a technical and economic unit. Therefore use and yield value of the land is determined by use and yield value of the building. When the author expresses "eternal rent" it is necessary to consider the cost of creating reserves for renewal of the investment (constructed building).

Calculation of interest rate of capitalization is an important factor in calculating the yield value of the property. It can be deduced from a possible average return on the money on the capital market, those are the alternative method of investing. This is based on the average risk-free, or little risk of money capitalization on the capital market (Treasury bonds, long-term bonds of the European Investment Bank, mortgage bonds, etc.)(15)

It is recommended to adjust interest rate of capitalization from the capital market with the real estate market, or with expectations of investors in this market. This way the rate fixed capitalization represents thus, the yield of a particular type of property relative to their market prices. In other words based on the recommendations mentioned above, the real rate of capitalization ranged between 6.0% to 12.0% for real estate industry.(13)

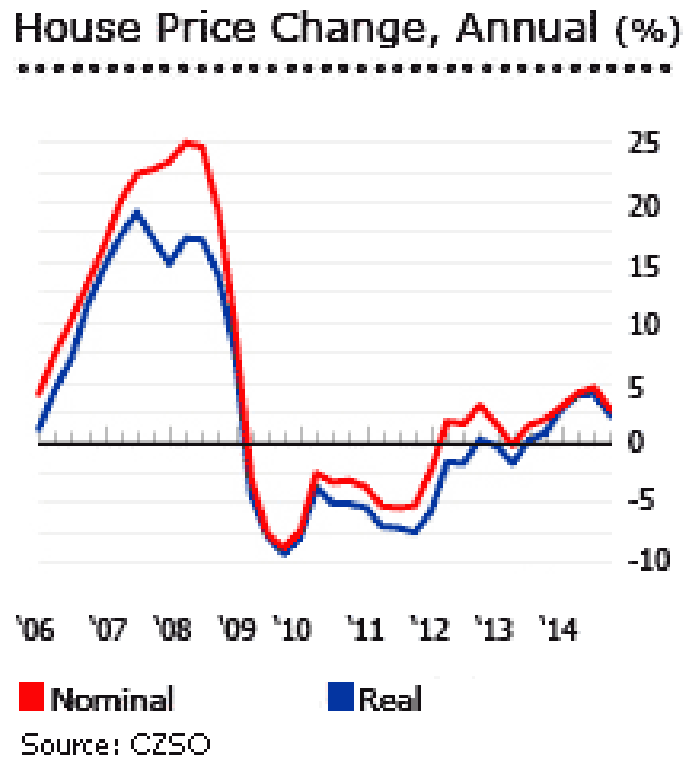
House Price Index (HPI)

"Index of housing prices", is a synthetic price index, which measures the price level of residential real estate in the Czech Republic under a single harmonized EU standards. Its advantage is therefore a major international comparability. It can be defined as :*“The HPI is based on transactions involving conventional and conforming mortgages - only on single-family properties - that have been purchased or securitized by Fannie Mae or Freddie Mac. It is a weighted, repeat-sales index, which means that it measures average price changes in repeat sales or refinancing on the same properties. A comprehensive HPI report is published every quarter, while a monthly report has been published from March 2008.”*(11)

The main aspects HPI:

- measures the movement of prices of flats and houses, including the related land
- This is the total purchases household purchases of other sectors are excluded
- includes both new and older (previously inhabited) residential property
- prices for index calculation is based on the actual realized prices
- index represents the movement of the price level throughout the Czech Republic
- index is chained annually, ie. is updated internal weighting scheme
- weights reflect the relative proportions of actual market transactions, non-market prices are excluded

Figure 19: House Price Index



[Click graph for more Czech house price data](#)

Source: <http://www.globalpropertyguide.com/Europe/Czech-Republic/Price-History>

Acquiring a Loan

By the term source of finance it can be understood that the enterprise uses various source of capital to finance the renewal and expansion of its property. These resources can be classified in terms of ownership to: own sources and foreign sources. In terms of the entity providing the financial resources to internal and external sources. In terms of their maturity they can be divided to short-term and long-term sources of finance. Therefore acquisition and allocation of financial resources dis referred to as financing.

Financing development projects is unique for its longevity and the amount of funds spent on the project. Due to a large amount of funds necessary the developer usually does not finance their project from its own resources (particularly in the case of larger projects). Sources of funding that can be used in the implementation of a development project can be considered:

Investors own sources of funds for example in bank accounts and cash, retained earnings, issued securities (if it is a public limited company)

Foreign source of finance include bank loans, supplier loans, advance on the purchase price

of the property, or prepay for future lease of commercial space. When financing a development project, it is necessary to distinguish whether it is a small, medium or large project. As it was already mentioned, small projects are in many cases financed from its own resources, in case of other types of projects investor should use also foreign sources. For non-residential project those will mainly be sources banks. In case of residential projects there can also be used source of finance in form of the payments from future owners of residential units in the form of advances for the purchase price. In many cases, a residential project can be financed solely from its own resources and advances from prospective buyers.(4)

Loan financing of development projects

Financing development projects belongs to the so-called project financing. This method of financing is very risky for the bank, the loan negotiations often take several months and numerous series of documents must be agreed and concluded. It is not just the loan agreement, but also complex security documentation. Bank always requires the maximum possible insurance on the entire transaction. A special feature of project financing is also the fact that the debtor in relation to the bank granting the loan is not usually the developer, but a separate company created by developer for a specific project.(5)

Developer

The developer, its experience in the market and references in form of completed projects are for financing institutions obviously important. On the other hand, it should be emphasized that the previous long-term experience in the field is not for a bank in the current competition at the credit market the main criterion for granting credit. To finance development projects it is typical that the subjects implementing development project and therefore the borrower is a new company founded by the developer for the sole purpose of implementing the project in question.

The purpose is to separate the operation of the project from other business activities and eliminate risk of liabilities due to other business activities and therefore the risk of bankruptcy due to the performance on the part of the borrower.(5)

A prerequisite for obtaining a loan is its adequate collateral and in the case of a development project through the assets associated with this project. The usual way to secure a loan on a development project is establishment of a lien on the property, which is realized through the development project. The subject to a lien is in this case land on which the development project is carried out, and buildings that are part of the project being built or reconstructed.

In the case of the construction of a new property, a lien is established if it is possible to put building under construction in Land Registry as a property. A mortgage is created on the date of the submission of the relevant draft to the Land Registry. The time from submission to register a lien as real estate varies depending on which land registry office decides the matter. In Prague, the time takes up to several months, which can cause complications to developers because they need funds to finance the project as quickly as possible. Thus, banks under certain conditions, provide financial resources already on a proposal to register a lien on the property to according Land Registry office. In this case, there is a risk for both the bank and the developer that the cadastral office does not permit a lien on the property. If the cadastral office shall refuse the application for register a lien property developer may be threatened by the bank, since it will demand the immediate repayment of the whole loan.(5)

Another way is to provide collateral in the form of debt the borrower to pay the balances on their bank accounts, or pledge his bank accounts. The purpose is to ensure the free financial resources of the borrower because it would get in loan defaults. In this case, the available funds were used to repay debt to the bank.

3.1.8. Risk analysis and management

Risk management is identification of risk factors and the establishment of a probability with which in the future may take various possible values. The objective of risk management is therefore to identify risk factors with the greatest potential impact (negative influence intensity) on the project (especially financial), to evaluate the likelihood of negative impacts and consider the possible consequences. The second step is to find effective means to eliminate or at least to manage those risks.

It is part of every project that cannot be neglected. It is linked to hope for results that are better than expected as well as the threat that the outcome will be worse. Important for this study is to find and define underlying risk factors, those factors that cause or are source of risks. Identification of these variables usually requires experience, knowledge and intuition. Good and thorough feasibility study is in its essence the first step to avoid project failure.(13)

Another tool, which has been already mentioned is a variant processing of the feasibility study, which is motivated by just showing the effects of several possible values of a particular risk factor and therefore variable. Variable factor is thought that as any variable that can take on different value with a certain probability that may be known or unknown. Risk factor alone should be assessed on the basis of two criteria. The first is the intensity of the negative impact, and the second, then the probability of occurrence of such a situation.

An important tool for identifying risk factors is also sensitivity analysis. It is used to determine the degree of influence of various factors on certain criterion of success. An example of a typical major risk factor in business practise, but also some public projects might be a demand for the service or goods provided. Also risks arising from potential environmental impacts should be uncovered by the EIA, similar to the consistency with all the applicable partial expertise is an essential part of the feasibility study.

The expected result of the risk analysis is a list of all possible risk factors that are considered relevant. When the analysis identified the risks of the project, the purpose of the risk management is to increase success of implementation of investment project and minimize possibility of negative impacts or risks on the project. At this preparatory risk management stage of the project it should be evaluated how great is the overall risk is. And whether the investor is willing to continue and deal with eventual negative development and its effects on the project.(13)

3.1.9. Conclusion

Each feasibility study must include a comprehensive and sophisticated conclusion. It includes the final assessment of the project including all the considered aspects and comments on the feasibility and financial profitability of the project. It is no longer necessary to go again into detail and repeat presented chapters. It should rather assess the project with respect to each area at the strategic level and highlight the most critical factors. This conclusion may be done separately for each variant in the case of variant processing of project. In this comprehensive evaluation there should be clear which variant is attributed to the relative importance and why.

4. Analytical part

4.1. Introduction of the Project

Nádražní 23 is located in lower part of town Roztoky near Prague, specifically about 5 minutes drive from Suchdol. This part of Roztoky has been in terrible condition for last 25 years, which lead the developer to an investment idea to revitalize local development and create new part of Roztoky that would be suitable for young families with children.

The developer of this real estate project is Nádražní 23 s.r.o. The developer company has been established solely for the purpose of managing construction of the Nádražní 23 residential development project and sale of the constructed apartments. Company employees have long term experience with managing residential project of such magnitude, therefore they believe that they will be as successful as it happened in case of previous development projects.

Before start of the construction itself there used to be a large manufacturing hall at the spot of the construction site. This factory has been shut down for last 35 years and dilapidated significantly. The building has been corroding and started to endanger cars and people walking by it. It also appeared unattractive to tourists as well as Roztoky inhabitants.

Figure 20: Side view on the project from the Nádražní street



Source: Nádražní 23 project documentation

The aim of the project is to create new town part of Roztoky that is modern, comfortable, and practical with current architectural trends, for all generations of customers. Families with children will appreciate kindergarten, small theatre and childrens playgrounds on the premises. Within buildings there is planned a small park with grass, trees, benches and playground facilities for children and elderly people. Surrounding areas are well known for its nature and touristic and historical monuments. Possibilities for various sports such as cycling, football, volleyball and much more are exceptionally well available in Roztoky.

