Mendel University in Brno
Faculty of Business and Economics

Sustainable competitiveness of SMEs in the construction industry

Diploma thesis

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Abstract

POLÁKOVÁ, M. *Sustainable competitiveness of SMEs in the construction industry*. Diploma thesis. Brno: Mendel University in Brno, 2016.

This diploma thesis deals with the evaluation of the financial and economic situation of small and medium enterprises in the construction industry in the Czech Republic and in the South Moravian region. The main objective is to reveal the main factors influencing the competitiveness and sustainable economic performance through financial analysis of companies' sample. This companies' sample is divided among companies which have bankrupt during the economic crisis and active companies. Their financial results are then compared with sector averages provided by Ministry of Industry and Trade in the benchmarking diagnostic INFA system. For the construction branch is elaborated as well the external environment analysis.

Keywords

Construction industry, Financial analysis, Strategic analysis, SMEs, Benchmarking diagnostic INFA system, Economic value added, Cluster analysis

Abstrakt

POLÁKOVÁ, M. *Udržitelná konkurenceschopnost malých a středních podniků v oblasti stavebnictví*. Diplomová práce. Brno: Mendelova Univerzita v Brně, 2016

Diplomová práce se zabývá finanční a ekonomickou situací malých a středních podniků ve stavebnictví v České Republice a na Jižní Moravě. Hlavním cílem diplomové práce je identifikovat hlavní faktory, které ovlivňují konkurenceschopnost a udržitelný ekonomický výkon firem, kterého je docíleno pomocí finanční analýzy vybrané skupiny podniků. Tyto podniky jsou rozdělena na podniky zbankrotované během ekonomické krize a na podniky aktivní jejichž finanční situace je porovnána s oborovým průběhem poskytnutým Ministerstvem Průmyslu a Obchodu a jejich benchmarkingovým diagnostickým systémem finančních indikátorů INFA. Pro stavebnictví je v práci také vypracována analýza vnějšího prostředí.

Klíčová slova

Stavebnictví, Finanční analýza, Strategická analýza, Malé a střední podniky, Benchmarkingový diagnostický systém finančních indikátorů INFA, Ekonomická přidaná hodnota, Shluková analýza

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1 Introduction

Construction sector can be considered as one of the most important in the whole economy due to the fact that provides long term wealth. Construction industry provides housing for private and public sectors and contributes greatly not only to Gross Domestic Product but as well to employment, due to the fact that this field of economy is able to employ as well low-skilled workers. This sector has a huge multiplication effect supporting employment and development of other sectors as well such as transportation and other supplying industries. Therefor there should be enough interest and afford to develop construction sector and aim for its sustainability.

Current situation in the construction field can be classified as "re-birthing" after the financial crisis erupted in 2008 and its consequences on economic downturn during the following five-six years. The economic crisis had affected all European countries quite identically in terms of decline of construction sector in world´s economy. With this fact is connected the decline of entrepreneurship activities as well. During the years of economic crisis was almost impossible to start a new business and the attractiveness of construction sector had fallen rapidly. For the already existing companies it was a hard task to sustain competitiveness of their businesses. However, after five-six difficult years there can be finally seen an upturn in the construction and economic development.

Due to the economic crisis in the last years, the CEOs of construction companies had to become more and more flexible and adaptive. It was not anymore important the customer orientation as it normally is. The key factors have been seen in the reserves of companies and their assets. Cuts in theirs selling prices could be compensated with substitution of outsourcing with self-done works and their own assets and machinery. The pressure on prices was so huge that the recovery in now-a-day situation is still quite difficult.

However, in times of crisis or in times of economic growth there is still importance of analysis of environment which is influencing companies in any sector. The strategic evaluation is a basic. There must be done the analysis of competition in the industry, life cycle position of market and its flexibility and size, the possible barriers of entry to given market and the space for profit of course. Such evaluation should be a whole-life process and part of the strategic planning of each firm in any industry.

The financial analysis cannot be missing neither. It is another main pillar of company's analysis. Each company must be informed about its development in currency units and its financial health. According the financial tools can be better understood the company's effectiveness and financial stability and these analysis provides the possibility of future prediction as well.

2 Objectives

The main objective of the diploma thesis is to identify the main factors influencing the competitiveness and sustainable economic performance of small and medium enterprises in the construction industry. In order to fulfil the main objective, it is described the current situation of construction industry and its development in years of economic downturn to evaluate the economic situation, external environment and the financial status of construction industry. This objective is connected with research questions which were settled. The first research question is identical to main objective of this diploma thesis and is dealing with identification of main factors influencing the competitiveness of construction companies. The second research question is then asking how the performance of companies can be improved.

To fulfil the main objective of the diploma thesis it is important to focus individually on partial goals. The first partial goal is to evaluate a companies' sample of small and medium companies working in construction industry and elaborate their financial analysis. There are compared active and bankrupt companies same as companies in Czech Republic and companies settled only in the South Moravia region.

The second partial goal is to evaluate the economic and financial situation in the construction industry as a whole according the reports of Ministry of Industry and Trade under which are provided financial data of the construction and which provides analysis working with the financial INFA analysis. The objective of this part is to provide the overall insight to the economic and financial situation, which is compared with the results of companies' sample.

The third partial goal is to identify the key factors of external environment of construction sector as whole. In this part the main task is to elaborate the overview of factors, which are influencing economic activity of construction companies.

The first three partial goals should lead to answering the research questions which were settled regarding the identification of main factors of competitiveness and the improvement of sustainable economic performance of companies.

The last partial goal is to elaborate the theoretical background regarding the entrepreneur activities and the possibilities of establishing a business in this field, the construction management requirements, strategic management analysis and the basis of financial analysis.

Finally, it is important to conduct the synthesis of partial quantitative and qualitative results of analysis to identify the major factors which contribute to sustainability and competitiveness of construction sector and to answer research questions.

3 Theoretical background

The theoretical background of my diploma thesis is focused on the overview of findings which I have acquired by browsing the printed and electronic literature dealing with topic of sustainability of construction sector, by studying last five years at Mendel University and primary by my work experience which is in this sector. The main topics I am dealing with in the theoretical part of my diploma thesis are entrepreneurial activity, strategic management analyses, construction management requirements and financial analysis. The aim of this part of my research is to study the theoretical principles on which I am basing later the practical part of my work which is dealing with propositions to construction companies about their sustainability and competitiveness.

3.1 Entrepreneurial activity

As the first part of my diploma thesis I am stressing out the basis of enterprise where I am studying the legal definition of entrepreneurial activity and the conditions of starting business in this sector on the territory of the Czech Republic.

Enterprise

Enterprise was defined by Commercial Code which was annulated the 1. January 2014 as a systematic activity conducted independently by an entrepreneur in his own name and on his own responsibility with the purpose of reaching a profit. Business Corporation Act no. 90/2012 coll. which is valid today and replaced the Commercial Code do not specify anymore the terminology of enterprise nor entrepreneur. However, one can find the definitions in the Civil Code no. 89/2012 coll. according which the entrepreneur can be characterized as a person who independently carries out on its own account and responsibility a gainful employment with the intention to do so consistently and for profit. Individual activity consists in the fact that a natural or legal person individually decides about which goods will provide on the market, how and where will produce his goods or provide his services, with whom he will cooperate and how he will finance his business activity. As well Act no. 455/1991 coll. On Trades is providing a very similar definition of enterprise stating that trade is a continuing activity carried out independently in entrepreneur´s own name, on his own responsibility with aim of reaching profit and under the conditions laid down in this Act.

Of course, business is also characterized by other features, such as searching business opportunities, meeting customer needs, facing the risks and capital accumulation for the initial deposit for crisis periods, on which agrees Martinovičová (2006) and Synek et al. (2015). Martinovičová (2006) also deals with definition of entrepreneur where she stayed that entrepreneur can be both natural and legal persons and that it is a decisive factor in economic development and is responsible for the scope of business, business methodology and how to deal with resources.

Srpová et al. (2010) further state that the business pursues three main objectives, namely profit, market value of business and maximize the value of a company. The main preconditions for become a good entrepreneur are, according these authors, entrepreneurship and success. Entrepreneurship expresses man's assumptions for the business and can be inborn or acquired by experience. The basic stones are entrepreneurial knowledge, skills and abilities. Success can be specified as expectations of achieving predetermined goals and is the main drive pushing business forward. Synek et al. (2015) on the other hand is stressing more the characteristics of entrepreneur such as creativity, the ability to come up with new ideas and the energy to take the opportunity.

On the figure below (created according the study of Koráb and Mihalisko, 2005) are described the "build stones" of **successful entrepreneur**. To consider an entrepreneur as successful, it is important to have certain technical skills, managerial skills and the personal qualities.

- Technical skills – entrepreneur should have knowledge about future manufactured products or services provided, and at the same time should focus on the sector in which the business takes place.
- Managerial skills – entrepreneur should focus on issues of marketing, finance and human resources, and how he can manage the whole company.
- Personal qualities – entrepreneur should have some of its own "equipment" such as innovativeness, ability to make decisions in daily activities, manage a team and be able to monitor the external environment which influences a company.

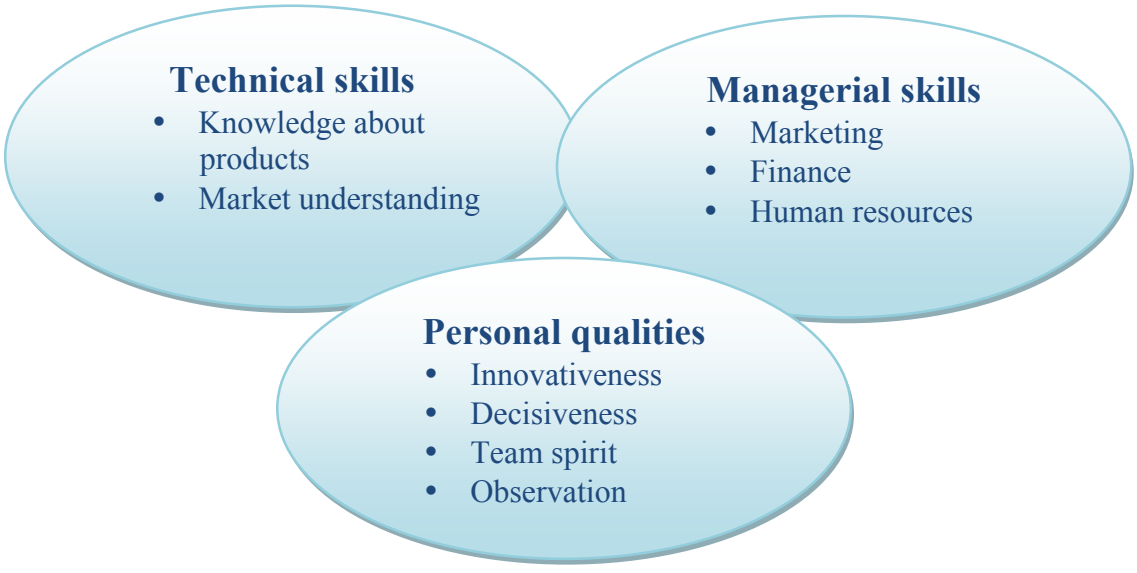

Figure 1 Building stones of a successful entrepreneur
Source: Koráb and Mihalisko (2005), edited by author

In comparison with Koráb and Mihalisko (2005), Synek et al. (2015) is stressing out more the role of leadership of entrepreneurs stating that for a good entrepreneur there is need of combination of managerial and leading skills. However as is pointed out in his book, not everybody with good managerial and leading skills has to be specifically a businessman, these people can be seen as the CEOs of non-profit organizations for example.

Business

Business can be defined from many different angles. Srpová et al. (2010) understand the business as an entity which transforms inputs into outputs. Furthermore, the business can be also defined as economically and legally independent entity that exists for the purpose of enterprise, and where the owner is responsible for business results.

Businesses exists how states Synek et al. (2015) to produce and distribute products and to provide services to their customers. That is the main task of all businesses. Businesses same as individuals in their behaviour follow certain aim which can be defined as a state or result that want to be reached. **Aims** depend on the purpose for which a company was created. According a firm theory, the main aim of each enterprise is to maximize a profit in the short run. Reaching of this aim can be measured by many indicators of profitability such as Return on Equity which is more specified in the section of financial analysis and which is used as the main indicator of competitiveness in the part of own research. Another aim of enterprise can be a maximization of market value which can be measured by index of Market Value Added or Economic Value Added. The second stated it the one used in the practical part of this diploma thesis.

Speaking about aims, Synek et al. (2015) was studying as well the differences in aims for small and large companies. He states that the big corporations are usually owned by shareholders however these do not manage the company. The management is left in the hands of professional managers. So in case of large companies the management and the ownership is divided between more people what can lead to problems. Managers are fulfilling the main aim of the enterprise which is to maximize the value for stakeholders. In case of small enterprises, the owner is usually the main manager of all company and as well the main investor. Being the investor is consequently leading to the fact that the owners of smaller companies are fully interested in increase of the market value because usually all their families are directly dependent on the company. The smaller companies however have huge impact for the economy of a state due to the fact that even in the most developed countries they represented around 98% of all companies and they employed around 60% of all employees. This is one of the reasons why the work is focusing on the small and medium enterprises.

Every business entity however big it is, according Martinovičová (2006), is determined by certain characteristics that are good to be known for better competitiveness of business. Among the most important features belong external busi-

ness **environment**, environment which influence the business and determines it. According Synek et al. (2015) we can distinguish between:

- Geographical environment – the location is important for logistics and legal framework (EU regulations and laws).
- Social environment – ideally the activity held by a company should have positive effect not only for itself but as well for the society as whole (case of Baťa´s enterprise).
- Political and legal environment – political parties and their decisions influence the entrepreneur´s activity same as the legal framework.
- Economic environment – economic situation and its dynamics.
- Ecological environment – bidding regulations which have to be accepted by firms in ecological issues.
- Technological environment – development and accessibility of technology determines the ability to produce.
- Ethical environment – what is seen and respected in the society as right or wrong.
- Historical and cultural environment – education and cultural level of consumers and entrepreneurs and their experience and expectations

An important role beside the environment is also played by **interest groups** as well how states Martinovičová (2006). Each interest group influence company in its own way and is represented on the following figure.

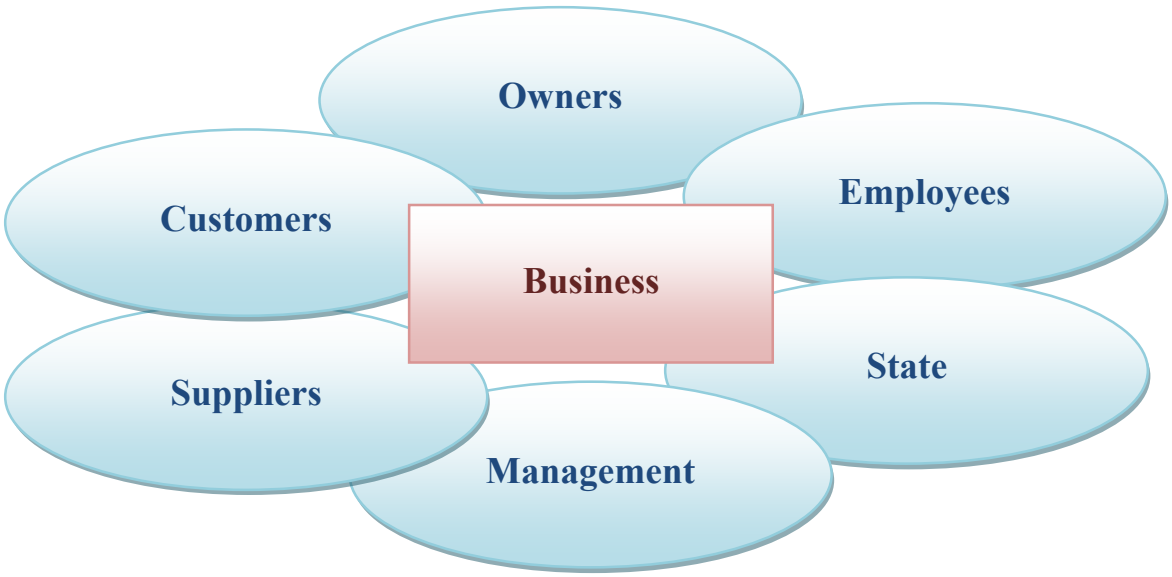

Figure 2 Business and its interest groups
Source: Martinovičová (2006), edited by author

Another thing, which is needed to state in relation to the concept of businesses is their **classification**. According Martinovičová (2006) and Synek et al. (2015) the classification of businesses is quite difficult task, because the company can be classified in many ways, such as:

- Businesses by legal form - this division is used especially when we want to determine the capital risk, therefore, limited liability company or unlimited liability. From this perspective, businesses are divided into:
    - Enterprises of individuals - mostly on the basis of trade license.
    - Trading companies - those are distinguished on personal (public limited company and limited partnership) and capital (limited liability company and joint-stock company).
    - Cooperative societies – mainly focused on utility of their members than on the profit.
    - State/public enterprise owned by government.
- Businesses by size – here Srpová et al. (2010) is pointing out different kinds of criteria and again more possibilities how to divide companies. I stress out the one used in European level, which is characterized by number of employees, annual turnover and amount of assets and can be find in Directive of European Commission n. 800/2008.
    - Micro enterprises – up to 10 employees, turnover up to 2 mil. € and assets up to 2 mil. €;
    - Small enterprises – up to 50 employees, turnover up to 10 mil. € and assets up to 10 mil. €;
    - Middle enterprises – up to 250 employees, turnover up to 50 mil. € and assets up to 43 mil. €.
    - Large enterprises – more than 250 employees, turnover more than 50 mil. € and sum of assets higher in value higher than 43 mil. €
- Businesses according economic sectors:
    - Agriculture businesses – including agriculture, fishery and forestry.
    - Industry businesses – including mining, production and distribution of electricity, gas and water and for my thesis important construction sector.
    - Business providing services – such as transport, education, public health sector.

3.1.1 Construction

Construction can be defined as Radosavljevic and Bennett (2012) stay as a series of actions held by construction companies to produce building and infrastructure. Individual companies can be asked to produce one or more actions/projects during given period of time applying their specialised skills and knowledge. On the given project are usually cooperating more construction companies to create one specific construction. To ensure the cooperation will be efficient, the project will be created without defects and in high quality and the large amount of human technology will be effectively led, there is need of highly skilled construction management.

Construction management is complex field of study dealing with planning, organization, coordination, monitoring, control and report, production, administration and many others processes ensured by managers. According Harris and McCaffer (2013) can be this complex area divided into four main areas:

- Management of the physical production – site construction management.
- Management of functions which contribute to delivery of the project - project management.
- Organizational management – management of all participants on certain construction.
- Sector management – management of industry.

According Radosavljevic and Bennett (2012) there are seven basic **construction actions** that must be taken into account to complete a certain construction. These are:

- Preparing a brief - Brief can be characterized as a detailed document that determines constrains of given construction such as finance or time.
- Designing - Design is a graphical illustration of brief and all other specifications the construction is containing. This design can be according authors in electronic three-dimension form.
- Planning - Plan is the third essential construction action including documents as a project execution plan, a time schedule of all action, financial budget, cost plan specifying how and on what the budget will be spent.
- Procurement - Procurement or sometimes called tendering process is action including supply of materials and other supplying firm. This action is executed by construction company which is selected to undertake the direct production of a construction.
- Manufacturing – Involves actions connected with manufacturing of components before the delivery and installation.

- Producing – Production is the action of building, the process transforming inputs/materials into output/construction.
- Commissioning – Action when the facility is tested. If the construction was correctly produced according consumer´s requirements, specification and design proposal.

Construction as a whole industry can be divided into four main categories as Jackson (2010) is explaining. These are residential building, commercial building, industrial construction and heavy/highway construction. Each of these sectors is determined by different means, materials, equipment and methods of production. **Residential construction** is addresses to housing of society and is the largest sector from all four mentioned. Among housing sector take place individual houses, apartments, townhouses and condominiums. Residential construction is typically funded by individuals for own purpose or by developers with aim for sales. This sector can be classified as a low technological demanding and so the materials, means and methods are the basic ones. On the other hand, this sector is very wide-ranging due to different requirements of every individual.

Commercial construction is representing the third of all construction sector and is addresses to commerce, trade and government which include construction such as office building, hotels, shopping malls, schools, hospitals, theatres, banks and others. Building costs are significantly higher than in case of residential building and the technology and means used are as well more complex and technical. Funding of these construction building can be private, public or by combination of public-private partnership, usually by big corporations or government.

Sector of industrial construction is highly specialized and requires specific resources, technologies and experience. The number of companies that are qualified to work in this sector is limited. Is involving construction such as steel mills, manufacturing plans, pipelines or oil refineries. These constructions are often very simple from exterior however the installation of equipment requires special technologies, knowledge and attention. Buildings of this kind are usually a subject of long-term projects which can be constructed in years.

The last sector is **heavy civil construction** which referred to roadways, bridges, tunnels or airports so is essential for all society. Sometimes this sector is classified as horizontal construction. The projects are typically designed by civil engineers and are constructed by large heavy civil construction that usually have international range. These constructions are very much sophisticated in terms of equipment and companies building these buildings need to have large investments in their equipment.

In my work however I am using different division of construction industry than is pointing out Jackson (2010). I am working with the statistical classification of economic activities in the European Community, NACE, which was introduced

in 2007. According this classification, the construction industry can be divided into three main categories which are CZ-NACE 41 construction of buildings, CZ-NACE 42 civil engineering and CZ-NACE 43 the specialized construction activities such as demolition, site preparation, drilling, electrical installations or painting works.

Quality management in construction

The important part of construction management is of course quality management. Any construction company cannot compete effectively without guarantee to a client a quality work. Quality in whatever market is nowadays standing alongside the price as a major factor for selection of suppliers/companies. Quality is not anymore seen just as a prestigious product more likely it is the fitness of product or service to a client´s requirements.

Quality management according Harris and McCaffer (2013) can be divided into following stages.

- Quality control and inspection – process of checking if the results fulfil the criteria of requirements (for example concrete cubes creation for checking the quality of concrete).
- Quality assurance – ensure that specifications are met. ISO 9001 is the norm addressed specifically for standard and quality in construction sector. (For example some clients will not cooperate with company which do not fulfil the standards of ISO 9001.)
- Total quality management - approach dealing with continuously improving of goods and services. Long-term aim of survival based on assumption that all processes should be correlated.
- Quality management system – process that ensure the achievement of quality standards.

With quality is very closely connected control. **Quality control** involves ensuring that given product or service have met defined criteria and requirements how state Harris and McCaffer (2013). Quality in construction sector is usually control by inspection. Inspection has two forms. The first one is measurable and objective, for example inspectors can measure the length of a line or can verify the verticality of walls. The second one is determined by simple observation which depends on experience of inspector. Another form of control used in construction field is based on statistical methods which is regarding the materials mostly. One of the typical examples of ensuring of quality is a creation of a sample and testing this item to verify if is fulfilling given criteria. Results from testing then must be compared with requirements settled in documents of specification and contract drawings.

3.2 Strategic management

Management of a company is a really complicated process due to the fact that the business alone is a complicated organism dealing with many different kinds of activities which cannot work well without a good coordination, motivation and control (Synek et al. 2015). For determine business as a successful one, is necessary that all activities and decisions of a company are realized in a connection to each other. As the main task of a company is the transformation of inputs to the outputs, there is a pressure on management and coordination of this process.

Management has quite broad meaning so do not have any single formula however according electronic sources management can be defined as a function that coordinates the efforts of people to accomplish goals and objectives by using available resources efficiently and effectively. The same opinion is held by Drucker (1999) where he points out that the term management is purely American expression and that is really difficult to even traduce it or explain it well in British English. Management he understands not only as a function but as well people who execute it or as a field of study. However as well this author coincides with others that management can be understand as process of coordination of activities of group of workers with the aim to reach given goals. This means that management as well means decide what to do and how to do it through people.

Speaking about the definition of management which is quietly broad, it is important as well to explain the **role of managers**. Manager according Pošvář and Chládková (2014) is any person who directs part or entire work of other workers and is responsible for their results. In case of small and medium enterprises the main manager is usually the owner of a company. Managers have to deal in daily operations with huge number of different activities either planning or personal administrative. According the degree of management, activities done by managers can be divided between strategic, tactical and operative. Synek et al. (2015) and Pošvář and Chládková(2014) agree on general division of manager's functions, stating that the main tasks include planning, organizing, staffing, leading and controlling to accomplish goals and targets. These goals should be fulfilling the SMART criteria how explain Hanzelková et al. (2013) staying for first letters of Stimulating, Measurable, Acceptable, Realistic and Timed. The targets should stimulate entrepreneurs to achieve the best results and these results should be measurable. Results will not be useful if are not realistic, determined in time and will be acceptable by stakeholders and other interest groups of business.

The basic part of any strategic management analysis is always the **analysis of environment** which determined given enterprise. Environment can be distinguished between external – the factors which cannot be influenced by company and are determining company from outside, and internal – factors that influence an enterprise from inside of the company and so can be modified. External

environment is basically given by macroeconomic environment and microeconomic environment. Macroeconomic environment can be furthermore divided into international, national and regional environment or according the most famous model of external environment, PESTE on political, economic, social, technical and ecological. Microenvironment is then dealing with issues of company itself, suppliers, buyers, competitors or substitutes. (doc. Ing. Pavel Žufan, Ph.D and Pošvář and Chládková, 2014)

3.2.1 Macroeconomic analysis

The performance of all businesses is affected by external factors as general economic conditions, demographics, social values and lifestyles, government legislation and regulations and technological factors. Macroeconomic environment of enterprises includes relevant factors having origin outside the company. Gamble and Thompson (2011) considered relevant those factors that shape the decisions of management with respect to the direction in which the company is developing itself in the long term, respect to its objectives, strategies and business model. Sedláčková and Buchta (2006) complete that the macroenvironment includes conditions occurring outside the company, that the organization is not able to immediately and actively influence. The task of management of the company is to respond to these changes, prepare for a variety of development alternatives that may arise in the future, and thereby contribute to increasing of the competitiveness of the company.