Advantage of roztoky in comparison with other close range to Prague small cities lies in its perfect accessibility to the capital by train, bus or by car. All take about 15 minutes to reach metro or tram in Dejvice. Nádražní 23 is located 20 metres from the train and bus station which makes it quite convenient. In general Roztoky is quickly developing town with population increasing from 7000 to 8000 inhabitants in several years and it is expected to grow even faster with increasing number of newly build houses and apartments. Also people see advantage to live in very close proximity to Prague while not having to deal with the busy city life. Yes some people argue that such towns are becoming to be only a hostel for people working in Prague and using Roztoky to sleep.

Generally it can be said that Roztoky has greatly developed civic amenities. There are two elementary schools and sufficient number of kindergartens for additional number of children in case of increased number of inhabitants. Countless restaurants, bars and stores are available usually in walking distance from anywhere in Roztoky. For religious purposes there is Roman Catholic church in roztoky and many more religious places to visit.

4.2.Introductory Information

Location: Roztoky

Region: Central Bohemian Region

Type of construction: New

Investor: Nádražní 23 sro.

Estimated construction time: 36 months

The processor of project documentation: ARTPROJEKT Jihlava, spol. s.r.o.

Architectural and construction part: Ing.arch.Petr Holub, Ing. Jakub Fraj, Tomáš Dohnal

Project name: Residential Project Roztoky

Statics: Ing.Libor Kavalec

Fire safety: Alena Kuropatová

Medical technology (internal infrastructure of sewer, water, gas): Jindřich Hintenaus

Central heating: Ing. František Fuk

Ventilation: Ing. František Fuk

Electricity: Ing. Jiří Balcar

Engineering structures, exterior modifications: Jindřich Hintenaus, Ing. Jiří Balcar
fa. PUDIS Inc.

4.3. Description of the nature of the project and its phases

Position

The construction site is located along the bottom of the street Nádražní in Roztoky town. At this time there are original production and warehouse buildings and courtyards that are currently still used. It is expected that before the start of construction operation of all buildings will be canceled and objects will be demolished. Exceptions will form the southeastern segment of the object, in which there is situated Kvítko mini theatre. This segment including the theater will also be demolished and replaced by a new building on almost the same spot with new theatre

Information acknowledged by planning documentation

The spatial plan, the height of buildings.

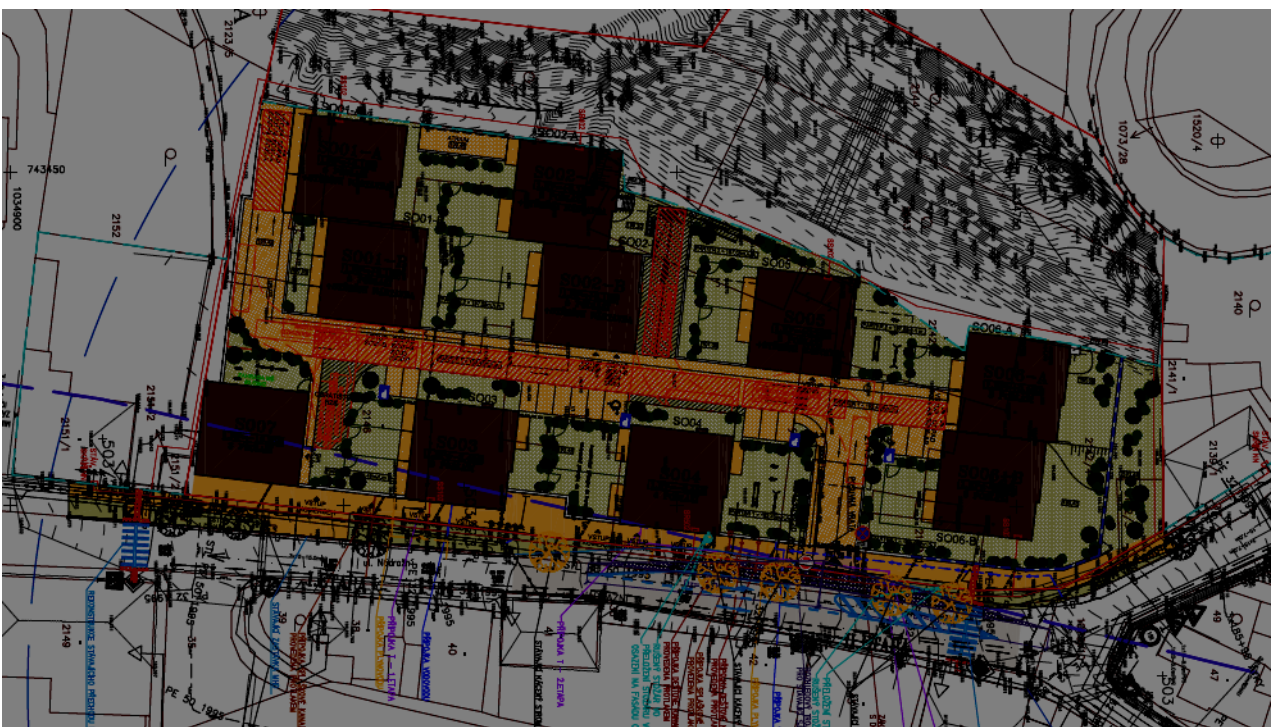
The intended construction plan is consistent with the land use plan (February 1995) with the following regulations: Can be used for housing, selected construction of public facilities do not disturb small manufacturing. It is suitable for construction of flats, houses, apartments that are over floor plan designated for civic amenities, dwellings in residential homes and service flats and apartments for the needs of the owner. In the area it is recommended to install retail establishments, shopping centers, restaurant facilities, accommodation equipment, management center, office buildings, and also religious, cultural, social, health, sports and educational facilities.

On the south side there is an existing object theater "Kvítko". It will be demolished and rebuild several meters away in order to make place for underground garages and enlargement of the main street. The main street will become more spacious and the whole area will become more welcoming. Widening of the street will allow for larger sidewalks and room for trees and grass segments.

Construction site and local area characteristics

This is a proposal of six detached residential houses, 3 of which planned to be a double-houses, specifically objects SO 01, SO 02 and SO 06. These residential houses will be built above two underground garages. Within the underground floors there will be in addition to parking also the main technical rooms, as well as five commercial units. In the southeast corner of the property there will be built new theater Kvítko that will be on the 1st floor. On the second and third floor of the object SO 07 there will be kindergarten available.

Figure 21: View on the development project from above



Source: Nádražní 23 project documentation

The construction will be divided into two phases, the first phase of construction will be carried out for apartment buildings and objects SO 01, SO 02, SO 03, SO 04 and theater (Kindergarten). Objects SO07 SO 05 and SO 06 will be constructed in the second stage. The underground floors will be implemented in the first stage. Objects SO 01, SO 02, SO 05 and SO-06 A have a total of 5 floors with receding roof attachments, object A SO-06 without penthouse. SO03 building has a total of 3 floors, building SO04 has a total of 4 floors and the building SO06-B has a total of 5 floors. Within object SO 07 there will build a new theater and kindergarten. Within the implementation of Stage 1 will be made all connections to rain and waste sewer, water, gas transmission line, telephone and Internet.

4.4. Basic information on capacity of the buildings

Built area: 5,378.00 m²

Enclosed space: 62,648.00 m³

total usable area of commerce, incl. facilities: 565.00 m²

Total floor area of the theater: 277.45 m²

Total floor area of the kindergarten: 188.16 m²

Total floor area: 7,550.38 square meters m²

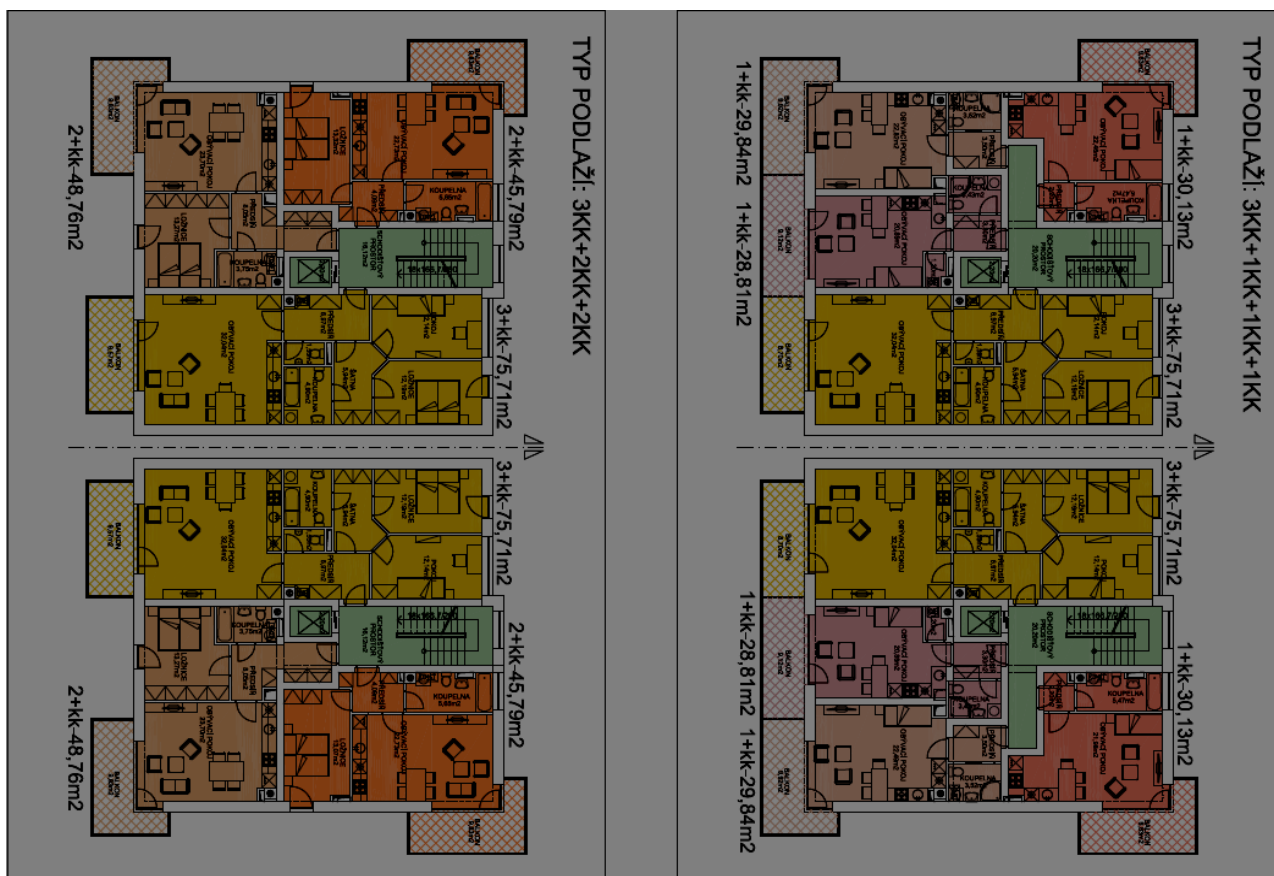
total floor area of balconies, terraces: 1497.83 m²

total usable area of common space: 1390.00 m²

Total floor area of chambers: 838.00 m²

total usable area of parking space: 4,293.00 m²

Figure 22: Flat platform and typology



Source: Nádražní 23 project documentation

Apartments

Flat 1+KK is a 1 bedroom apartment starts from the communication space in the hallway of the apartment, from which is accessible bathroom and living room with kitchen. In one of the options for this flat, there is living room access to a compartment with a boiler.