A wide range of models and procedures exists for analyse macroenvironment of enterprise. In this work is used the extension version of PESTE model which is one of the basics and all authors agree on it.

PESTE analysis divides the basic factors influencing each enterprise into five main categories. The name of this analyse is created from the first letter of these factors which are Political, Economic, Social, Technological and Ecological environment. This model has many others modification such as SLEPT analysis where is missing the ecological factor however is added the legal factor, PESTEL model where are all six main variables or how explain Tichá and Hron (2011) STEP with just the four main factor. In this research there is used the most developed model including all factors. Main task of this analysis is to forecast the future impacts of environment on enterprise according historical and current development. Characteristic of individual components of PESTEL analysis:

- Political factors

  Government decisions affect the organization directly or indirectly and are a source of significant business opportunities however as well of threats. The subject of research is the stability of the international and national political situation and the country's membership in various international organizations. As main influences can be named stability of a government, regulations of foreign trade, tax politics and others.

- Economic factors

  Economic conditions determining capital availability, costs and demand are always factors having a major impact on the success and profitability of the enterprise. In the case of optimistic expectations regarding demand and low costs is attractive for companies to invest with the expectation of future profitability. (Thompson and Martin, 2005) According Tichá and Hron (2011) the economic environment is involving factors that are related to the flows of money, goods, services, information and energy. She adds that the subject of analyse can be for example a life-cycle of an enterprise, the unemployment rate or the availability and cost of energy.

- Social and cultural factors

  This environment is including social, demographical and cultural factors that are in close relation to standards of living of a society. On managerial decisions is having affect in particular number and age of society, their education, consumption habits, earnings and preferences. The important factor which should not be neglected is the development of life style during the years. (Pošvář and Chládková, 2014)

- Technological factors

  Among the technological indicators that affect the environment in which companies operate, belong factors associated with the development of the means of production, materials, processes and know-how. According to the methodology of Tichá and Hron (2011) it is the government spending on science and research, new discoveries, inventions, patents, technology transfer and the last mentioned indicator is the rate of obsolescence of the means of production.

- Ecological factors

  The importance of ecological factors is growing in relation to the importance of security of sustainable development. Costs connected with protection of environment are every day growing and so determined the total costs of enterprises. (doc. Ing. Pavel Žufan, Ph.D)

- Legal factors

  How was already stated on previous pages, entrepreneurial activity must be defined by many laws and legally bidding directions. Between the main influential can be classed tax laws, antitrust laws, regulation of foreign trade, price policy or environmental protection.

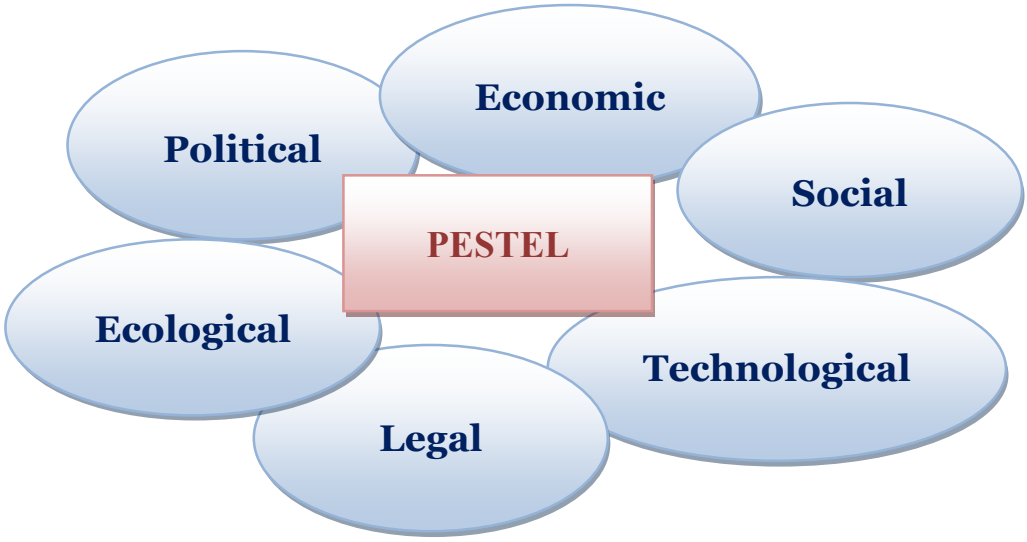

Figure 3 PESTEL analysis
Source: Tichá (2011), edited by author

Sedláčková and Buchta (2006) summarizes the aim of PESTE analysis which according them is primarily identify the factors that are important for the company and their changes that could have a significant impact on the company. Their importance is changing in relation to the size of the company, its development ambitions and business areas. Individual factors and their weight and strength of their business impact over time is constantly changing, and therefore they have to be constantly monitored and analysed.

3.2.2 Microeconomics analysis

Microeconomics analysis, often as well called sector environment, is analysing those factors that are specific for given industry because an industry is characterized as a group of companies producing similar good or providing similar services. This means that these companies are supplying for same consumers and can have similar strategies. The aim of industry analysis is according Sedláčková and Buchta (2006) to identify the essential driving forces in the industry and to define the factors influencing its attractiveness. The analysis of micro-environment is involving as well an estimate of future industry trends and changes in its structure.

The main actors creating one industry are marked by Kotler (2000) as **"3C"** – Consumers, Collaborators and Competitors and these groups of actors must be analysed as a part of of micro-economical analyse.

- Consumers

  Consumers buy the products and services from companies. Consumers can be individuals or groups of people, even total organizations whose

preferences are changing in time and whose are different in terms of earning, education or life style. They represent the main direct effect which influences an enterprise. The main part of consumer analysis is to settle a group of consumers, so called target consumers, to who the company is going to sell their products and services and to analyse consumer´s price sensitivity and bargaining power. (Donnelly et al. 1997) (Grant 2010)

- Collaborators

  All organization cannot exist without resources – capital, energy, machinery, material – to provide their products and services to customers. Organizations which provide these resources are called suppliers and their products represent inputs and costs for companies. (Donnelly et al. 1997)

- Competitors

  Competitors are diverse companies or organizations with whom companies compete for consumers, resources and market position. Competitors produce similar or same goods or provide similar services. To gain the competitor advantage it is necessary to do such activities which do not do the others. Competitors can be analysed by Porter´s analysis of five driving forces. (Donnelly et al. 1997)

Pošvář and Chládková (2014) is mentioning another group of indicators which can be classified as important part of **sector environment** which influence the daily operations of enterprises, which are:

- Size of market

  Size of market is given by attractiveness of market, purchasing power of consumers or by segmentation of an industry.

- Level of industry

  Level of industry according Porter (1995) is influenced by four groups of factors, which are called Porter´s diamante.

  - First group of factors determining the maturity of industry is given by knowledge, skills and competences of managers. Higher the level of management, more intensive is competition within the market and so the technological progress is faster and with it is higher as well the level of industry.
  - Second group of factors is given by demand conditions. Again higher the claims of clients for quality of products higher the positive effect on industry level.

  - Third group of factor is determined by level of related industries such as level of supplier industry. If the inputs for products will be of lower quality, as well the output are expected to be so.
  - Forth and last group of factor influencing the level of industry is so called factors conditions. Factor conditions are created by legal environment, natural environment or for example education and standards of living of a society.

- Life cycle state of development of industry

  Similarly, as in case of products one can distinguish the states of life cycle of an industry which are implementing, grow, maturing and decline. Each of the state is characteristic with certain competitive environment. (Saloner et al. 2001)

- Competition

  Forms and intensity of competition can be studied as Porter (2008) or Tichá and Hron (2011) states by analysing five driving forces of an industry.

  - Current competitors – based on usage of competitive advantages.
  - Threats of possible new entrants – new entrants bring new capacities and technologies and they are trying to reach a profit and chare on a market at the expanse of current companies.
  - Threats of substitutes – substitutes lower demand for products of one firm and consequently lower their profit.
  - Bargaining power of suppliers – threat of increasing prices, decreasing quantity or lowering quality by suppliers.
  - Bargaining power of consumers – pressure on lowering prices of products and services from consumer side.

- Dependence of industry on business cycles

  Development of business cycle influences changes in demand, capacity, productivity and attractiveness of given industry. According dependence of industry on business cycle, industries can be differentiate into balanced industries, those which demand is not influenced by economic situation such as health service, growing industries where can be seen growing tendency of industry without influence of business cycle like it is with modern information technologies, normally cyclical industries where is positive correlation between level of demand and economic situation and last strongly cyclical industries, industries which grow or decrease more than change in business cycle. (Pošvář and Chládková, 2014)

- Profitability of industry

  Last indicator regarding analyse of sector market is dealing with prosperity, total attractiveness and development of an industry.

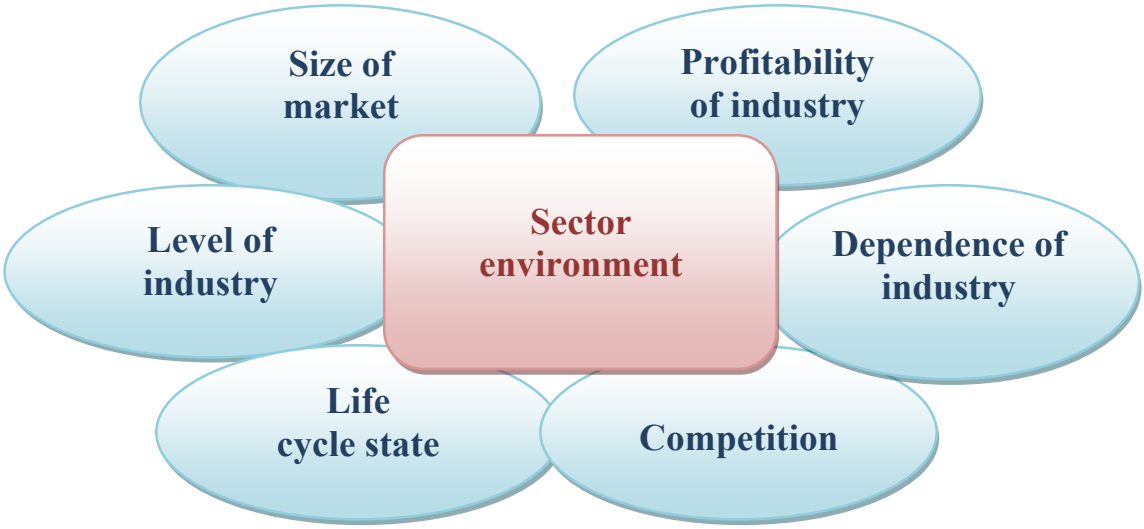

Figure 4 Sector analysis
Source: Pošvář and Chládková (2014), edited by author

3.2.3 Internal environment

Internal environment is an environment inside the organization, dealing with relationships existing among members of organization. Internal analysis can be classified and determined by many analyse. Due to the fact that this diploma thesis is focusing on the sector analysis and not to the individual companies, will be mentioned just breathily the two most famous internal analysis which are 7S model and key factor model.

One of the main condition of competitiveness and success of an enterprise is certain structure and level of internal environment. The first basic analysis dealing with internal environment was created in 1980s by Mc Kinsey´s firm and is called "Happy atom" or **"7S"**. Objective of this analysis is to improve the performance of a company and to determine how to implement proposal strategy. According 7S analysis the fundamental and most important groups of factors influencing the internal environment are:

- Strategy – program vision of top managers, definition of objectives and way of improving firm´s position.
- Structure – focus on currently crucial dimensions of structure for organisational development.
- Systems – all procedures which are connected with the function of organization, capital budgeting, training, costs accounting or monitoring.
- Staff – people participating in managerial functions and do executive decisions.

- Style – conception of doing business.
- Skills – knowledge, abilities, skills and habits as a professional and qualification background.
- Shared values – set of values and aspirations which overreach the formula statements of company´s objectives.

Second very famous possible division of key factors influencing the environment of a company described by Tichá and Hron (2011) and Pošvář and Chládková (2014) is the division into five main **groups of factors** described in Table 1. There are others possible analysis of internal environment such as Principle of potential success, Principle of value chain, Balance scored-card or EFQM Excellence model however for purpose of this paperwork are less relevant.

Table 1 Key factors of internal environment

Key factors	Examples
Human resources	Personal management, motivation, specialization of workers, relationship
Production and development	Technologies, innovations, patents, allocation of resources
Finance and accountability	Finance strategy, costs, financial planning, financial results, profit
Marketing	Advertisement, distribution channels, knowledge about customers
Organizational level	Organizational structure, communication, culture, control system

Source: Pošvář and Chládková (2014), edited by author

3.2.4 SWOT analysis

Useful framework for strategic analysis is SWOT analysis which is an approach dealing with integration of internal and external environment together into one simply analyse. SWOT is an abbreviation of first four letter of Strengths, Weaknesses, Opportunities and Threats where the first two factors are dealing with internal environment and the others two with external environment. These two perspectives of business environment are than recorded into the matrix. This so called SWOT matrix is then a framework that helps to generate four possible strategies. Grasseová et al. (2010) and Tichá and Hron (2011) agree on these strategies which are searching, utilization, avoiding, and confrontation. According Pošvař (2014) these strategies can be marked as mini-maxi, maxi-maxi, mini-mini and maxi-mini. The SWOT matrix is provided in Table 2.

Table 2 SWOT analysis

	Weaknesses	Strengths
Opportunities	WO strategy „Searching“	SO strategy „Utilization“
Threats	WT strategy “Avoiding“	ST strategy „Confrontation“

Source: Tichá and Hron (2011), edited by author

3.3 Financial analysis

The last part of theoretical background is dealing with financial analysis. The main purpose of financial analysis according Knápková et al. (2013) is to evaluate the financial situation of a company or of a group of companies. Financial analysis is dealing with many issues such as revealing the competitiveness, profitability and effectiveness of an entity by evaluation of financial indicators which are indicated in the financial statements. Financial analysis is evaluating among others if the company is sufficiently profitable, if the company has appropriate capital structure, if is using its assets effectively or if is able to repay its debts. If the managers of a company are informed about the financial situation, they are able to make the right decisions about allocation of resources, about obtaining resources, about setting the optimal financial structure or about redistribution of profit. The financial analysis is important not only for evaluating the past development, it is important as well for future predictions.

3.3.1 Financial statements

For creation of such analysis there is a necessity of input data. Main source of data for financial analysis are financial statements of company which are balance sheet, profit and loss statement and cash flow. The information about content of given financial statement is the basic premise for lately working with data. These financial statements are formed for tax and accounting purposes so they do not content the data revealing the economic reality of a company. (Robinson 2008)

Balance sheet

The basic financial statement of any company is the balance sheet which reveals the information about company’s assets and the financial resources by which the assets were paid. The balance sheet has to be always formed to given time and the main rule states that the total assets and total liabilities must be equal. The example of balance sheet is given in the Table 3.

Table 3 Balance sheet

Assets		Liabilities	
A	**Unpaid capital**	**A**	**Equity**
B	**Fixed assets**	**AI.**	**Registered capital**
BI.	Intangible fixed assets	**AII.**	Capital funds
BII.	Tangible fixed assets	**AIII.**	Reserve funds
BIII.	Long term financial investments	**AIV.**	Profit/loss of previous years
C	**Current assets**	**B**	**Liabilities**
CI.	Inventories	**BI.**	Reserves
CII.	Long term receivables	**BII.**	Long term liabilities
CIII.	Short term receivables	**BII.**	Short term liabilities
CIV.	Short term financial property	**BIV.**	Bank loans
D	**Accruals**	**C**	**Accruals**

Source: Knápková et al. (2013), edited by author

Assets are divided according their ability to convert to the most liquid assets, cash. The four main categories can be distinguished as Knápková et al. (2013) states as:

- Unpaid capital (part A) – capture the state of outstanding shares, the receivables from shareholders.
- Fixed assets (part B) – are represented by fixed tangible, fixed intangible and long term financial investments which is serving to company more than one year and with time is depreciating.
- Current assets (part C) – are assets which are currently in the company and always in the move. The main components are inventories, long term and short term receivables and short term financial property.
- Accruals (part D) - accruals captures balances of prepaid expenses and accrued income.

Liabilities are the second main part of balance sheet. Liabilities are representing the resources of financing the assets of a company. The main division is:

- Equity – is created by registered capital, capital funds, reserve funds and profit/ of previous years.
- Liabilities – can be distinguished among reserves, long term and short term liabilities and bank loans.
- Accruals - captures balances of accrued expenses and deferred income.

Profit and loss statement

The profit and loss statement sometimes called as income statement is capturing the information about the financial results of company's activity, its revenues, costs and expenses incurred during a specific period of time, usually a quarter of year or year how is stated by Robinson (2008). The main equation on which is based the financial statement can be expressed as follows:

$$\textbf{Net income} = \textbf{Revenues} - \textbf{Expenses} \quad (1)$$

This record is providing the information about the ability of a company to generate profit by increasing its revenues or reducing its costs. The statement begins with revenues as the first line and subtracts the costs of business, including cost of goods sold, operating expenses, tax expense and interest expense. The difference, the bottom line, is then the net income. It is important to compare profit and loss statement from different accounting period because like this is more meaningful than the numbers alone for one year. Together with the balance sheet and cash flow statement, the profit and loss statement provides perfect view at a company's financial performance.[1]

Cash flow

The last financial statement introduced is the cash flow statement which represents the cash receipts when they are collected in comparison with income statement which captures the revenues when they are earned. The main purpose of cash flow according Knápková et al. (2013) is to observe the change in state of cash means. Cash flow is explaining the increase and decrease of cash and the reasons of this movement. Cash flow statement has the three main parts.

- Cash flow from operations – the most important part because it represents the main activity of company.
- Cash flow from investing – is dealing with purchase and sale of fixed assets.
- Cash flow from financing – are the movements of cash connected with change of registered capital and long term liabilities.

There are more methods how to create a cash flow. There is the direct and indirect method. The first mentioned is compile according real payments and the main advantage is that it reflects the main categories of cash revenues and ex-

[1] INVESTOPEDIA, *Profit and loss statement*. [online]. [cit. 30.04.2016]. Available at: < http://www.investopedia.com/terms/p/plstatement.asp>

penses. The disadvantage however is that there are not evident the sources of financing. This direct method can be mathematically described how explained Knápková et al. (2013) as:

$$\begin{aligned} &\underline{\textbf{Opening balance of cash flow}} \\ &\textbf{+ revenues in given period} \\ &\underline{\textbf{- expenses in given period}} \\ &\textbf{= Final balance of cash flow} \end{aligned} \qquad (2)$$

The second method is starting from profit/loss value from accounting system which is transformed to cash flow. This method is the more used one and the diagram of cash flow is captured in Table 4.

Table 4 Cash flow

Opening balance of cash flow
Profit/Loss
+amortization
+/- change in long term reserves
+/- change in short term liabilities
+/- change in receivables
+/- change in inventories
Cash flow from operations
+/- change in fixed assets
Cash flow from investing activity
+/- change in long term liabilities
+/- change in registered capital
Cash flow from financing activity
Final balance of cash flow

Source: Knápková et al. (2013), edited by author

3.3.2 Financial indicators

After being introduced the main financial statement, it is important to look at the possibilities how to use them. Financial statements provide us the input data for any financial analysis. Among the main methods used in financial analysis which are listed by Knápková et al. (2013) belongs:

- Analysis of absolute indicators – used for analysis of assets and financial structure.
- Analysis of differential indicators – dealing mostly with main indicator net working capital.
- Ratio analysis – focusing on indicators of liquidity, profitability, activity and indebtedness.

Absolute indicators

Absolute indicators are mainly used in trend analysis and in percentage component analysis. The trend analysis in focusing on comparison of development in time series, horizontal analysis. The task of horizontal analysis is to compare the change of items of individual statements in time. In this analysis can be calculated the absolute change or percentage expression. In case of percentage component analysis, the task is to express given items of statement as percentage share to one chosen base, so called vertical analysis. As the base is usually chosen the total assets or total liabilities in case of balance sheet analysis and in case of income statement it is usually the total revenues or total expenses. (Knápková et al. 2013)

Differential indicators

Differential indicators are oriented to liquidity issues of company. The main differential indicator is the net working capital which can be defined as difference between current assets and short term liabilities and has significant influence on company's solvency. (Knápková et al. 2013)

Ratio analysis

The most important analysis for my diploma thesis is the ratio analysis which part is elaborated in the practical part of the work, Financial ratio analysis provides information about company's performance. As the input data are used absolute values from financial statements and the main ratios are dealing with liquidity, activity, solvency and profitability.

Firstly, there will be focus on **profitability ratios** which in this thesis are considered as group of factors influencing the competitiveness. These ratios are highly dependent of profit of company and helps understand how the company is performing. To increase the profit is the main goals of each company so high-

er the profit is, better for the company. There are three main indicators dealing with company's profitability – Return on Assets, Eeturn on Equity, Return on Sales (Friedlob and Schleifer, 2003).

Return on Assets, in abbreviation ROA is measuring the profitability of company relative to its total assets. Is explaining how efficiently the assets are used to generate profits. The higher the ROA indicator is, better for company because it means that company is earning more money on less investments. Anybody can make huge profits with large investment but only the top managers are able to create profits with very low investments. The value of ROA vary widely across different industry so the best is to compare the ROA indicator with previous year values or with very similar companies. (Brealey 2001) The formula for ROA is as follows:

$$\textbf{ROA = EBIT/Total assets} \quad (3)$$

Return on Equity ratio is dealing with return on shareholder's equity. It measures the profitability according the percentage comparison of how much of profit was generated with money of shareholders. Higher the ratio is, more attractive it is for investors to invest in given company. Nevertheless, the values between 15-20% are considered as good ones. ROE should be again compared only within the industry to have explanatory power. The formula for ROE calculation can differ however the mostly used one is according Živělová (2007) the following one. For purpose of this thesis the ROE indicator is calculated with value of Earnings before taxation (Net income) in nominator.

$$\textbf{ROE = Net income/ Shareholder's equity} \quad (4)$$

The last ratio is the Return on Sales ratio, sometimes called as Net Profit Margin which is focusing on company's operational efficiency how points out Robinson (2008). Is explaining how much profit is being produced by one currency unit of sales. In time comparison the increasing trend on ROS indicates the effective company's growth however the decreasing trend can imply the financial problems. The formula used can be written as:

$$\textbf{ROS = Net income/Sales} \quad (5)$$

There are as well other ratios used such as return on investment or return on capital employed however these can be considered as reformulation of previous ones. (Robinson 2008)

As second there will be briefly explained the **liquidity ratios**. Liquidity can be understood as the ability to repay the liabilities. The ratios in general are comparing with what the company is able to pay to what is necessary to pay. Bankers usually use these methods to check the ability of their clients to repay bank loans. The liquidity analysis is closely connected with risk decision making too. The main liquidity indicators can be distinguished among cash ratio, quick ratio and current ratio. (Brealey 2001)

Cash ratio, so called 1. degree liquidity is dealing with really liquid assets which can be transformed into cash in a short time which are cash and marketable securities. The high numbers of this ratio are indicating the ineffective usage of financial resources. Normally the indicator should display values between 0.2 and 0.5 as Knápková et al. (2013) is stating. The formula looks like:

$$\textbf{Cash ratio} = \textbf{Cash} + \textbf{Marketable securities/Current liabilities} \quad (6)$$

Second widely used ratio is the Quick ratio which is a known as 2. degree of liquidity. This indicator is taking in account the problem of inventories. Inventories are part of current assets which however are hardly and very slowly able to transform into cash. That is why this ratio is including current assets in numerator however is subtracting the amount of inventories. The values as Knápková et al. (2013) is pointing out should be in the range of 1-1.5. The formula is as follows.

$$\textbf{Quick ratio} = (\textbf{Current assets} - \textbf{Inventories})/\textbf{Current liabilities} \quad (7)$$

Last 3. degree liquidity, the Current ratio is handling with even less liquid assets. How Knápková et al. (2013) is stating the Current ratio is explaining how many times the current assets cover the current liabilities. Current assets which include cash, cash equivalents, stock, account receivables and inventories are assets which should be able to turn into cash within a year. Even if this indicator is taking in account the inventories, some authors are recommending to exclude from the formula the unsaleable stock. This ratio is the one which bank are interested in if evaluating the credit risk. The recommended value of this indicator is between 1.5 to 2.5. The relation between current assets and current liabilities is then pictured in the formula of current ratio.

$$\textbf{Current ratio} = \textbf{Current assets}/\ \textbf{Current liabilities} \quad (8)$$

Third ratios which are very often used are the **activity ratios**, called as well turnover ratios. These indicators are finding out if the amount of individual kinds of assets in balance sheet is in proportion to others, in other words is trying to explain if indicators of activity measure the ability of company to use the resources. Is dealing then by effective usage of assets. Again these indicators are taking the information from basic financial statements such as balance sheet or income statement. (Robinson 2008)

As the main activity ratio is considered the Total Assets Turnover which shows the capability to generate revenues from given assets of a company. Generally, it is valid that higher the ratio, better, nevertheless the minimum value which is recommended is 1 at least. Total Assets Turnover is representing the amount of revenues which is generated from every CZK of assets. The formula is according Robinson (2008):

$$\textbf{Total Assets Turnover} = \textbf{Sales/Total assets} \quad (9)$$

Other indicators of activity ratios are mainly focusing on turnover of inventories, turnover of receivables or turnover of liabilities. All of these ratios are comparing the given indicator to sales or daily sales and is calculated in time units, so in case of receivables for example the ratio is explaining the time of when the receivables begin till when are repaid. For the purpose of this thesis are however less relevant. (Friedlob and Schleifer, 2003)

Last group of ratios are the **solvency ratios**. Solvency ratios can be considered as indicators of risk which company is dealing with when is using the liabilities as the source of financing. This analysis is examining the proportion of equity to liabilities and is evident that higher the proportion of liabilities, higher is as well the risk which company has to handle by repaying it.