At the apartment 2 + KK, the main entrance is from the communication space into the hall of the flat. From there, it is possible to go right into the bathroom, bedroom and living room with kitchen. In one variant at a flat 2 + kk is the main entrance of the communication space in the hall. From the hall there is entrance to the bathroom, and then further into the locker room and into the living room with kitchen.

In the case of the apartment 3 + kk there is the main entrance into the communication space in the hall. From there, there is the entrance to the bathroom, then into the locker room and a living room with kitchen. The dressing room is accessible from bedroom, kids room and bathroom. In one variation of the flat 3 + kk the bedroom is equipped with a private bathroom.

At the apartment 4 + kk the main entrance is situated from the communication space into the hall. From there, there is an entrance to the toilet, into the locker room and to a living room with kitchen. Locker room is accessible from king bedroom, 2 kids bedrooms, and a bathroom. The bedroom is equipped with a private bathroom.

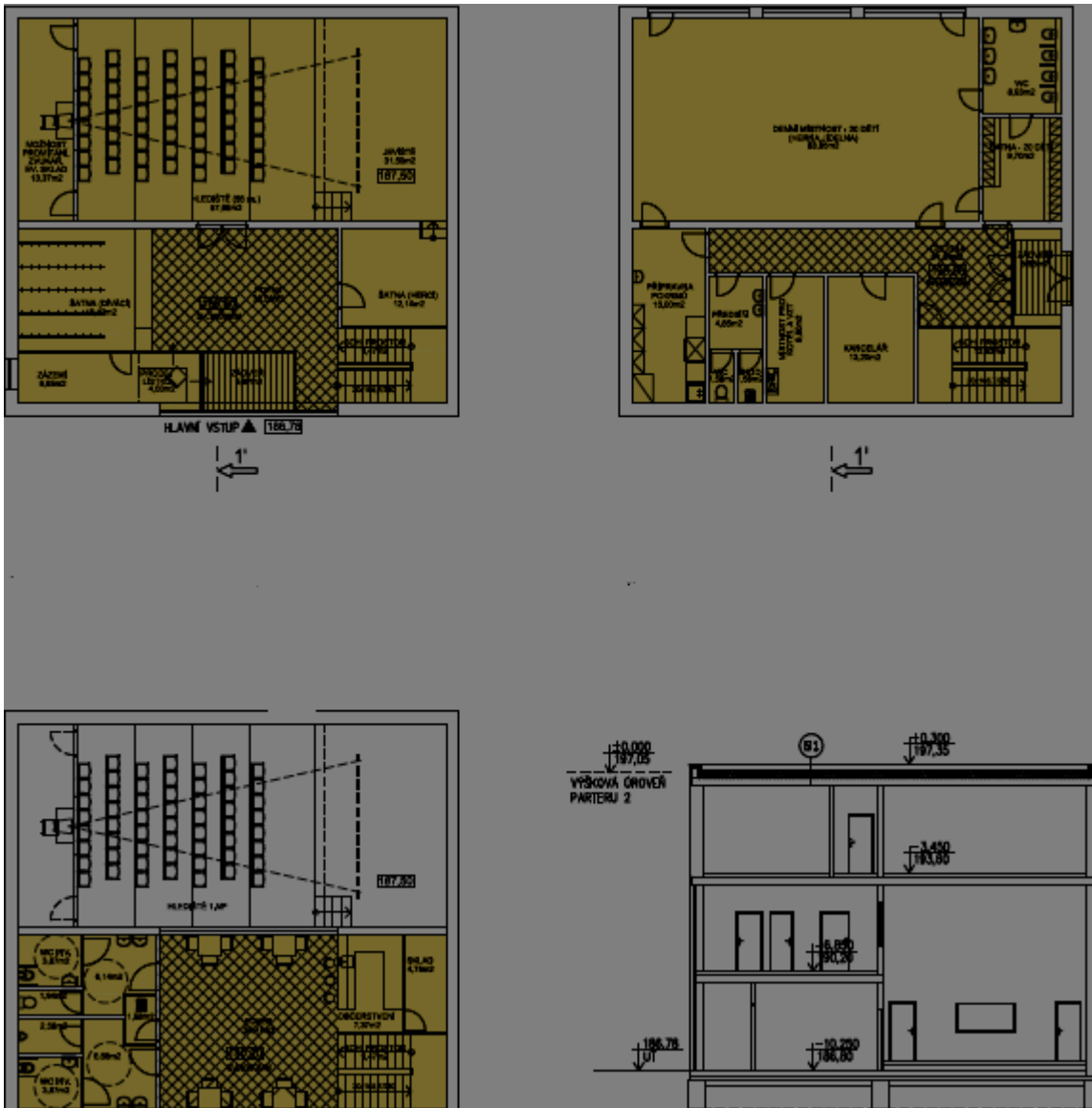
Optional apartment 4 + kk, is designed with an extension of the main entrance of communication compartment into the hall. From here there is entrance to the bathroom, winter garden and into the living room with kitchen. From winter-gardens there is accessible dressing room, main bedroom, 2 kids bedroom, and a bathroom. The main bedroom is again equipped with its own bathroom.

Kindergarten (SO07)

During the construction of the theater Kvítko, there also will be in 3rd floor built a kindergarten. It will be a nursery with a capacity of one class for 20 children. The main entrance to kindergarten is designed from the premises of parteru1. From the vestibule open there is an entrance corridor which is designed for teachers to the office, for the imported foods, for children to enter into the locker room or to the stairwell, into the hall toilet for teachers. The entrance hall is accessible to bathroom and cleaning room. Living room is designed as a common area and bedroom for children. From the living room there are designed entrances to the washroom with WC, into the locker room and into the hallway. In the teachers office there is isolation room designed for sick children.

Theatre Kvitko (SO07)

Figure 23: Theatre platform and size



Source: Nádražní 23 project documentation

In 1st and 2nd floor of building SO07 there will be theater built with a capacity of 56 seats. Entrance to the theatre is situated from Nádražní street. Across the vestibule there is open foyer. From the foyer there is going to be entrance to dressing room for actors and audience. Furthermore, using the stairs it is possible to get to 3rd floor and get to see the corridor with kindergarten. At this time Kvitko theatre looks like at the picture below. Most of the previous factory building has been demolished. Only remaining walls can remind us of its existence in the past.

4.5. Market Analysis, Forecasting, marketing strategy and marketing mix

Market analysis

It has been more than 5 years since the beginning of the global economic recession. Real estates were undoubtedly the most affected sectors affected by the crisis. Stable economic development, low interest rates, but also the favorable position of the Czech Republic in comparison to other countries in the region will lead to the recovery of the housing market, office space, as well as industrial estates and logistic parks. However the situation in each of the analyzed segments is very specific, and therefore the development will not be uniform. Experts agree that the worst time period is behind and the real estate market is experiencing growing demand, even for expensive and better quality housing. It will be rather gradual increase in prices than a significant change. The demand for residential properties is growing due to the extremely low interest rates. While price remains an important factor, buyers are more decisions based on quality and developers respond to this shift in the offer, and especially in the upcoming, projects.

In the past year in Prague there were sold the most new buildings in modern Czech history, nearly six thousand. Most of the actors in the real estate market agree that even this year we can expect further growth in demand and the increasing trend towards a slight increase in the prices of new flats in several percent per year. Additionally in the price of flats there is reflected rising cost of land, whose supply is declining rapidly on the market. Further upward pressure on prices, can be caused also by tightening in building standards and technical requirements according to **Marcel Soral, Chairman and CEO, Trigema a.s.**

According to Developer Companies Analysis of 2014 "Residential development is currently going well especially in Prague and Brno, and it is expected that prices of flats will rise. Office development is also expected to increase in supply and demand, but the influx of real estate, especially on the Prague market might be too fast and overwhelms the market. This would create enormous pressure on the price of rent.(13) Last year, the market for new flats in Prague increased in prices of several percent. Specifically the company CENTRAL GROUP increased realized prices roughly by 7% over the previous year. Predictions agree that prices of new apartments are expected to increase this and next year.

It can be said that the situation in the housing market in the Czech Republic was stable in the first three months of this year. Prices of apartments almost unchanged from the end of 2013. This trend was not affected even by massive promotions from banks that provide loans for housing.

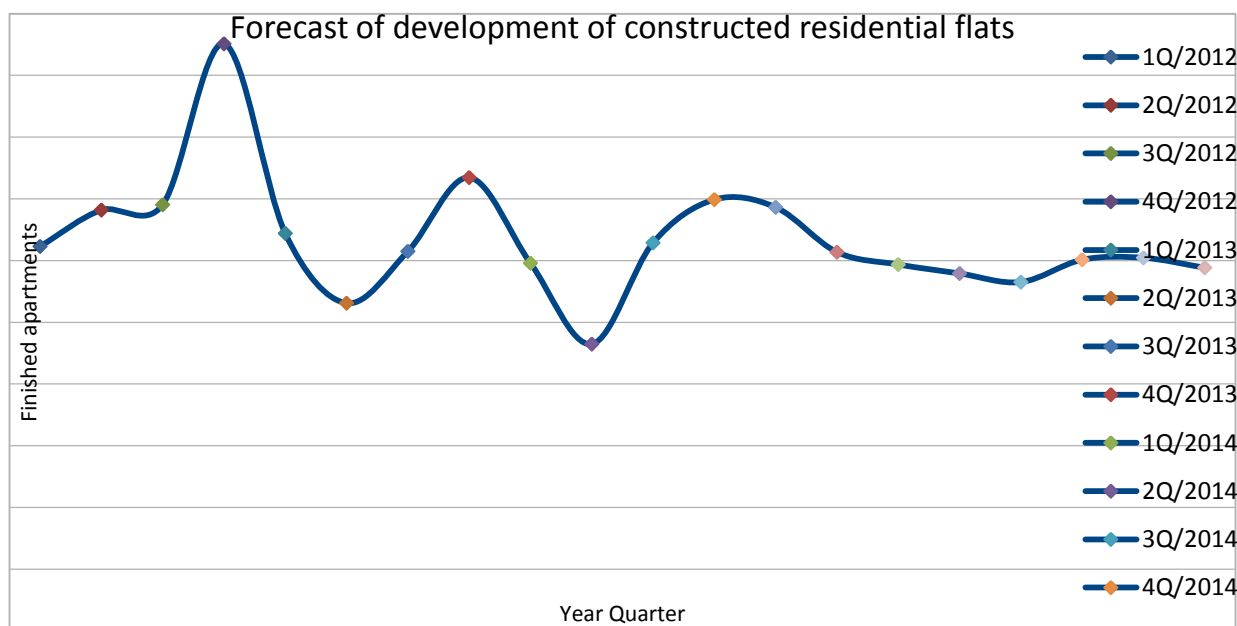
Forecasting

Development at the real estate market is affected by countless factors: the state economy, the price of money - mortgages, the new government, and so on. Third quarter of 2014 shows optimistic forecasts from the last year, which forecasts sales exceeding five thousand newly built apartments in Prague this year. Interest rate of mortgages is at the very bottom, expected economic recovery in following years and efforts of developers to launch new residential projects. These are the major positive factors important for market development.