Main solvency ratios are Debt to Assets ratio and Debt to Equity ratio when both of these indicators are helping to predict the solvency of company. The first one, Debt to Assets ratio, sometimes called as well Total Debt ratio indicates proportion of total assets to debt. The recommended values should be in the range between 30% to 60%. Higher the ratio, lower the solvency of a company. (Robinson 2008)

$$\textbf{Debt to Assets ratio} = \textbf{Total debt/Total assets} \quad (10)$$

The second one is the Debt to Equity ratio, which is comparing borrowed and own resources and is very often used in banking sector when the client is asking for a bank loan. The important issue is the development in time of this ratio because it can reveal to what extent could be vulnerable the claims of creditors. The formula is given below. (Robinson 2008)

$$\textbf{Debt to equity ratio} = \textbf{Total debt/Equity} \quad (11)$$

The solvency ratios are dealing not only with the proportion of debts and assets however as well are taking into account the structure of resources according their maturity. In general, the short term liabilities are riskier for companies because must be paid earlier. The long term liabilities could be considered as less risky however it is compensating by higher price of this kind of finance.

Last solvency ratio which will be described is the Interest Coverage ratio. Interest Coverage ratio measured how the interest is covered by profit. If this ratio has a value of 1 it means that the company created enough profit to cover the interests however there is nothing left for the shareholders so this value is not sufficient for the company. The values should be around 5. Higher the ratio, higher the solvency. (Knápková et al. 2013)

$$\textbf{Interest coverage ratio} = \textbf{EBIT/Interest payment} \quad (12)$$

4 Methods

The diploma thesis is structured into two main parts which are the theoretical background and empirical part. To elaborate a theoretical background there were studied information regarding the establishing own business in construction industry, construction management requirements, the strategic management analysis and financial analysis which were enriched by the knowledge acquired during the years of university studies and work experience in this field.

The second part of diploma thesis is focusing on identification of main factors influencing the competitiveness and sustainable growth in this industry by evaluating the current situation on the construction market. This empirical part of my diploma thesis should answer the settled research questions. First research question is dealing with identification of main factors influencing the competitiveness of small and medium companies of construction branch and the second is trying to answer how the sustainable economic performance of these companies can be improved.

The focus is given to the period of economic crisis, years between 2008 and 2013, and to the recovery of construction companies after the economic crisis in 2014 and to ideas how to make the industry more sustainable and competitive. For elaboration of this part of the research are necessary the knowledge acquired by studying the theoretical background part and knowledges acquired by university studies of course. The important part is to studied the reports of Ministry of Industry and Trade which are dealing with economic and financial benchmarking diagnostic INFA system analysis and to elaborate the financial analysis of the companies' sample.

Firstly, I am dealing in the empirical part with detailed PESTEL analysis of construction industry. This analysis is elaborated mostly based on current internet sources, legal binding acts and economic analysis provided mainly by Czech Statistical Office or Eurostat.

Second part of own research is based on reports recorded by Ministry of Industry and Trade dealing with economic and financial INFA analysis of construction. I am firstly describing the economic situation on the territory of Czech Republic, later the comparison with European development and at the end the financial INFA analysis of Czech Republic in construction industry based on benchmarking diagnostic INFA system. All data, graphs and table provided in this part are based on research of Ministry of Industry and Trade available on their websites.

Third part of the empirical section is focusing on own financial analysis of randomly chosen construction companies. The data were obtained from university database Amadeus where I have chosen 6100 active small and medium enterprises operating on the territory of Czech Republic operating in NACE 41 - Building construction, NACE 42 - Civil engineering and NACE 43– Specialized construction works and I have obtained for all of them their financial statement data. Aim was to get only the full time series so the companies were chosen ac-

cording disposable data for financial indicator Net income. In the analysis is used the median value for all indicators based on which is calculated the profitability ratio analysis. Particularly are calculated the Return on Assets, Return on Equity and Return on Sales which are previously analysed in the theoretical part of this diploma thesis and are calculated based on equations 3, 4 and 5. These values are instituted into the benchmarking diagnostic INFA system which is providing the industry comparison and is offering the possibility of elaboration of decomposition for individual ratio values and of calculation Economic Value Added or the Spread INFA. Economic Value Added can be calculated according the methodology provided by Ministry of Industry and Trade using the formula:

$$\mathbf{EVA = (ROE - re) * Shareholder's\ equity} \tag{13}$$

In my work I am using instead of EVA indicator, its part, INFA Spread. INFA Spread is the difference between Return on Equity and Opportunity cost of equity. The formula for spread follows.

$$\mathbf{Spread\ INFA = ROE - re} \tag{14}$$

Based on data obtained from benchmarking diagnostic INFA system of Ministry of Industry and Trade is calculated the decomposition of indicator ROE. ROE is decomposed into its three components between which is valid the multiplicative relationship. The decomposition relationship can be expressed:

$$\mathbf{ROE = Level\ of\ taxation * Estimation\ of\ ROA * Financial\ leverage} \tag{15}$$

According above mentioned formula is then in the thesis provided the insight into the effect of each component on whole ROE indicator. This effect was calculated according the index method provided by Synek (2009). According the index method, the individual effect can be calculated according this formula:

$$\begin{aligned} \Delta X = X_1 - X_0 &= a_1 b_0 c_0 - a_0 b_0 c_0 \Rightarrow \textbf{effect a} \\ \Delta X = X_1 - X_0 &= a_1 b_1 c_0 - a_1 b_0 c_0 \Rightarrow \textbf{effect b} \\ \Delta X = X_1 - X_0 &= a_1 b_1 c_1 - a_1 b_1 c_0 \Rightarrow \textbf{effect c} \end{aligned} \tag{16}$$

Using the partial results of financial analysis of companies' sample is employed the cluster analysis to identify similarities among the observations. The cluster analysis is elaborated in statistics program STATISTICA and is used the k – means method. Due to the large number of companies' sample the group of ac-

tive Czech companies is divided into five cluster. The bankrupt companies and companies active or bankrupt on the territory of South Moravia are divided into three cluster because the sample size is smaller than in case of active Czech companies' sample.

The same financial analysis and cluster analysis is repeated with the group of bankrupt companies in the Czech Republic. There were obtained 1023 small and medium companies which have bankrupt or have got into the liquidation during the financial crisis on the territory of Czech Republic. Again using the median value is offered the overview of the time trend of absolute values of financial indicators, are calculated main financial profitability ratios and the values are used for the benchmarking diagnostic INFA system allowing comparison with sector average. As well for this companies' sample of bankrupt companies is provided the calculation of INFA Spread, is offered the decomposition of Return on Equity indicator and is elaborated the cluster analysis.

As the last group of companies' sample are companies which are active or were bankrupt on the territory of South Moravia region. There were examined 777 companies which are active on the territory of South Moravia region and 126 companies which have bankrupt or got into the liquidation during the economic crisis. The financial analysis provided is the same as in the previous cases. Based on partial results can be identified the main factors influencing the competitiveness of given companies.

Finally, my diploma thesis summarizes results which were achieved and based on which were elaborated the proposals towards improvement of financial performance of businesses within observed construction industry branches. Subsequently, there are deducted the main factors influencing the competitiveness of construction industry and the respective observed braches. By this are answered settled research questions.

5 Empirical part

This part of diploma thesis is focusing on elaboration of actual research about today´s situation of construction field of small and medium enterprises in the Czech Republic. Following pages are dealing with macro-environment analysis at first where are in detailed described the main factors influencing today's construction industry. As second there is provided an overview about the economic and financial situation of construction field based on reports of Ministry of Industry and Trade which in the third part is compared with analysis of random group of construction companies.

5.1 Business environment factor conditions in construction branch

Construction sector is an industry which greatly contributes to the economic performance of each state. All businesses in this sector are significantly affected by environmental factors whose development companies cannot directly influence. For successful operation of companies, it is necessary that management follow development of these factors, evaluate their potential impact on companies and if necessary adapt company´s business strategies. In this work for the macro-environment analysis is used PESTEL model which in following pages in detail describes political, economic, social, technological, ecological and legal impact on Czech companies in construction industry.

5.1.1 Political environment

Role of the Czech state is essential for construction sector due to the fact that state as a public investor represents around half of all demand for construction works and state represented by government by its decision influences the second half of demanders, private investors.

Construction industry is in territory of the Czech Republic administrated by Ministry of Industry and Trade however due to the huge impact which construction has on related industries is partly administrated by Ministry of Transport, Ministry of Regional Development, Ministry of Environment and Ministry of Agriculture too. Until the 2014, construction sector was very purely institutionally supported and did not have any „partner" in political sphere who would deal with issues of public investments into this sector and coordination and development of construction field . Fortunately, maybe „thanks to" a huge decline of construction sector due to the economic crisis between years 2008 and 2013, there have been started a progress in this gap situation. In April 2014 was created a new position of **Deputy minister for construction** of the Ministry of Industry and Trade and in this function was named Jiří Koliba. Main responsibilities taken by this position are now unification of the agenda of construction, coordination of public investments and long-term development of construction.

As the second achievement for construction support from state side, in December 2014 was created Government Council for construction of the Czech Republic as a permanent government advisory body in construction issues. Chairman of this Government Council has become the minister of Industry and Trade, Jan Mládek and Council has 19 members. Due to the split of competencies over construction field is essential a complex systematic approach and purposeful coordination to ensure interaction, prevent an excessive administrative burden and to create an appropriate business environment.

Even if problem about the political partner was mainly solved by creation of position of Deputy minister for construction in the Ministry of Industry and Trade, there is still one factor creating problems and that is the **Public Procurement Act**. The issue very often discussed is that the main criteria for the selection of construction company has become price instead of quality. How is evident from article from Lafarge Cement Journal from first part of 2014 the existing law on public procurement is often criticized not only for its complexity but also for a series substantive barriers in public procurement process. The legislation is complicated due to many dozens of novelizations. According their own research, number of construction companies experiencing alarming conclusion that participation in public procurement is not profitable in this time. Already in the process of making an offer for a public procurement, there is a calculation with a loss. Possible solution could be usage of recommended unit price lists of construction and management work, which was used in Germany and where they managed to reduce the impact of the crisis relatively quickly. In the years 2009 till 2013 construction sector was the most sinking industry and this decline is linked to the fall in investment, the introduction of austerity measures and inefficient usage of EU funds.

Another problem mentioned in the article is dealing with lack of a law allowing the expropriation of land needed especially for boom of road constructions or the issue of competition in EU level. The second case is pointing out that manufacturers of building materials have a high quality domestic raw materials, however their competitiveness on a European scale fell and companies have to face greater import.

From 2004 when the Czech Republic become a part of EU, our state become obliged to harmonize certain policies and is obliged to passed some authorities on the Union´s level. Among the policies which have moved to the European level and can be somehow connected to the construction sector can be mentioned for example common commercial policy or regulation of competition. The membership however is not only bidding in terms of implementing of many new directives and regulation. Entering to the European Union has as well a positive effect in terms of **EU subsidies** from EU structural funds. The structural funds are made up of the European Regional Development Fund and the European Social Fund. For construction sector is fundamental the European Regional Development Fund which focuses on modernizing and strengthening the economy by supporting investment projects such as construction of roads

and railways, construction of sewage systems, promoting innovation potential of entrepreneurs, development and renovation of sports complexes, reconstruction of cultural monuments, construction or repairs of infrastructure for the provision of health care, etc.

Czech Republic belongs between the net receivers of EU funds however how was already mentioned in previous paragraphs is very often criticized the allocation of subsidies within the Czech Republic. Many entrepreneurs do not understand the unsystematic and non-transparent procedures which must be carried out to receive any European support. Due to this fact there was a special effort to simplify the process in this period of EU budgetary framework for 2014 – 2020. In this period there are around 23.83 billons euro allocated for the Czech Republic as a part of European structural and investment funds. The main change and help for the applicants for subsidy in this period is that the complete application and the whole report on project implementation can be fill and administrated through the internet. [2]

Another factor influencing Czech construction sector is **instability of political personnel**. Personnel changes within government too much often and lead to distrust in public political system by society. Not even one of the governments from 2002 have remained full four years election period. In the Table 5 there is a fractional representation of changes among prime ministers in Czech environment. Due to the often turnover of the entire government cabinet the aims and strategies are changed too much often without further impact on economy or construction sector.

Table 5 Governing cabinets in Czech Republic in 1998 – 2016

Prime minister	Governing period
Miloš Zeman	July 1998 – July- 2002
Vladimír Špidla	July 2002 – August 2004
Stanislav Gross	August 2004 – April 2005
Jiří Paroubek	April 2005 – September 2006
Mirek Topolánek	September 2006 – May 2009
Jan Fisher	May 2009 – July 2010
Petr Nečas	July 2010 – July 2013
Jiří Rusnok	July 2013 – January 2014
Bohuslav Sobotka	January 2014 – till today

Source: Wikipedia, edited by author

[2] Available at: EUROPEAN STRUCTURAL AND INVESMENTS FUNDS, Programming period 2014-2020. [online]. [cit. 13.03.2016]. Available at:
< http://www.strukturalni-fondy.cz/en/Fondy-EU/2014-2020 >

With the personnel changes within the government is closely connected topic of **public spending** as a measure of fiscal policy which is fundamental for construction sector. Due to the economic crisis erupted in 2008 the public investments decreased rapidly and so negatively influenced the construction sector which is on public demand partly dependent. It is usually one of the common aims in period of recession of any government. According Czech Statistical Office the share of public orders in construction in the Czech Republic is decreasing from 2009. In 2008 the portion of public construction orders was 72.4%, in 2009 was the only increase to 75.5%, however then the public investments were only decreasing to 65.5% in 2010, 60% in 2011, 58.5% in 2012 and 56.8% in 2013. The numbers show that Czech government was not enough active and was not acting anti-cyclically what was needed and furthermore deepened the crisis of construction by decreasing the public investments.

From year 2014 there has been seen active approach from government site and according Ministry for Regional Development in the first half of 2014 there has been an annual increase in the number of initiations of public procurement by 19 percentage points from which the highest increase was recorded in construction works. [3] At the end of 2014 the value of public orders in 2014 reached to 116.9 billion CZK how is stated in quarterly analysis of Czech construction elaborated by CEEC research. In 2015 due to the fact that there are statistics only for the first three quarters the value until September 2015 is 97.6 billion CZK which means that there is evident increase between years 2013 and 2014, however in comparison of last two years 2014 and 2015 there is no certain evidence of such increase. More it seems to stagnated between these years.

In the Figure 5 there is captured the development of **deficit** of Czech Republic in years 2006 till 2015 where can be clearly seen the effect of economic crisis erupted in 2008 with huge increase on government deficit from 19 billion CZK to incredible 192 billion CZK. From 2009 then can be seen a slow tendency of decrease in government deficit which is associated with previously mentioned anti-cyclical behaviour and decrease in public investments not only into construction sector. Year 2015 have recorded revenues of 1,118.5 billion CZK and expenses around 1,218.5 billion CZK which lead to the deficit of -100 billion CZK. The figure below is expressed in billion Czech Crowns and was elaborated according the data provided by Ministry of Finance in their yearly published information guide about state budget.

[3] Available at: PORTAL ON PUBLIC CONSTRACTS AND CONCESSIONS, Statistics of public procurement in the first half of 2014. [online]. [cit. 13.03.2016]. Available at:
< http://www.portal-vz.cz/cs/Aktuality/Statistiky-verejnych-zakazek-v-1-pololeti-2014>

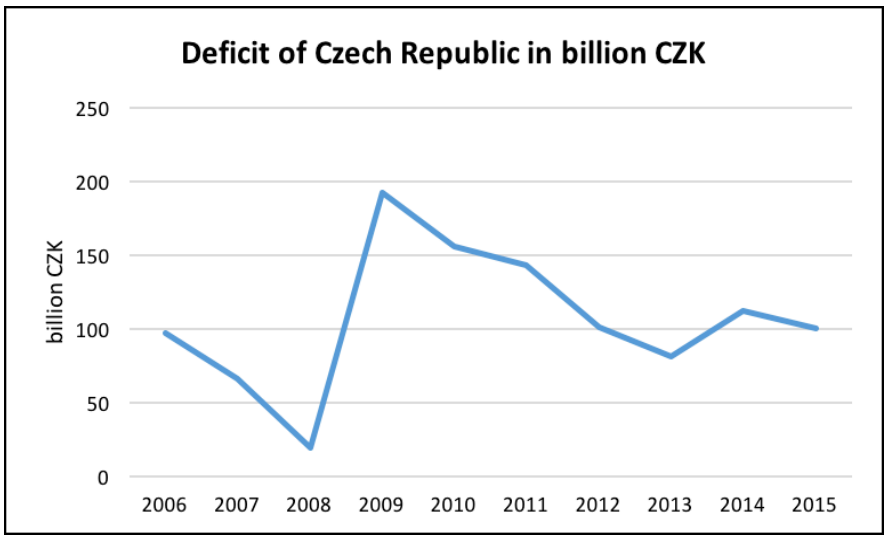

Figure 5 Development of deficit of Czech Republic [billion CZK]
Source: Ministry of Finance, edited by author

The last part which should not be forgotten when the topic is about political environment is **corruption**, the abuse of entrusted power for private gain. With this issue is dealing a global movement called Transparency International. This organization have created its own research - The Corruption Perceptions Index which aggregates data from a number of different sources that provide perceptions of businessmen and country experts of the level of corruption in the public sector. According this research standardise data sources to a scale of 0-100 where a 0 equals the highest level of perceived corruption and 100 equals the lowest level of perceived corruption and a country's CPI score is then calculated as the average of all standardised scores available for that country. In years 2012 and 2013, Czech Republic was ranked at 54th and 57th position among 177 countries and on the scale of 0-100 it scored 49 CPI points. In 2015 among 167 countries Czech Republic was evaluated with 56 CPI points on 36th position together with Malta and South Korea. According these statistics is evident that the corruption problem in the Czech Republic is not improving however in comparison with other states, the Czech Republic is being situated in quite good position.

5.1.2 Economic environment

Czech Republic possesses a developed high-income economy with a per capita GDP rate of 87% of European average. Czech Republic saw growth over 6% annually in the three years before the outbreak of the recent global economic crisis and this grow was led mainly by the fact that it is a small open market economy mostly dependent of export toward European countries. In the Table 6 are recorded important macroeconomic indicators based on studies of Czech Statistical Office.

Table 6 Key macroeconomic indicators in Czech Republic 2007 – 2015

	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP growth rate [%]	5,5	2,7	-4,8	2,3	2	-0,9	-0,5	2	4,6*
GDP [bn CZK]	3831,8	4015,3	3921,9	3953,7	4022,5	4041,6	4077,1	4260,9	4477,0*
Final consumption expenditures [%, y/y]	3,0	2,4	0,4	0,8	-0,7	-1,5	1,2	1,6	2,9*
Export [%, y/y]	11,1	4,2	-9,8	15,0	9,3	4,2	0,1	8,8	7,2*
Import [%, y/y]	12,9	3,1	-11,0	15,0	6,7	2,6	0,2	9,8	8,0*
Exchange rate [CZK/EUR]	27,76	24,94	26,45	25,29	24,59	25,14	25,97	27,53	27,28
Inflation rate [%, y/y, avrg.]	2,8	6,3	1,0	1,5	1,9	3,3	1,4	0,4	0,3
Unemployment rate [%, avrg.]	5,3	4,4	6,7	7,3	6,7	7,0	7,0	6,1	5,0
Government deficit [bn CZK]	-26,6	-84,6	-216,2	-174,5	-110,1	-160,0	-51,0	-83,0	-

Source: Czech statistical office, edited by author

Gross domestic product is a main indicator of economic activity measuring value of all final goods and services produced in a given period on a given territory. For better comparison in practise there is used annual growth rate of GDP which is describing the progress of economic activity. According the statistical research of Czech Statistical Office catch in the table above, there can be seen the huge negative impact on GDP between years 2008 and 2009 where GDP decrease by quite 8 percentage points. After this difficult year there can be seen the tendency of very slow recovery, however about the overcoming of crisis and the return to the pre-crisis growth rate can be speaking no earlier than from 2014.

In the absolute values GDP in 2015 reached 4,477 billion CZK. Annual increase is then around 4.6 percentage points which can be surprising. According Ministry of Finance however many of the causes of the high growth of the Czech economy in 2015 are considered temporary factors. Particularly one of these factors was stimulus in the form of drawing resources from EU funds in the programming period 2007-2013, which were able to be used only until the end of 2015. According estimation only this factor has improved the GDP for 0.8 percentage point. Another factor which at the begging of 2015 has led to growth of GDP was removal of part of revenues from excise duty from tobacco products in 2014 to 2015 which occurred due to the time limits of tobacco stamps. Economic growth in 2015 was positively influenced by third factor which was a positive supply shock in the form of a sharp drop in prices of oil which contribution to the growth is estimated to another percentage point.

This last mentioned temporal factor should be favourable to economic growth in this year as well however in lower contribution. The prediction for GDP growth for 2016 is circa 2.7% and the very similar growth is expected in 2017 as well. Between the main negative factors influencing the future development is taking place migration crisis and the conflicts in Middle East and in Africa which are very much discussed nowadays in media and about which is dedicated space in other chapters. However, is often said that the migration crisis should not have such a great impact on the Czech Republic as surely will have on other European countries as are Germany, France or Italy. Second negative effect which has to be taken in account for future prediction in economic growth of the Czech Republic is the Volkswagen case due to the commercial linkages of the Czech Republic with Germany. The same as in previous factor is supposed that neither this factor should have excessive negative impact.

Gross domestic product is greatly influenced by other key macro-economic indicator captured in the Table 6 and it is **consumption expenditures**. Final consumption expenditure is the sum of household final consumption expenditure (private consumption) and general government final consumption expenditure. According the data of Czech Statistical Office, final consumption expenditures were only decreasing in the period from 2007 to 2012 which was definitely influenced by the economic crisis. After five years of slump, finally in 2013 was recorded positive change in the year to year comparison of final consumption expenditures. According server Trading Economics consumer spending in Czech Republic increased to 503.23 CZK billion in the fourth quarter of 2015 from 499.07 CZK billion in the third quarter of 2015. Forecast projected by usage of an autoregressive integrated moving average model is predicting increase of consumer expenditures to 518.45 CZK billion at the end of this year 2016.

Next important factor explaining the economic activity of a country is the **trade balance** which can be defined as a difference between the monetary value of exports and imports of output in an economy over a certain period, measured in the currency of that economy. Czech Republic how was already mentioned is a small and very open economy, which is heavily dependent on its external economic relations. The share of export was from its origin still increasing. While in 1995 this proportion was approximately 51%, in 2004 it was 70% and in 2010 share of export reached a value of approximately 79.3%. Increase in the share of exports in GDP is associated with the economic cycle, in which the country currency is. Exports are in fact one of the main components of GDP and greatly influence its development.

The advent of the economic crisis is very evident between 2009 and 2010, when there was an annual decrease in the trade surplus of approximately 32 CZK billion. However, in combination with the decline in imports (particularly in 2009) due to reduced domestic demand, trade balance still showed a significant surplus even during the period of crisis which is positive for the Czech Republic as a whole. Nevertheless, many small Czech companies were unable to

compete on international markets during the crisis due to decreased demand not only in the Czech Republic but in all Europe, due to the unfavourable exchange rate development or worsening access to finance and they bankrupt.

In years 2014 and 2015, there is finally evident some recovery after the deep economic crisis. According the research of Czech Trade, the biggest amount of Czech export finishes in Germany where the value in the first part of 2015 reached 310.55 billion CZK which is approximately one third of all Czech export. The biggest item of export in 2015 was as traditionally the automotive industry, engineering and electronics. In 2015 in comparison with 2014, exports increased by 7.2 percentage points and imports by 8.0 percentage points. Foreign trade turnover grew by 515.9 billion CZK on 7 344.3 billion CZK.

With international trade is very closely connected the **foreign exchange rate**. When Euro becomes expensive it supports Czech exporters. Since the introduction of Euro in 2000, the exchange rate CZK/€ was decreasing until 2008 when one could obtain €1 for only CZK 24,95. Another five years the exchange rate was quite stable on value around 25 CZK/€. However, in November 2013 Czech National Bank had decided to devalued Czech currency in order to support the exports, prevent deflation and maintain price stability by buying Euro in value of 200 billion CZK and they set a new fixed rate to 27 CZK/€. This intervention Czech National Bank has reasoning by prediction of grow in exports in following three years by 7,5 to 9.3%. According the current development of export one could say that Czech National Bank stated their plan.

By entrance of the Czech Republic to the EU, our state has committed to introduce Euro as a currency in a future. Even if nowadays it does not seem to be very soon it is necessary to be award of the **convergence criteria** which must be fulfilled to overtake Euro. There are four main areas dealing with Maastricht criteria. Firstly, it is the price stability measured by inflation rate where the criteria states that the average annual inflation can be maximally 1.5% higher than the average of three countries with lowest inflation in EU. This criterion was successfully met by the Czech Republic already in 2013. The second criterion deals with the stability of exchange rate where the condition is that at least two years before the entrance to the European monetary union the state should participate in ERM II and should not devaluate its currency. Formal meeting of the exchange rate criterion is not possible until the Czech Republic will entry into the exchange rate mechanism. Third condition oblige countries to not exceed the long-term nominal interest rate by more than 2 percentage points then is the average of the three countries with the best results. Czech Republic was always filling the interest rate criterion with great reserve. The last criterion is regarding to public finance stating that annual public deficit must not exceed 3% of the country's GDP and total public debt must not exceed 60% of the country's GDP. In 2014 and 2015 the public deficit in the Czech Republic was around 1.9% of GDP and there are estimation on further decline of this indicator. In case of public debt in connection with the global financial and economic crisis in

2009-2012 debt significantly increased from less than 30% of GDP to around 45% of GDP in 2013 however these numbers are still well below the prohibited level. [4]

Inflation rate and government deficit were partially mentioned with the Maastricht criteria in the previous paragraph so the last factor influencing economic environment of the Czech Republic which is left to be described from the Table 6 in **unemployment**. On the **Error! Reference source not found.** can be seen the development of unemployment in last 10 years in percentages.