Prague has had for long time a dominant share in construction of new real estates throughout the country. In the past four years, its dominance is growing significantly and is already above the 50% (launched), respectively 60% (completed) apartments. This trend is confirmed by the construction demand data from individual regions: Prague is the dominant city of the Czech residential development, followed by Brno.

Sales in Prague have grown for five consecutive years. Upward trend is supported by still very low mortgage interests, which however do not drop as much as in the previous year. Important for the future development will be that the Prague and Brno real estate market will not „overheat“ . In other words development companies should not to overwhelm the market with too many new projects, without a buyers. On the other hand it would help the construction and development that the market and demand for apartments in the regions outside of Prague and Brno revived.

Figure 24: Graph of Forecast of development of constructed residential flats

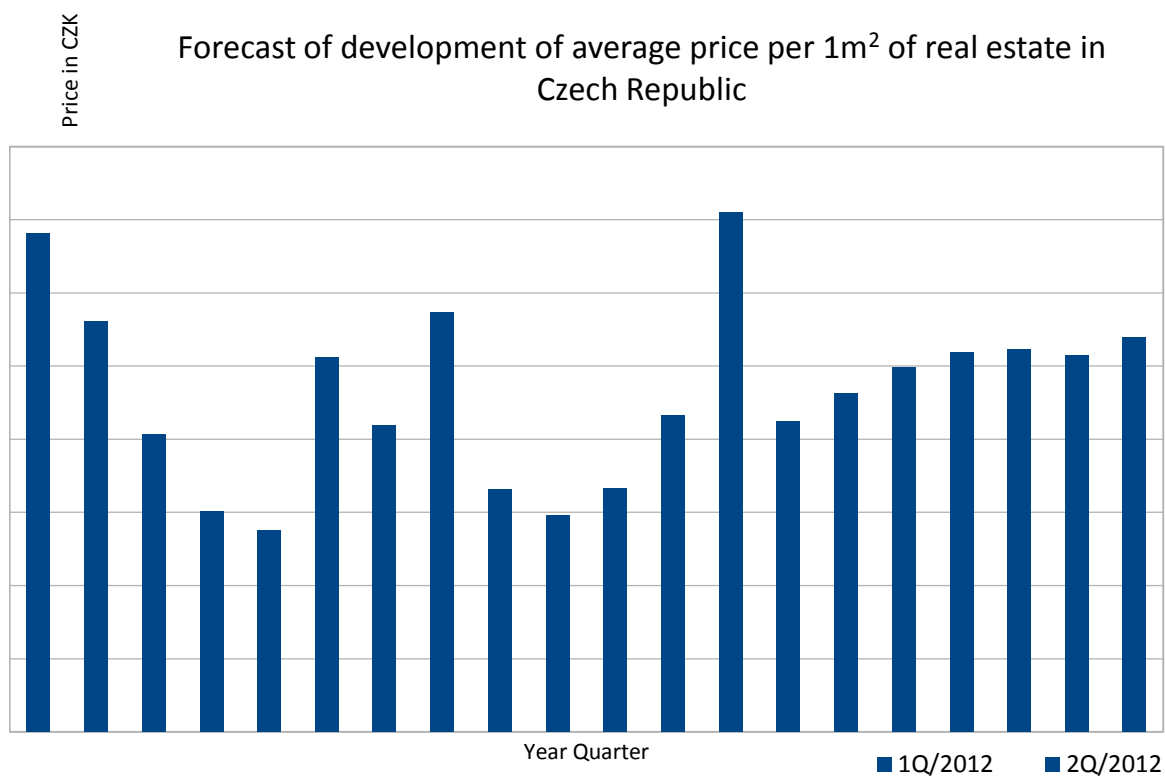


Source: Own calculation with use of CZSO.cz data

Important role, of course plays a particular location and region, therefore it can not be said for whole Czech Republic, which way the development will go in the future. When talking about the flats, it can be expected that the price in the will stagnate in next periods. However due to buyers interest and demand to purchase this type of property, the speed of sale of apartments, low interest rates it can not be excluded that in the future the price will rise slightly.

Based on own calculations and market development the residential market in the Czech Republic as a whole will grow very slightly over the next two years (1.9% in 2015 and 2.1% in 2016).The exception will be Prague city, which is expected to experience significantly faster development and growth in sales of new apartments (6.1% in 2015, 4.2% in 2016). This growth should, according to corporate directors exceed sales of 5000 of new apartments.

Figure 25: Forecast of development of average price per 1m2

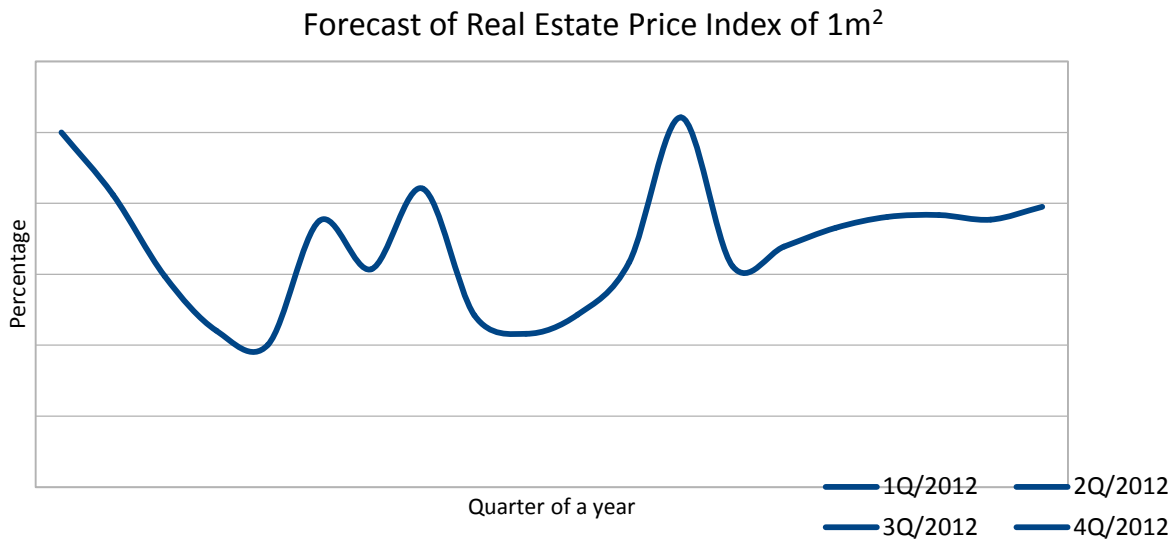


Source: Own calculation with use of CZSO.cz data

The residential market is now divided into two fundamentally different groups. First group is Prague and Brno, where there are apartments are under construction and sales for five consecutive years and increasing year by year. The second group is the remaining part of the country, where there are almost no newly built apartments or under construction. Such developments will correspond with the demand, which in the whole country will grow according to own calculations and

Czech Statistical Office data by 1.9% in 2015 and 1.4% in 2016. The fastest development will be in Prague, where there is expected a growing demand for new buildings by up to 6% in 2015 and 4.5% in the following year.

Figure 26: Real estate price index forecast



Source: Own calculation with use of CZSO.cz data

Obstacles to new development projects

The main problem which hampers the development of residential development, according to the directors of development companies is a high degree of bureaucracy from the state and a long process, approval period and poor legislation. The situation in this respect is getting worse, despite repeated proclamations of politicians that the situation it will be better. In fact, every amendment to the Building Act and related decrees or regulations are only worsening the confusing situation. The main fault for this state is carried by incompetent politicians all over the country, starting with our legislature and ending at municipalities. In practice we have often seen the situation where top politicians promise to support any project, and clerks then seek obstacles to this project and eventually will break or stop it.

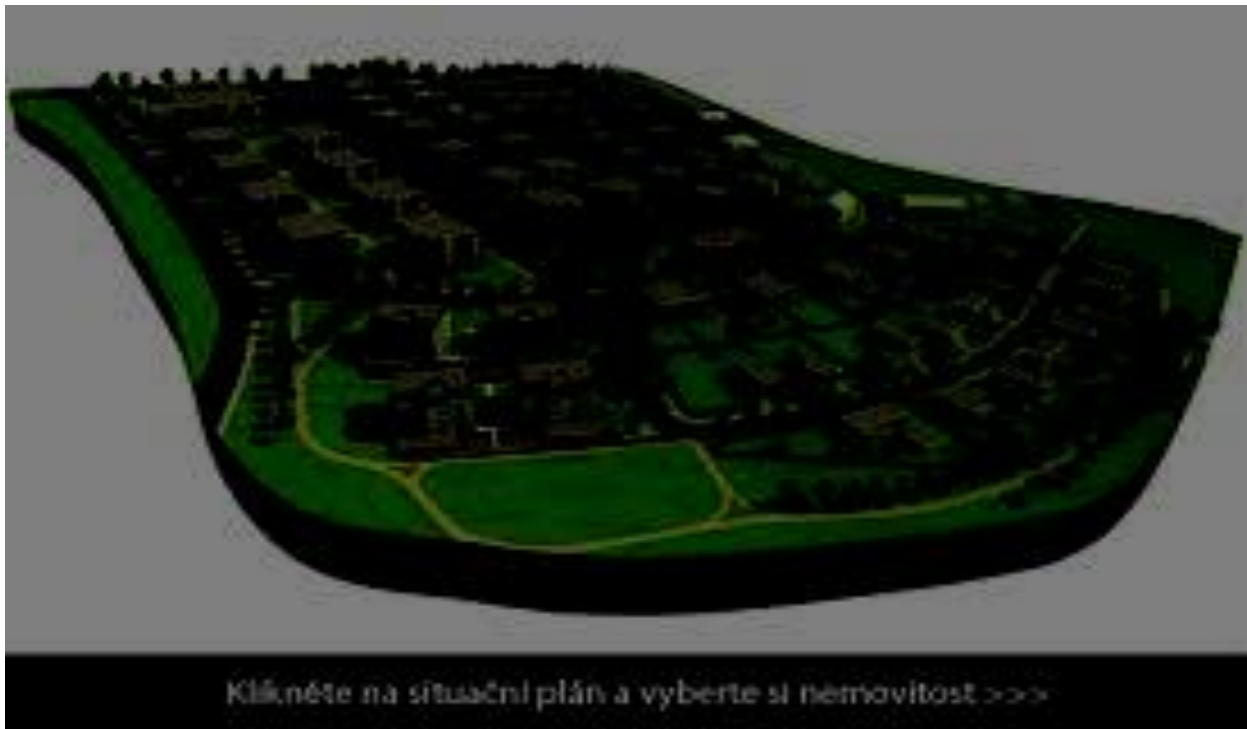
Other problem is also a shortage of suitable building land. Such trend is based on recent **Study of Development Companies in 2014** conducted by an analytical company CEEC Research in cooperation with consulting company KPMG Czech Republic.