Figure 6 Unemployment rate development of Czech Republic 2006-2016 [%]
Source: Trading Economics, edited by author

Czech Republic in comparison with European Southern countries does not have to be worry regarding the development of unemployment. According the above described figure the unemployment rate grew around four percentage points at the begging of crisis. Then next four years the average unemployment was constantly hold at the rate of 6 – 7 % and the improvement has been seen only in the last two years. In February 2016 the unemployment rate was 6.3%. The redistribution of the unemployment among Czech regions can be considered quite equal around 5-6% however according the date from 29th February 2016 based on Czech Statistical Office the problematic part of Czech Republic is Ústecký and Moravskoslezký region with unemployment rates 9.2% and 8.5%.

[4] MINISTERSTVO FINANCÍ ČR A ČESKÁ NÁRODNÍ BANKA. Vyhodnocení plnění maastrichtských konvergenčních kritérií a stupně ekonomické sladěnosti ČR s eurozónou. Praha, 2015. 29 p. ISSN 2336-5110

5.1.3 Social environment

Czech Republic is a country with more the 10.5 million inhabitants. Current **demographical development** in the Czech Republic as well as in whole EU is now facing the ageing issue. Data provided in following paragraphs were taken from recent Eurostat study about population structure and ageing from January 2015. Consistently low birth rates and high life expectancy is changing the shape of age pyramid for EU. The most important change is seen in transition toward the older population structure. As a result, the number of working age people is decreasing while the proportion of retired people is still growing. One of the reasons is that the generation of post-war baby-boom is reaching the age of retirement in these decades. The main problem is the lack of working age people and the higher burden of these people to provide the social expenditures for elderly ones.

The population age structure according Eurostat statistics can be divided into three main categories which are 0-14 years old as children, 15 – 64 years as a working age people and over 64 years as a retired people. For better clarity, there are stated the percentage of total population from year 2014 in comparison with 2004 in the Table 7 for the Czech Republic and for whole EU.

Table 7 Population age structure by major age groups, 2004 and 2014 [%]

	0–14 years old		15–64 years old		over 64 years old	
	2004	2014	2004	2014	2004	2014
EU	16.4	15.6	67.2	65.8	16.4	18.6
Czech Republic	15.1	15.0	70.9	67.6	14.0	17.4

Source: Eurostat, edited by author

The increase in share of the population aged 65 years and over between 2004 and 2014 is for EU 2.2% and for the Czech Republic even 3.4 percentage points. In the comparison to other EU countries, Czech Republic is situated at the fourth worst position only behind Malta, Finland and Netherlands. The median age of Czech population has grown by 2.2 years, from 38.6 years in 2004 to 40.8 years in 2014 and according the Eurostat prediction next years are going to come up with growing tendency. According the Eurostat population projection, it is expected that the Czech population in 2080 will have quiet 11 million inhabitants. The proportion of elderly people over 64 years old will for whole EU grow from 18.5% in 2014 to 28.7% in 2080 and the median age will move from 42.2 in 2014 to 46.4 in 2080.

Another trend in demographics in the Czech Republic, but mainly in whole EU is **migration**. From 2015 we are experiencing a European migrant crisis or European refugee crisis, where rising number of migrants and refugees are making journey to EU to seek asylum. More than 1,000,000 people have arrived into European Union across Greece islands since 2015 how medias are stating. These

people are leaving their countries mainly because of fear of war, violence or are searching for better life. According to the UN High Commissioner of Refugees more than 80% of people arriving in Europe are from the world's ten top refugee-producing countries. Over 50% are from Syria, 15% from Afghanistan, 6% from Eritrea and 4% from Iraq. Almost 630,000 new asylum claims were made in 2015. This migration surge has been becoming the largest after the Second World War and it has become a highly sensitive political issue, generating intense political and public debate. This crisis has demonstrated the weakness of imperfectly adjusted system of integration of refugees into EU countries. It is believed that the relative economic prosperity and political stability of the EU in the past is a big attraction for immigrants.

Migration affects the combination of economic, political and social factors in the country of origin the same as in the destination country. The social impact of migration in general may be positive or negative, many communities that received waves of immigrants were able to adapt to this change in a manner that created a homogeneity that had a positive and progressive results in the host communities. The different culture and habits the immigrants carry with them to a new community may enrich the culture with a new understanding, new perspective and may cause a development and progress in the host country. Nevertheless, if it is not managed in the appropriate way, the immigrants issue may become a burden to government and the host community.

According the Migration policy debate of OECD from 2014, which is not exactly connected with today´s migration crisis but can be applicable, the benefits of income of migrants are linked with three main areas - labour market, the diversification and the economic growth. According statistics of OECD the immigrants represents around 70% of workforce in Europe. Skilled as well as unskilled workers can be beneficial for host communities. Mainly the unskilled workers may fill in the market gap currently presents in many declining industries in EU and Czech Republic. Exactly between these industries can be class construction works. It is proven by many researches that foreign workers are willing to work for lower wages here in the Czech Republic then the domestic workers. According Eurostat data for the Czech Republic the main citizens are composed of Ukraine (23.5%), Slovaks (20.9%) and Vietnamese (13.3%). The skilled migrants may on the other hand enrich their host countries by their technologies, working experience or by settling their own businesses on the territory of host country which would have a positive effect on employment. In case of economic growth, the overall impact of the cumulative waves of migration that arrived over the past 50 years in OECD countries is on average close to zero, rarely exceeding 0.5% of GDP.

With the statement of filling in the market gap by migrants is closely connected the **employment** situation in the Czech Republic and willingness of work in construction sector. In construction as well as in other technical branches, there has been declining trend in number of apprentices. Students do not find it attractive anymore to work with hands and possibility of getting a university de-

gree is now much higher. This leads to decrease of amount of technically skilled labour. The Czech construction firms usually solve the situation of unskilled labour by employing foreigners, mainly Ukrainians. Ukrainians substitute the lack of Czech qualified craftsmen.

In 60 years (between 1950 and 2011) the proportion of university graduates increased 12 times. According to census from 1950 to 2011, the level of education in the Czech Republic is still increasing and the number of people with basic education decreased several times. At the first post-war census in 1950, more than four fifths of the population in the aged of 15 and more reached no more than primary education. Approximately every tenth of the population (more men than women) stated as highest educational level the vocational secondary school. Complete secondary education with general certificate had about 5% of people (two-thirds of them were men). University degree had only one of a hundred inhabitants, while men were among them 5.5 times more than women. This level of education, of course, fit the socio-economic situation in previous decades.

Not only that there is insufficient amount of skilled labour in construction and technical sector but also there is often discussed the issue of high level of **youth unemployment**. Nevertheless, according Eurostat statistics, unemployment rate of youth in the Czech Republic has a decreasing tendency. In 2013 the rate was 18.9 % and at the end of 2015 it was already only 10.9%, which is still below the average of EU. How can be seen in Figure 7the development of youth unemployment was no stable in the last 10 years however from 2014 there is the return to better results. (With issue of youth unemployment are more burdening other European countries such as Spain for example, where the rates were reaching till 55% during the economic crisis and still in the recovery process are around 45%.)

Figure 7 Youth unemployment development in Czech Republic [%]
Source: Trading Economics, edited by author

5.1.4 Technological environment

Scientific and technology infrastructure are the main prerequisites for country's competitiveness and are seen as an investments more likely then expense. Therefor scientific research and sector of information technology have to be evaluated as a part of factors influencing construction field.

Expenditures for research and development are current and capital expenditures, both public and private on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture and society and the use of knowledge for new applications. According the statistical date of The World Bank, Czech Republic is dedicating around 1-2% of its GDP for these purposes (1.56% in 2011, 1.79% in 2012 and 1.91 in 2013). In 2013 the total amount spent in research, development and innovations was 78 billion CZK and there was recorded an increase of 7.6 percentage points in comparison to 2012. The increase was caused mostly by the growth of foreign and business resources. Volume of expenses into innovations has been following the long-term rising trend in the Czech Republic and Czech Republic was ranked as well in the first half of the EU member states in 2013 with larges expenses into technological development. These percentages are comparable with countries as Canada, China or in European perspective as Netherlands or Norway have. However, is still around one percentage point behind Austria, Belgium, Denmark, France or Germany.

Technological progress in construction is given mainly by innovations in materials such as new thermal insulation materials, modern approaches to construction such as passive, low-energy houses construction or usage of recycling materials. Special purpose support to programme and grant projects from the state budget to construction field was 192 million CZK in 2014 and to the whole industry including electronic engineering, machinery and tools, metal materials or land transport system was 3,058 million CZK.

Information and Communication Technologies are the second factor having a great impact on daily life of people whenever at home or at work. The potential and capabilities of modern information and communication technologies systems are still growing exponentially fuelled by the progress in electronics, micro-systems, networking and robots. These developments provide major opportunities for Europe as well as for the Czech Republic to develop the next generation of innovative devices, systems and applications. Usage of such technologies in business sector improves its competitiveness.

Globally 3.2 billion people are using the Internet by the end of 2015, of which 2 billion are from developing countries. In comparison to year 2000 where there were only 400 million internet users around the world. At the end of 2015 there are more than 7 billion mobile cellular subscriptions, up from 738 million in 2000 and the proportion of households with Internet connection at home increased from 18% in 2005 to 46% in 2015. All these data witnesses the giant evolution in this field. As well in the Czech Republic is evident this positive

trend. Over 14 million mobile phone subscriptions were recorded in the Czech Republic in 2010, compare to 4 million in 2000. In December 2010 there were 136 active SIM cards per 100 inhabitants in the Czech Republic as one of the highest on a European scale. The most widespread information technology in Czech households is the mobile telephone, which was owned by 96% of households in 2010, against 30% ten years ago. The growth of Internet adoption in Czech households has been rapid over the past 10 years. In 2011 almost 65% of Czech households were equipped with a computer, where 61% of them had internet connection. The expenditures of Czech households on telecommunications services in 2010 represented around 4.3% of their total consumption expenditures. (Czech Statistical Office)

In case of enterprises, 96% of companies with 10 and more employees have a long-term internet connection. Around 87% of enterprises had broadband connection in 2011. The development of information and communication technologies has seen a rapid growth as well in websites. 78% of all enterprises in the Czech Republic had their own websites at the begging in 2011 which led to a sharp increase in the electronic purchases which in 2010 represented one quarter of total purchases. (Czech Statistical Office)

In the construction industry there is as well a necessity for innovative methods of information and communication technologies to improve the construction efficiency and to solve challenges such as sustainable design and construction. Nowadays the majority of building projects are hardly treated without tradition face-to-face means of communication however there is a huge potential for increasing the volume, speed, quality and efficiency of information transfer and for new technologies in the sphere of visualization, data analysis and collaboration. One of the current aims is to provide construction stakeholders with information and analytical tools for better control of construction delivery process. To conclude the main contributions of latest technologies to not only construction sector are e-mail and phone communication, the internet and world wide websites, networking, 3D visualizations, electronic invoicing, electronic purchases, navigation, solar panels and thousands of others.

5.1.5 Ecological environment

For the **ecological legislation** in the Czech Republic is responsible Ministry of the Environment. Nowadays there is a great pressure on sustainable development and environmental friendly production mainly due to the enforcement of the EU legislation. Ministry of the Environment follows following legislation in accordance with the EC law.

The most important Acts of legislative settings of the environment in the Czech Republic is Act No. 17/1992 on the Environment (based on Directive 85/337/EEC applying to the assessment of the environmental effects of those public and private projects which are likely to have significant effects on the environment) which is defining the fundamental terms such as environment, pollution, ecosystems, environmental damage and sets the rights and duties of

citizens and businesses in relation to the environment. The law also sets out certain principles and methods of protection (limits on pollution or preventative measures) and ensure sustainable development, which means that needs of current generation should be attained without harming the satisfaction of needs of future generation. This Act has declaratory character so in practice can be used only together with other more specialized laws.

Other very important legislation in issues dealing with environment is given by Act No. 100/2001 Coll., on Environmental Impact Assessment. The aim of this act is to judge the impact of certain proposal on the environment and on public health before the decision is made with purpose of reduction of the negative consequences of production and acquisition of an objective professional foundation for issuing decisions to the sustainable development of society. This means that investor must send a business intention of a new project to a public authority, which evaluates the project on basis of environmental impacts. Only construction provided by coherence (green) stamp proving its harmlessness in terms of environment can receive the building permit.

Another act to be mentioned is Act No. 76/2002 Coll. on Integrated Pollution Prevention and Control (based on Directive 2010/75/EU on industrial emissions, which lays down rules on integrated prevention and control of pollution arising from industrial activities). "The purpose of this Act is, in accord with the legislation of the European Communities, to achieve a high level of protection of the environment as a whole, to provide for integrated implementation of the public administration in permitting the operation of installations and to create and operate an integrated pollution register."[5]

There is much more legislation influencing the construction industry which has to take in account (as Law no. 25/2008 Coll., On the integrated pollution register and integrated system of reporting obligations in the field of environment, Government Regulation 145/2008 Coll., laying down the list of pollutants or Act no. 167/2008 Coll., On prevention of environmental damage).