Competition

Panenská Development Project

The project includes construction of residential houses, family houses and apartment buildings. Balance buildings and modern functionalist architecture ensures creation of a pleasant living environment in the immediate vicinity of the capital city of Prague.

Figure 27: Above view on the Panenska development project



Source: Bláha.cz

Roztoky town in which the site is located, is a pleasant place to live. The town offers full civic amenities and excellent accessibility to Prague either by bus or a train. You'll be pleasantly surprised by the beautiful surroundings - natural reserve Roztoky grove and Tiché Údolí itself offers an ideal place for leisure.

Figure 28: Street view on Panenská development project



Source: Bláha.cz

Housing projects on Panenská II is thought to be one of the largest housing projects north-west of Prague. The construction project is therefore divided into three consecutive phases. Currently Bláha a.s. successfully completed the first phase of construction - residential buildings labeled F15 - F18 (now flats a total of 44 residential units), terraced houses marked A22 - A25 and semi-detached houses labeled B13 – B20.

Table 21: Comparison of average flat prices Nádražní 23, Panenská, Trigema a.s.

Flat	4+kk – 90 m ² and more	3+kk-90 m ²	2+1 – 70 m ²	2+kk – 60 m ²	1+1 – 50m ²	1+kk-35 m ²
Nádražní 23	6300000	4500000		2922000		2292000
Bláha	6890000	4125000	3900000	3259000	2500000	1780000
Trigema	6249000	4990000	2799000	2790000	2100000	1580000
Others	6199000	3990000	2490000	3100000	2050000	1500000

Source: Own calculation with use of data from project documentation

Figure 29: Graph of comparison of average flat prices Nádražní 23, Panenská, Trigema a.s.



Source: Own calculation with use of data from project documentations

4.5.1. Marketing strategy

The average price of apartments of new development projects in the coming year will not decline. 52% of developers are preparing rise in real estate prices (calculated on m2) for next year. The same price level as this year plans to keep 48% of the companies.

Additionally almost two-thirds (64 percent) of developers plan to increase prices of their properties 2016. None of the questioned companies expect to drop prices for next year. The rise in prices is confirmed by Vladimír Dvořák, Managing Director at YIT LIGO: "Housing prices are rising slightly now, and this trend will continue. However due to the large supply of real estates we can not expect any rapid growth."(5)

Increasing Quality of Real Estate Development Projects

According to many directors of developer companies the rise in prices should be mainly reflected in the improved quality of projects and to cover additional costs associated with it. Only a quarter of developers (24%) see additional space for profit growth in relation with rising prices. According to most of the companies (68%) margin will remain at the same level as this year. Only one out of ten developersexpect reduction in margins over the next two years.

Similarly to market situation also Nádražní 23 s.r.o. is not expecting to decrease or bid low the price in comparison to its competitors. Due increasing demand for more and better housing quality Nádražní 23 will offer flats first at similar or higher prices than competition. Nádražní 23 will attempt to differentiate itself from competition with its superior quality and attractiveness of local area.

Marketing mix

Price

During the crisis, a number of smaller developers got into trouble and had to either cut prices to sell their projects, to file for bankruptcy with banks having to sell their real estate, or lastly to sell their projects to stronger players who are able to finish them. The market is cleared and is now controlled by large development companies. These, however lead a price war amongs each other thus decreasing price to be able to compete.

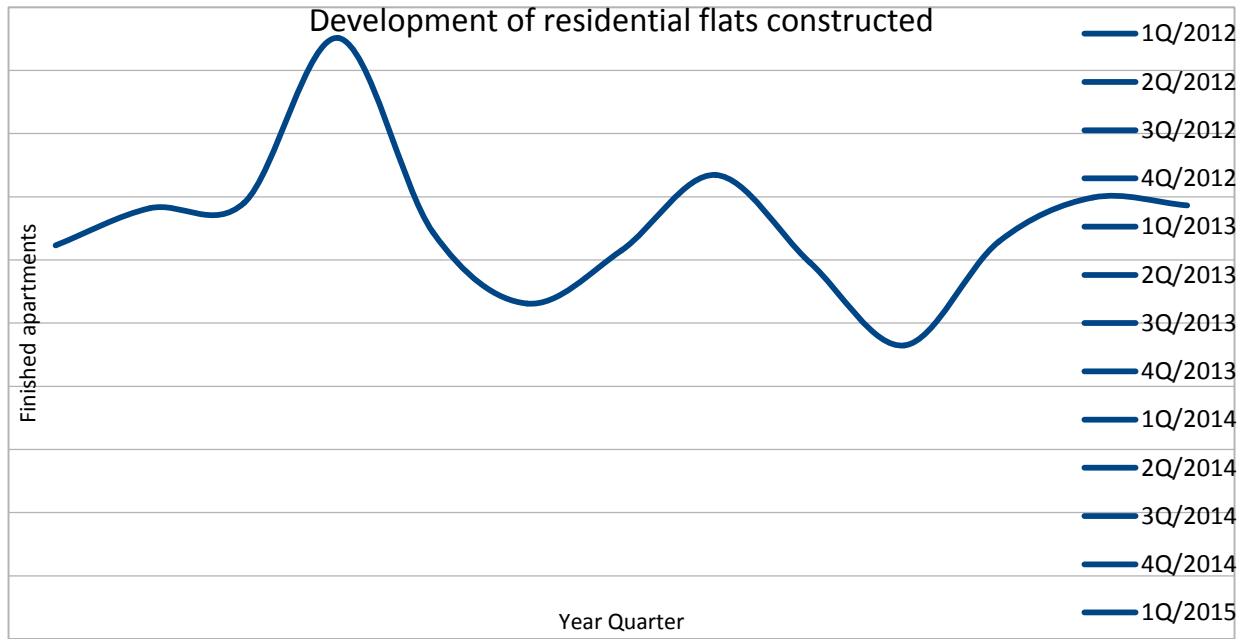
New apartments from development projects are nowadays accompanied by almost continuous discount events. In Prague there are several thousand finished but unsold newly constructed apartments. Hence the constant discounts. Prices in Prague range most often around 40,000 CZK / m² - 45.000 CZK / m², some developers have even prices around 35,000 CZK / m², however in an attractive localities apartments are on average for 50,000 CZK / m². It is estimated that about 15-20% of the real estate at size category 1+kk to 2+1 are bought as an investment, rather than for own housing needs. (13)

Real estate in ČR

Real estate construction in 2013 in the Czech Republic was declining. The number of apartments decreased or stagnated in last 6 years, the largest declines can be seen in construction of family houses. Number of finished apartments grew until 2012 wich was followed by fall of 14.3%. In 2013, construction began on 22,108 apartments, which compared to 2012 represents a decrease of 7.3%. This is the smallest number of apartments in comparison with 1998. The largest decline compared with 2012 was recorded in construction of family houses (-13.3%). Even more significantly declined the number of completed apartments in residential buildings: 14.7% (after a sharp downturn in 2010 and 2011 and an increase of 9.3% in 2012) (13)

Prices of older flats and houses in the Czech Republic peaked in 2008. Based on the House Price Index (HPI) data, real estate prices fell from third quarter of 2008 to third quarter of 2012 by 9.1%. HPI includes new and old residential property prices and related land.HPI development in the Czech Republic is similar to average for the entire European Union. In some EU countries has the decline taken longer time and was more severe. For example, in Spain, property prices have fallen from their peak in 2007 by an average of 30%.

Figure 30: Graph of constructed apartments



Source: CZSO.cz

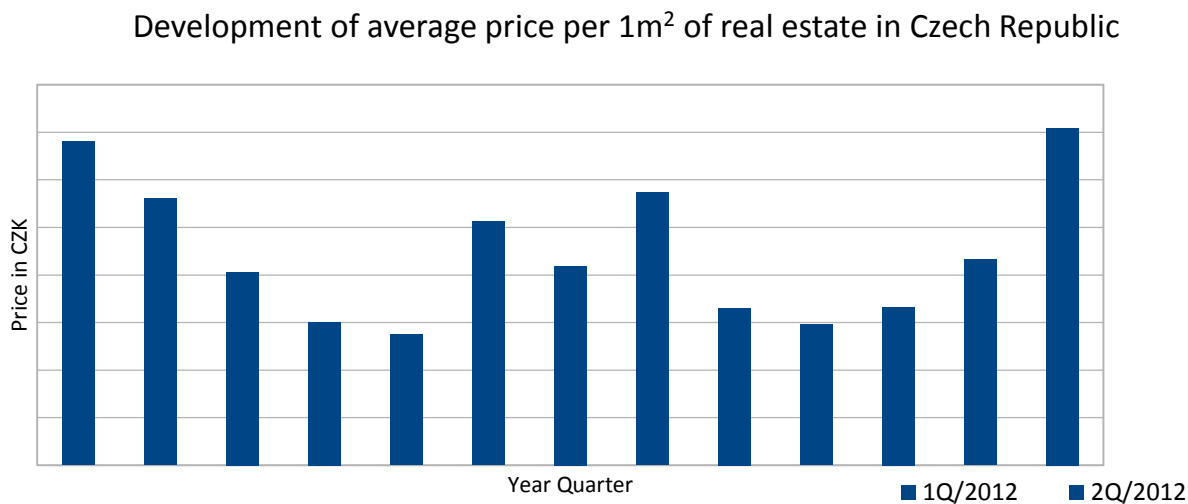
In Prague, the prices of older apartments in the same period compared to the previous year has slightly increased by 0.2%. According to **CZSO.cz** monitoring new apartments were the most expensively sold in the first quarter of 2009. Since the beginning of 2009 until the end of 2012 prices of new flats in Prague decreased by about 7.8%. Prices of older apartments in Prague since its peak in the third quarter of 2008 fell in late 2012 by 14.1%. In the whole country, the prices of older apartments at the end of 2012 decreased by 13.7% compared to the third quarter of 2009.

The price of real estate is strongly influenced by the labor market. In areas where there is low unemployment, the apartments and houses are sold at higher prices. For example, in Prague apartments are being sold for 46,000 CZK / m², in Brno for 31 800 CZK / m², in Hradec Kralove for 26,000 CZK / m². Conversely in the Moravia area there were real estate prices in comparison with other regions much lower: in Ostrava 16 700 CZK / m², Ústí nad Labem 11 800 CZK / m². The data represents average prices in 2009-2011. (18)

Small apartments in category 1 + 1 and 1 + KK went down by 0.82% since the beginning of the year. The average price decreased by 6,851 CZK from 832 371 CZK to 825 520 CZK since the end of last year. Midsize apartments 2 + 1 and 2 + KK have fallen slightly more . those are currently on average 11 427 CZK cheaper than at the end of 2013. Normally flat 2 + 1 in CR can be pur-

chased for 1,158,964 CZK. A year ago it was about 41 592 CZK less. Larger apartments in category 3 + 1 and 3 + KK held their value since the beginning of the year. Average apartment 3 + 1 can now be purchased for 1,319,742 CZK. (18)

Figure 31: Graph of average price per 1 m²



Source: Own calculation with use of data from CZSO.cz

In the long term point of view the prices of apartments in the Czech Republic are still very affordable. At the beginning of the economic recession (September 2008), the prices of flats were up to one-third higher than that are now. Average apartment 1 + 1 could be purchased in 2008 for 1,253,507 CZK (March 2014: 825,520 CZK). The price of the average apartment 2 + 1 was offered at the same time for 1,714,553 CZK (March 2014: 1,158,943 CZK) and flat 3 + 1 was possible to buy before the five and a half years ago for 2,121,617 CZK (March 2014: 1,319,742 CZK). (18)

Place

Roztoky is a beautiful place to raise children. Surrounded by nature and historic monuments people may enjoy quite yet accessible living close to Prague city. Location of the actual construction is nearby national monument Left Hradec, where it is a ten minute walk. By car it takes to Dejvice 14 minutes. Connected by buses every 8 minutes at peak times to the Metro stop Dejvicka (line A). Another option is to ČD trains Liben or to Masaryk Station to the Metro Namesti Republiky (line B) with a travel time of about 21 minutes (peak interval every 30 minutes). Ferry across the Vltava river will easily take you to the Prague Zoo and Botanical Gardens in Troja.

Figure 32: Bird view picture of Roztoky center



Source: Roztoky.cz

Another positive of Roztoky town is its existing infrastructure. There is a comprehensive network of shops including supermarkets (Tesco in the immediate vicinity of the residential complex) and all basic services - kindergarten and primary school, post office, a branch of the Czech Savings Bank, commercial bank and insurance companies Kooperativa, technical services, gardening, restaurants, service stations, building and elementary art school.

All the apartments constructed in Nádražní 23 have their charm. It is true that many people that are looking for new housing solutions have been clearly decided in advance that they would like to live in the newly developing apartments. In contrast, older housing solutions require reconstruction at very beginning in contrary with newly built apartment. On the other hand, it is the fact that older apartments offer cheaper solution, and possibility for variable investment.

Figure 33: Street view picture of Nádražní 23 project



Source: Nádražní 23 project documentation

Promotion

The promotion of the Nádražní 23 residential development project will include several channels. The investor of the project created web pages where there is possibility to reserve and pre purchase unfinished apartments. With use of these pages it is expected to increase number of potential buyers while decreasing administrative cost and costs associated with marketing.

Despite this investor is planning to create posters to be distributed in Prague and Roztoky area. Project visualization and computer graphics will be available before start of the construction so that the potential customers can imagine what will the project look like. Further it is expected to purchase billboards in relevant areas for example on the way to Roztoky and surrounding area. Advertisement in local radio stations might prove itself useful as well.

4.6. Impact of the project on the environment

Environmental issues routinely arise in all types of real estate transactions, from the sale individual residences to the transfer of large commercial and industrial facilities. Managing the associated risks is almost always possible. The bigger challenge tends to be initially spotting environmental issues. Failure to identify and address such issues may result in parties unknowingly assuming substantial liabilities.

There are several waste groups that will arise during construction of Nádražní 23. For purposes of the project there will be specially designed sub spaces and spaces for construction and municipal waste containers according to capacities of the project.

First waste group that will be produced during the construction: concrete, bricks, tiles and ceramic products or mixtures of concrete, bricks, tiles and ceramics, bituminous mixtures, soil and stones, construction gypsum-based materials and mixed construction and demolition waste. These non-contaminated waste can be used for landscaping construction of the new building, or will be dumped at landfill.(16)

Second waste group to be produced during construction: paper and cardboard packaging, plastic packaging, metal packaging, mixed packaging, wood, glass, Plastics, iron and steel, mixed metals, cables and insulation materials. These wastes can be recovered or disposed of by waste managing company (incineration, salvaging materials etc.)

Specific types of waste that will be the realization of that project arise, must be distinguished according to their hazard and categorized (Product Waste-ME Decree CR no. 381/2001 Coll)

Land contamination is often the environmental concern that receives the most attention in real estate in general. This contamination may originate either on the site (from the activities of present or past owners) or from off-site sources. Locating its source is important in order to quantify the potential risk and allocate responsibility.(16)

Mold contamination is a subject of increasing concern. Mold contamination generally arises in buildings that have been poorly constructed or lack adequate ventilation. Different types of mold may breed in the air circulation systems and walls of a structure. While the presence of moisture and mold can result in significant physical damage to the structure, several types of mold are also toxic and can cause a variety of medical conditions.

Asbestos is another area of concern. Asbestos may be found in numerous places, including as an insulating material in pipes and boiler rooms, in flooring and in roof shingles. Although it tends to be more problematic in commercial and industrial buildings, asbestos issues also may arise in older residential properties. The cost to abate asbestos problems, or to properly dispose of materials containing asbestos, could be substantial.

Numerous tools exist for managing all of the environmental problems discussed above. However, before any of these problems can be managed, they must be identified. Basic environmental assessments have become a standard component of most real projects.(16)

4.7. Financial analysis

Nádražní 23 is a rural development real estate project constructed by Nádražní 23 s.r.o. It is a large project of 7 apartment houses with kindergarten, theatre, underground garages and surface parking spots. It is expected to divide the construction into 2 phases, depending on how well will the sale of apartments develop. Construction is planned to last 3 years during which should the whole project be completed. Despite many problems between investor, local municipality and non-government action groups the project should be initiated early in 2015.

Table 22: Total costs and revenues from the project

Total Costs	385500000 Kč
Total Revenues	481907152 Kč
Profit	96407152 Kč
Profitability	20,01%

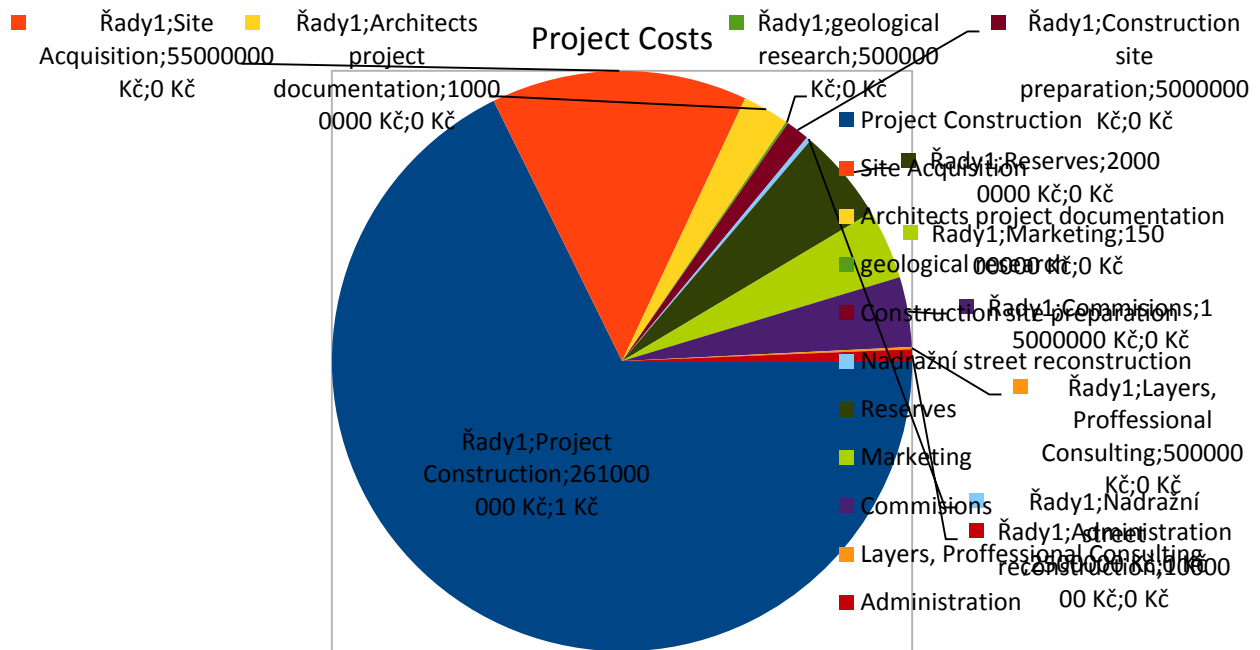
Source: Own calculation

Table 23: Project costs

Project Construction	261000000 Kč
Site Acquisition	55000000 Kč
Architects project documentation	10000000 Kč
geological research	500000 Kč
Construction site preparation	5000000 Kč
Nadražní street reconstruction	1000000 Kč
Reserves	20000000 Kč
Marketing	15000000 Kč
Commissions	15000000 Kč
Layers, Professional Consulting	500000 Kč
Administration	2500000 Kč
Total	385500000 CZK

Source: Own calculation with use of data from project documentation

Figure 34: Graph of project costs



Source: Own calculation with use of data from project documentation

As it can be seen in the table above it is expected that construction of the project will be very costly. Expected total costs after 3 years of construction will reach up to 386 milion CZK. Those include construction costs, administration costs, marketing costs etc. Based on the table the most significant costs will be for construction (261 mil. CZK) and the second, costs for land acquisition 55 mil. CZK

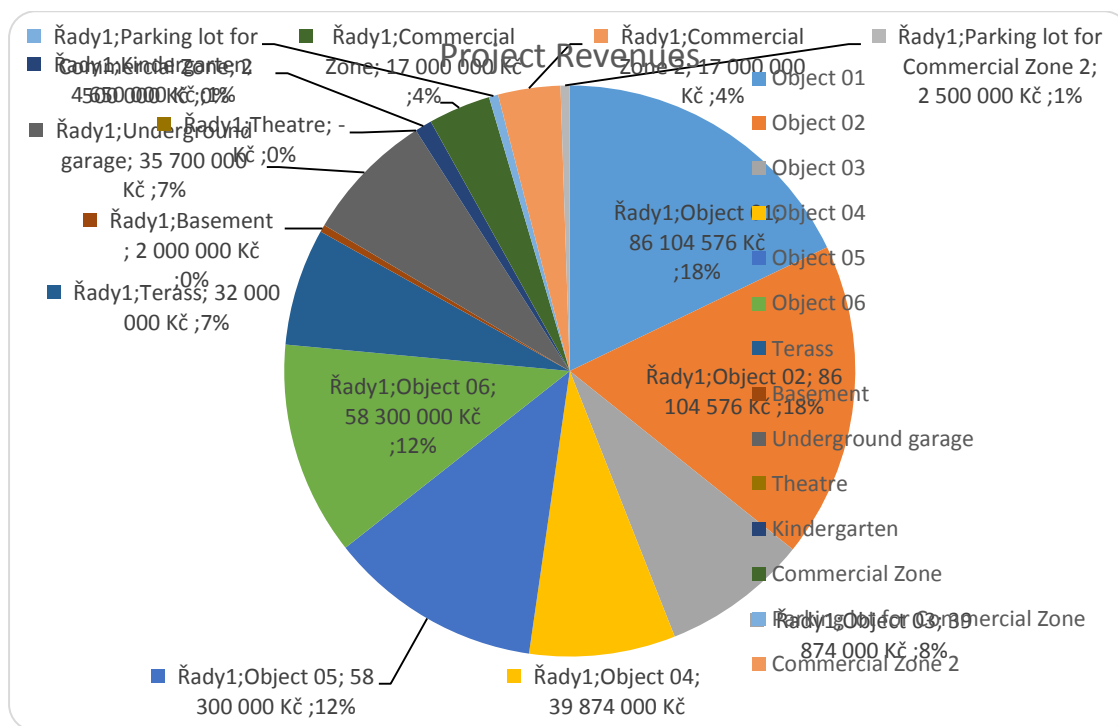
Table 24: Procect Revenues

Object 01	86 104 576 Kč
Object 02	86 104 576 Kč
Object 03	39 874 000 Kč
Object 04	39 874 000 Kč
Object 05	58 300 000 Kč
Object 06	58 300 000 Kč
Terass	32 000 000 Kč
Basement	2 000 000 Kč
Underground garage	35 700 000 Kč
Theatre	- Kč
Kindergarten	4 650 000 Kč
Commercial Zone	17 000 000 Kč
Parking lot for Commercial Zone	2 500 000 Kč
Commercial Zone 2	17 000 000 Kč
Parking lot for Commercial Zone 2	2 500 000 Kč
Total	481 907 152 Kč

Source: Own calculation with use of data from project documentation

According to the table above we can assume that the project will be very profitable. Based on own calculations and future market expectations total revenues will reach up to 482 mil. CZK from sale of 144 apartment units of various sizes and prices. According to the plan the first phase of the project should include construction of 4 out of 6 apartment houses with kindergarten, theatre and underground garage. Based on projected prices and expectations it can be calculated that revenues from first phase will reach up to 300 mil. CZK. After both phases expected revenues should range between 460 mil CZK up to 500 mil CZK. However all these numbers are not precise but only estimates.

Figure 35: Graph of project revenues



Source: Own calculation with use of data from project documentation

Based on the calculations and future expectations we can now assume that the project will create profit of about 100 mil CZK which would make it 20.1% profitable. This profitability is quite high in comparison to other real estate development projects especially at these times with high supply of apartments and low demand for them. However as it was forecasted before the situation on real estate market is showing positive development and gradually increasing demand for better quality housing which this project offers.

Financial Analysis

For purposes of this analysis it was decided to create several scenarios of the project development and sale of the apartments. Each option includes various scenarios for cash flow development, various levels of discount rates and various ways of project financing. It is important to say that most of the investment projects aren't valued based on these calculations and methods but usually based on market prices and competition in the area. Therefore these calculations have assuring and picturing nature rather than exact pricing strategy.

Option 1

This option suggests that the investor is going to construct the project without any funding institution with use of their own resources. As we can see in the table the construction is planned for 4 years and each year there will be certain amount of positive cashflow. This income will originate from pre-sale of not yet constructed apartments and will gradually fund further construction in next year. For this analysis it was decided to set up several discount rate levels as it would correspond to real estate industry in which the expected discount rate ranges according to (13) around 5% to 12%.

Table 25: Option 1, Discount rate 15%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-394000000				
1	50000000				
2	150000000				
3	200000000				
4	100000000				
		-48421617,99022	9,36%	2,6	0,88

Source: Own calculation with use of data from project documentation

Therefore the discount rate levels have been decided as follows: 15%, 10%, 5% and 3%. The analysis includes calculation of Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period and Profitability Index (PI). Using results from these calculation we are able to compare various projects among each other as well as the same project in several years of operation. With these calculation we are also able to decide whether the project will be profitable at each discount rate level at various cash flow options.

Table 26: Option 1, Discount rate 10%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	394000000	-			
1	50000000				
2	150000000				
3	200000000				
4	100000000				
		-6014206,68	9,36%	2,6	0,98

Source: Own calculation with use of data from project documentation

As it was mentioned above this option suggests that there in total will be 4 cash inflows, 1 major for each year. These cash inflows are based on expected state of construction as well as selling strategy and situation on the real estate market. As it can be seen on the table first cash inflow is of amount 50 mil CZK, second cash inflow is of amount 150 mil CZK, third cash inflow is of amount 200 mil CZK, and the final cash inflow is of amount 100 mil CZK. This option suggests that the payback period will be 2.6 years. This suggests that the capital invested will be paid back in less than 3 years which is favorable in this option.

Table 27: Option 1, Discount rate 5%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-394000000				
1	50000000				
2	150000000				
3	200000000				
4	100000000				
		44711236,6	9,36%	2,6	1,11

Source: Own calculation with use of data from project documentation

Calculation of IRR resulted in 9.36%. this suggests that in order to reach positive Net Present Value of the investment after 4 years the discount rate should be 9% maximum. In case of 15% discount rate the profitability index was 0.88 and the NPV was -48.42 mil. CZK. In the case of 10% discount rate the profitability index was 0.98 and the NVP was -6.014mil CZK. Both variants are

not profitable nor suitable to be constructed. However with decreasing discount rate from 15% to 5% and 3% we can notice increased PI to 1.11 and 1.17 and the NPV increased to 44 mil CZK and 68 mil CZK which is favorable and in this case the project would be profitable.

Table 28: Option 1, Discount rate 3%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-394000000				
1	50000000				
2	150000000				
3	200000000				
4	100000000				
		67810112,4	9,36%	2,6	1,17

Source: Own calculation with use of data from project documentation

Option 2

This option has very similar parameters as the previous option 1. In this case however there are expected problems with sale of the apartments. It is expected that the sale will be slower and more gradual. This scenario can be associated with decreased demand for apartments due to continuing effects of the 2008 financial crisis that affected from investor point of view negatively prices of apartments and decreased demand for the flats significantly. Therefore it is projected in the table by increasing number of cash inflows but decreasing each of their value as it would in case of worse market situation.

Table 29: Option 2, Discount rate 15%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-394000000				
1	50000000				
2	50000000				
3	50000000				
4	100000000				
5	100000000				
6	150000000	-108096607	5,96%	5	0,73

Source: Own calculation with use of data from project documentation

In comparison to the previous option there are 6 cash inflows instead of only 4. These six cash inflows suggest slower and more gradual sale of the apartments. However it is still expected that the total revenue from sale of the apartments will range around 500 mil CZK. Based on the

calculations the payback period in this case is 5.3 years and expected IRR is 5.96%. This suggests that it will take almost 6 years for the investment to be paid back. In order to keep NVP equal to zero the discount rate would have to be 5.96% which is still within range typical for real estate projects. However in order to increase NVP the discount rate has to be less than IRR.

Table 30: Option 2, Discount rate 10%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-394000000				
1	50000000				
2	50000000				
3	50000000				
4	100000000				
5	100000000				
6	150000000	-54592833	5,96%	5	0,86

Source: Own calculation with use of data from project documentation

Similarly to the first option in case of 15% and 10% discount rates the NVP is equal to -108 mil CZK and -55 mil CZK. Additionally the PI is equal to 0.63 and 0.86 which is in both cases is unacceptable for the project since both are less than 1. Again like in the first option the 5% and 3% discount rate level shows more acceptable values of NVP and PI. At 5% discount rate the PI is 1.04 and the NPV is 15 mil. CZK. At 3% discount rate the PI is 1.14 and the NPV is 49 mil CZK.

Table 31: Option 2, Discount rate 5%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-394000000				
1	50000000				
2	50000000				
3	50000000				
4	100000000				
5	100000000				
6	150000000	14717575,1	5,96%	5	1,04

Source: Own calculation with use of data from project documentation

Table 32: Option 2, Discount rate 3%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-394000000				
1	50000000				
2	50000000				
3	50000000				
4	100000000				
5	100000000				
6	150000000	48162789,5	5,96%	5	1,12

Source: Own calculation with use of data from project documentation

Option 3

In the third option scenario the investor has signed partnership with a funding institution. In this case bank provided additional funding for the project. It is usual for investors of residential projects to use a loan as a source of external funding because the developer company have rarely enough own resources to take on such a large investment. In this case the consortium of banking institutions offered to fund the project by 70% loan at 2% interest rate which is extremely low. Such interest rate is very rare so that the investor company is interested. Basically in this case banks persuaded the investor to use their external funding.

Banks are very interested in such ventures because they see a chance to offer mortgages to investors clients (people buying apartments). Banks do not expect significant profit but are mostly interested in mortgages because they are at higher interest rate and will be repaid for 20 years period. In practice the investor has a banking account through which all the project payments go through. Every electricity bill, every material purchase goes through this account and is carefully controlled by the bank. This account is continually drew from by investor and paid for by bank. At the end of the project and after sale of required amount of apartments the account is equaled to zero.

Table 33: Option 3, Discount rate 15%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000				
1	20000000				
2	30000000				
3	30000000				
4	30000000				
5	30000000	-8130999,2	11,70%	3,6	0,92

Source: Own calculation with use of data from project documentation

As it was mentioned financial institutions provided about 70% of resources to complete to project. Therefore the investors initial investment is about 100 mil and there are 3 expected cash inflows. In this scenario the investor expects profit of about 20 to 40 milion CZK.

Table 34: Option 3, Discount rate 10%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000				
1	20000000				
2	30000000				
3	30000000				
4	30000000				
5	30000000	4632693,99	11,70%	3,6	1,05

Source: Own calculation with use of data from project documentation

As we can notice it is expected that the sale of the apartments has a good pace and all the flats are sold after 3 years of pre sales. It can be noticed that for every discount rate level 15%, 10%, 5%, 3% the NVP is positive which it was not in previous options. From this we can deduce that the IRR is higher than 15%. Calculation of IRR proves this and states its value to be 17.14% which is quite high for real estate industry.

Table 35: Option 3, Discount rate 5%

Year	Amount	Present value	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000					
1	20000000					
2	30000000					
3	30000000					
4	30000000					
5	30000000		20360490,6	11,70%	3,6	1,20

Source: Own calculation with use of data from project documentation

Nevertheless it is very favourable situation because all the indicators show positive values. Pay back is only 2.3 years so the funds invested will be paid back in less than 3 years. NPV ranges from about 3 mil CZK up to 31.3 mil CZK which is again very positive. PI shows values larger than 1 which means that the project will be profitable at every pre stated level of discount rate.

Table 36: Option 3, Discount rate 3%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000				
1	20000000				
2	30000000				
3	30000000				
4	30000000				
5	30000000	27682477,8	11,70%	3,6	1,28

Source: Own calculation with use of data from project documentation

Option 4

Similarly to option 3 in this scenario the investor has a funding institution partner who provides 70% of the total funds for the project. However conversely to the previous option now there are expected problems with sale of the apartments. Problems with sale may be caused by various factors such as problems in construction of apartments, pressure from non-government local action groups, decreasing demand, increase in mortgage interest rates etc.

Table 37: Option 4, Discount rate 15%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000				
1	35000000				
2	45000000				
3	60000000	3912221,58	17,14%	2,3	1,04

Source: Own calculation with use of data from project documentation

All these factors may cause slower sale of the apartments as is reflected in following table by increased number of cash inflows. Each inflow is lower than in previous option however when added together they account for the same amount of money as the previous option, only take longer to accumulate.

Table 38: Option 4, Discount rate 10%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000				
1	35000000				
2	45000000				
3	60000000	14087152,5	17,14%	2,3	1,14

Source: Own calculation with use of data from project documentation

In this option the payback period is 3,6 years after which all the invested amount is paid back. IRR is in this case equal to 11.7% and at this discount rate the NVP would equal to zero. Using various levels of discount rate of 15%, 10%, 5%, 3% we can see that at 15% discount rate the NPV is -8.1 mil CZK. Other levels of discount rate show positive NPV from 4 mil CZK to 28 mil CZK. Only in the case of 15% discount rate is the PI less than 1 and its value is 0.92 which says that the project will not at this discount rate be profitable.

Table 39: Option 4, Discount rate 5%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000				
1	35000000				
2	45000000				
3	60000000	25979915,8	17,14%	2,3	1,26

Source: Own calculation with use of data from project documentation

Table 40: Option 4, Discount rate 3%

Year	Amount	Net Present Value	IRR	Payback Period	Profitability index
0	-100000000				
1	35000000				
2	45000000				
3	60000000	31305898	17,14%	2,3	1,31

Source: Own calculation with use of data from project documentation

4.8. Risk management

Development risk

Development risk is defined as the risk that sale of the project will generate insufficient returns to cover cost and create the desired return due to a lack of sales or inadequately meeting the needs of the demand in terms of type and location. It can be said that the higher the chance that the developer will misread the market and the higher the development risk. Forecasting and planning risk are also part of risk management

Time risk

In general, exceeding the planned project time line leads to two main risks: cost of capital such as interest increases with delays reducing project returns, and market conditions change over time reducing the reliability of forecast data. As markets turn and consolidate, delays in the completion of such projects aggravate losses. The time risk can be addressed by professional best practice project management including clear documentation, co-ordination and communication between project parties. An overall understanding of market forces and dynamics is critical.

Cost risk

The cost risk is closely related to time risk. This means that all the above risk categories also affect the cost risk. Professional project management is especially important for effective cost control.

Financing risk

Typically, developers have to obtain appropriate financing schemes at favourable terms, which shall cover the entire length of the development (8) Thus financing institutions, partners and financing conditions are crucial. Often, developers seek to obtain a 'forward funding of a project. In a nutshell, the developer agrees to sell the development on completion to an investor who provides financing during the development process Also, time and finance risk are driven by related factors, so delays in the timely implementation of the project will also increase the financing risk as interest rates may go up during that period and the additional time needed to completion will add interest cost on the debt financing required. To reduce financing risk, it is advisable to avoid financial commitment to a project prior to completion of the final feasibility analysis and making a decision to implement

Construction site risk

This is the risk that the selected site is unsuitable, or needs to be modified at cost to become suitable, for the intended use due to environmental issues (such as contamination) or its natural characteristics (stability, water levels, subsidence etc.) Further, risks on the construction site, which comprise safety of employees, contractors and visitors as well as to assets, should be minimised with appropriate workplace health and safety practises, regulated areas, and use of corporate best practise for safety on construction sites.

4.9. Conclusion

The main aim of this Diploma Thesis is to conduct a Financial Feasibility Analysis of a Selected Real Estate Rural Development Project. Construction of this project will begin in 2015 and is scheduled to finish in 2017. Material and data necessary to complete this work have been obtained from various sources of information such as Czech Statistical Office, interviews with important employees taking part in the real estate project, real estate development industry analyses, project documentations etc. Utilization of this materials helped the author to make calculations and assumptions in order to assess financial feasibility of the selected real estate project.

This Diploma Thesis can be according to its content divided into two main bodies titled Literature Review and Practical Part. Literature review is essential part of the thesis containing necessary theoretical information and procedures to conduct the financial feasibility. Practical part of the Diploma Thesis contains chapters including introduction of the selected project, vertical and horizontal analysis of real estate market and financial statements of the developer company, analysis of financial indicators etc

Cash flow analysis as well as analysis of financial indicators have shown that various scenarios created to test feasibility of the project were in majority of the cases feasible and profitable. With use of several discount rate levels the author was able to obtain range of values within which were values of Profitability Index and Net Present Value of the project positive values and profitability.

Simulation of several options of sale of the apartments proved that lower the discount rate higher the profitability index and higher the NPV was as well. It also appears that estimated costs to construct the whole project was estimated to 385,5 mil CZK. Revenues from sale of all 144 apartment units, kindergarten, theatre, underground garage and all parking spots will make revenue of about 480 mil CZK to 500 mil CZK. Based on calculations and estimation the profitability of the real estate project was around 20.05%.

Despite expected values, estimation and forecasts it is almost impossible to make 100% accurate prediction of future development. Based on future market position and development of prices, demand and supply we can only estimate at this time how well will the sale of apartments be conducted. However based on estimations and investors expectations it can be claimed that the project will bring positive development to Roztoky town as well as to their inhabitants and at the same time will generate profit for the investor.

4.10. References

- (1) COLLIER, Nathan a Don HALPERIN. *Construction Funding: The Process of Real Estate Development, Appraisal, and Finance*. USA: John Wiley & Sons, 2007. ISBN 9780470037317.
- (2) DAVIS. *The Real Estate Developer's Handbook: How to Set Up, Operate, and Manage a Financially Successful Real Estate Development*. Atlanta: Atlantic Publishing Company, 2007. ISBN 9781601380340.
- (3) DUŠEK, David. *Základy oceňování nemovitostí*. 3. vyd. Praha: Oeconomica, 2010, 143 s. ISBN 978-80-245-1639-4
- (4) FRÖHLICH, E. *Manual for Small Industrial Business: Project Design and Appraisal (General studies series)*. UK: United Nations Pubns, 1995. ISBN 9211062950
- (5) LONG, Charles. *Finance for Real Estate Development*. USA: Urban Land Institute, 2011. ISBN 9780874201574.
- (6) PECCA, S.P. *Real Estate Development and Investment: A Comprehensive Approach*. USA: John Wiley & Sons, 2009. ISBN 9780470480274.
- (7) RATCLIFFE, John. *Urban Planning and Real Estate Development*. USA: Routledge, 2009. ISBN 9781134106653.
- (8) WILKINSON, Sarah. *Property Development*. UK: Routledge, 2008. ISBN 978-0415430630.

Online Sources

- (9) Financing Investment Projects the Relationship between Feasibility Study and Business Plan. In: IOAN, Vicoria. *The Annals of "Dunarea de Jos" University of Galati* [online]. 2010 [cit. 2015-03-26]. Dostupné z: <http://www.ann.ugal.ro/eco/Doc2010/loan.pdf>
- (10) Marketing and the 7C. In: *Chartered Institute of Marketing* [online]. 2011 [cit. 2015-03-26]. Dostupné z: www.cim.co.uk/files/7ps.pdf
- (11) NĚMEC, Michal. ÚZEMNÍ ANALÝZA AKTUÁLNÍCH DEVELOPERSKÝCH PROJEKTŮ ZAMĚŘENÝCH NA VÝSTAVBU BYTOVÝCH DOMŮ V HL. M. PRAZE (2014). In: [online]. 2014 [cit. 2015-03-26]. Dostupné z: http://www.iprpraha.cz/uploads/assets/dokumenty/ssp/analyzy/bydleni_realitni_trh/FINAL_Analyza_developerskych_projektu_listopad_2014.pdf
- (12) PLIMPTON, Samuel. Financial Analysis of Real Property Investments. In: *Harvard Business Review* [online]. 1979 [cit. 2015-03-26]. Dostupné z: <https://hbr.org/product/financial-analysis-of-real-property-investments/379193-PDF-ENG>
- (13) RESIDENTIAL LAND DEVELOPMENT PRACTICES. In: *American Society of civil Engineers* [online]. 2008 [cit. 2015-03-26]. Dostupné z: <http://www.asce.org/templates/publications-book-detail.aspx?id=8052>
- (14) SIEBER, Patrik. Studie proveditelnosti (Feasibility Study) metodická příručka. In: *Ministerstvo pro místní rozvoj* [online]. 2014 [cit. 2015-03-26]. Dostupné z: <http://www.strukturalni-fondy.cz/getmedia/c4772855-8ffc-4036-97fc-2d7caa1ad86e/1136372156-zpracov-n-studie-proveditelnosti>
- (15) TURČÍNKOVÁ, J. PŘÍSPĚVEK K ANALÝZE DEVELOPERSKÉHO TRHU V ČESKÉ REPUBLICĚ. In: *SBORNÍK MENDELOVY ZEMĚDĚLSKÉ A LESNICKÉ UNIVERZITY V BRNĚ* [online]. 2008 [cit. 2015-03-26]. Dostupné z: <http://acta.mendelu.cz/pdf/actaun200856060113.pdf>