Other issues dealing with ecological prevention are **ecological taxes**. Environmental taxes are increasingly used to influence the behavior of economic operators, whether producers or consumers. These taxes generate revenue that can potentially be used to promote further environmental protection. According European Regulation No. 691/2011 On Environmental economic accounts, an environmental tax can be defined as tax whose tax base is a physical unit of something that has a proven, specific negative impact on the environment and which is defined in the European system of accounts as a tax. European statistics distinguish three different categories of environmental taxes relating to energy, transport and pollution. The obligation to impose the first, tax related to energy - tax on electricity, natural gas and solid fuels, arose to the Czech Republic from 1 January 2008 in accordance with the membership of

[5] Act No. 76/2002 Coll. from 1st of March 2002 in integrated pollution prevention and control

Czech Republic in the European Union. Environmental taxes have been incorporated into the Act No. 261/2007 Coll., On stabilization of public budgets.

In 2013 the total revenue from environmental taxes in the EU was 331 billion EUR, which equals to 2.5 % of European GDP and to 6.3 % of the total European revenues derived from all taxes and social contributions how is stated by Eurostat. From 2006 to 2013 the total environmental tax revenues in the EU increased by 1.6 percentage point per year on average. Of course in the first years of economic downturn due to the reduction of economic activity also the ecological tax revenues declined. Energy taxes represents the highest share from all environmental taxes, around 75% in 2013. The second most important contribution was represented by transport taxes in the amount of 20.1% and the pollution and resources taxes had only a small share of 4.9%. The energy taxes revenues were paid by halves by business and households. In case of transport taxes the situation was different where households paid much higher share (70%) then businesses (30%).

In the Czech Republic in 2013 the total environmental tax revenues represented 6.1% of total revenues from taxes and social contribution which is the value below average of EU. Relative to GDP it was around 2.1%. The main revenues came up from energy taxes (92.7%). The rest was distributed among transport taxes and taxes on pollution and resources in share of 6.7% and 0.6% in 2013. Czech Republic registered one of the highest share of energy taxes among European Union countries. Interesting fact is then in terms of redistribution of revenues from energy taxes among economic activities, Czech Republic won the first place in highest share of revenues from industry and construction field from which Czech government received 1,977.8 million EUR (more than 50% in comparison with other economic activities). The same is valid for transport tax revenues where Czech government received only from industry and construction sector 118.7 million EUR. (Eurostat)

Last think regarding the ecological issue which should be mentioned is the European strategy– **Europe 2020**. The three main priorities of European strategy are dealing with smart, sustainable and inclusive growth where along the improvement on employment, research and poverty issues is states as well the program 20-20-20 taking in account the environmental issues.

5.1.6 Legal environment

Legal environment was already partially mentioned in theoretical background part where were stressed out the basis for start a business and as well in the ecological factors influencing construction companies where were discussed the acts dealing with protection of environment connected with building. Still there was no space for the main legally binding act in construction industry which is **Building Act**.

From 1th January 2013 came into effect the Building Act no. 350/2012 Coll., which novelized the Act no. 183/2006 Coll., On town and country plan-

ning and building code (Building Act). The new act no. 350/2012 Coll. brought extensive and substantial changes to the original Building Act both in the urban planning as well as in the building code. As is stated in the original legal framework, the Building Act governs mainly the objectives and tasks of town and country planning, the system of authorities of such planning, the town and country planning instruments, the evaluation of the impacts on area sustainable development, conditions for constructions, land development and for preparation of the public infrastructure, records of planning activity and qualification requirements for planning activity. The act is later dealing with issues of permission of buildings, usage and removal of structures, power of building offices, authorised inspectors and duties and responsibilities of those who are engaged in the preparation and realization of constructions. At the end the Building Act is as well taking care about conditions for the design activity and the building realizations, general conditions for construction, entry to the construction sites and protection of public priorities.

The main changes which were brought by the last novelization of Building Act are dealing with widening of changes in the range of buildings that builders are able to build without any permission or measures of building offices and buildings that do not require any building permit or notification to the building office, but require regional approval. The novelizations have influenced as well the Act no. 634/2004 Coll. On administrative fees in construction field. The fees related to building construction are given in Table 8.

Table 8 Fees connected with construction [CZK]

Fee	CZK
For issuing a decision on the location of building a family house	1000
For issuing a decision on the location of building a garage	1000
For issuing a decision on the location of building that do not require a building permit or notification	1000
For issuing a building permit for a family house (over 120 m2 of built area)	5000
For issuing a building permit for construction of a garage	1000
For issuing of a decision of extension validity of the building permit	1000
For issuing of consent to the removal of buildings	500

Source: Act no. 634/2004 Coll. On administrative fees, edited by author

5.2 Economic and financial analysis of construction branch

Till this point there was the detailed PESTEL analysis which is focusing on indicators, which are not able to be influenced by company itself and which were taken more in general. Now, the attention is turn to economic and financial analysis of only construction sector and its development. All data provided in this section were taken from reports of Ministry of Industry and Trade.

5.2.1 Economic analysis of construction branch in the Czech Republic

In the PESTEL analysis and its factors there was mentioned the economic development of the Czech Republic as a whole influencing all industries in described period. In this thesis however the focus is on construction sector so the following pages will be dedicated to more detailed research about economic development of construction industry in last years. The information here stated is taken from the Ministry of Industry and Trade and their publications about economic development and financial analysis of this sector in last years.

Construction output in 2014 after five years of decline finally grew annually by an average of 4.3 percentage points and in the first half of 2015 increase in average even by 10 percentage points. Significant share of the 2014 growth had a civil engineering, with growth of 6.4 percentage points, while building construction increased only by 3.4 percentage points. These results are particularly gained by investment activity of the state, new orders from private sector but also by very favorable weather conditions during the first quarter of 2014. The growth in the first part of 2015 was given by the effort of exhaustion of EU funds by the end of 2015 mainly and again was more evident in the civil engineering then in the building construction. The civil engineering, which is mostly financed by public sources have increased by incredible 23.7 percentage points in the first part of 2015.

Even when the rate of construction growth was positive in all quarters of 2014, it was declining gradually. The weather conditions allowed the construction works to be carried out almost continuously and in comparison with previous really low level of construction the production reached in the first quarter in 2014 jump, which greatly contributed to the year-round result. In the coming quarters the dynamics already dropped. In the first quarter construction output grew at a high rate of 13.3%, the second grew by 5.6 percentage points and the third only by 2.9 percentage points. The smallest increase in production was in the last quarter when, although remaining above the level of the previous year, was only by 0.7 percentage point. In the second half of 2015 the numbers reached already the double-digit numbers as in May 2015 for example where the monthly growth was by 11.3 percentage points.

Even that 2014 was after a long time period a successful year for the construction industry, his production is still about 22.1% below the pre-crisis boom of 2008. This development is evident on the Figure 8 representing the index of construction output (in the annual change).

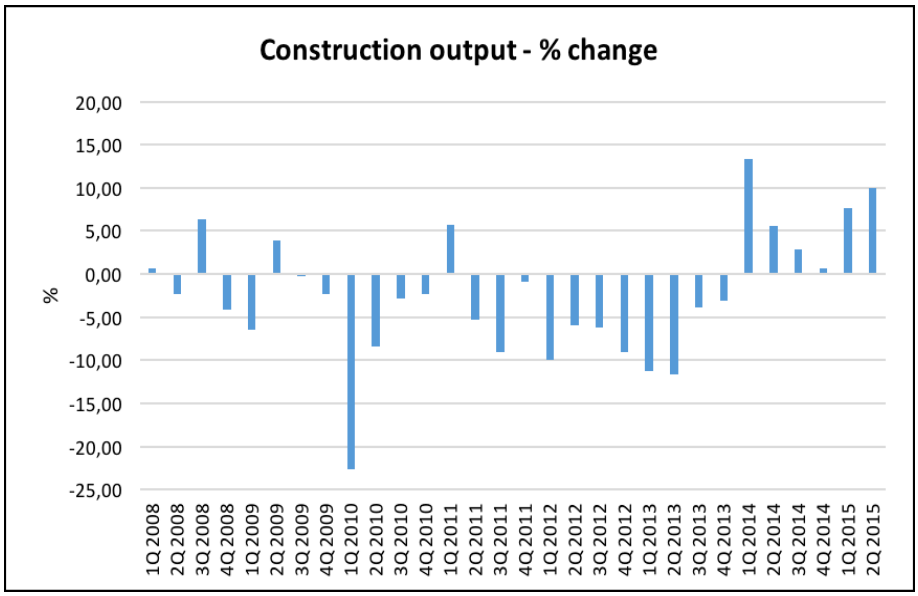

Figure 8 Index of construction output [%]
Source: Ministry of Industry and Trade of Czech Republic, edited by author

The different growth in 2014 in civil engineering and building construction was given by dissimilar and unbalanced development. **Building construction** which was affected by good weather conditions reached very good results in the first and second quarters of 2014, 16.9% growth in the first quarter and 5.1% in the second. Third and fourth quarter then continued in the downward finished in annual decrease of 0.6%, respectively 0.8%. This slow decline however was compensated by recovery in 2015 when the growth was 6.2% in April and 6.8% in May.

Engineering construction, which began to reduce the rate of annual decline in 2013 already, was following this trend in the first quarter of 2014 by annual growth of 2.1%, which accelerated until the third quarter to 6.7% and to 10.9%. Production in the fourth quarter did not reached on the double-digit growth value, however recorded a respectable annual rate of 3.7%. The monthly growth in 2015 was very optimistic for engineering construction where the growths were by 18.8 percentage points, 20.6 percentage points and 30.6 percentage points in the second quarter of 2015. The development of building and civil engineering in individual quarters shows Figure 9 where the blue line is representing the building construction and the red one the civil engineering.

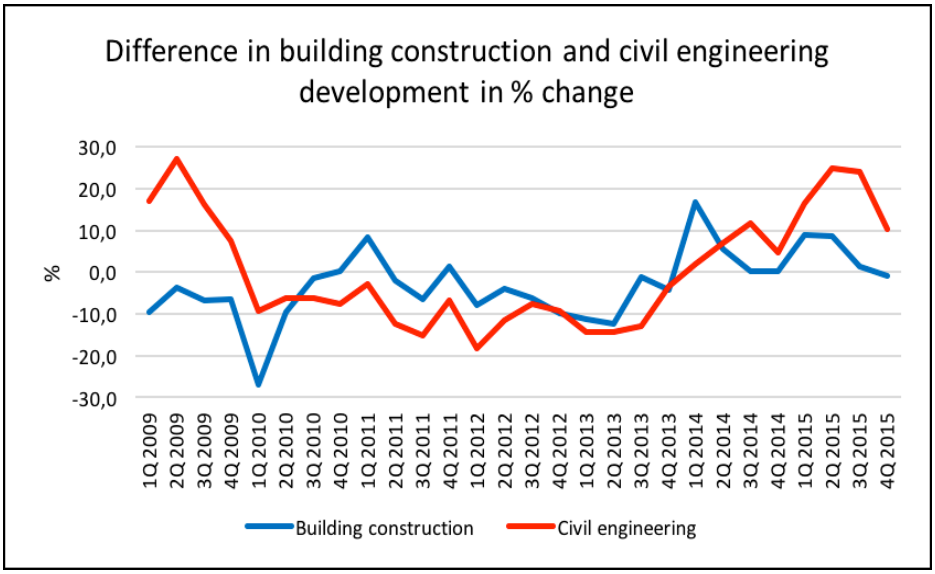

Figure 9 Development of building construction and civil engineering [%]
Source: Czech Statistical Office, edited by author

Although construction output in 2014 and 2015 maintained its upward trend, it sustained the continuing decline in the number of **employees**. Average number of employees decreased annually by 4.8 percentage points in 2014. (In 2013 it was 8.3% and in the first half of 2015 by 1.5 percentage point.) In comparison to 2008 the entire industry lost over 60,000 employees. Although the construction in 2014 began to flourish, it did not come to the light in the **salaries** paid to workers. The average nominal wage grew in 2014 in average annually by 2.7 percentage points and was 29,776 CZK.

Ongoing fall in unemployment and the moderate wage growth lead to high **productivity of labor** growth in the construction sector in 2014 by 9.6 percentage points and by 11.7 percentage points in the first half of 2015. The development in nominal and real wages and in productivity is for clarity given in Table 9 in percentage annual change.

Table 9 Development in wages and productivity in 2010 till 2014 [%]

	2010	2011	2012	2013	2014
Average nominal wage	2.6	1.5	2.9	-3.2	2.7
Average real wage	2.8	2.0	3.6	-2.1	2.2
Labor productivity	-5.6	2.4	-3.3	2.5	9.6

Source: Ministry of Industry and Trade, edited by author

The growth of the construction industry led to increase in **prices of construction works**, which in 2014 rose on average by 0.4 percentage point (in 2013 declined by 1.1 percentage point). Prices of materials and products consumed in construction were higher in the average during whole year 2014 by 1.1 percentage point (in 2013 remained unchanged).

The construction sector is also influenced by declining number of permitted constructions. In 2014, the number of **building permits** was 79,357, which represents a decrease of 6.5% annually (in 2013 fell by 13.2 percentage points). For residential buildings in 2014 were issued 28,127 permits, annually 4.6% less than in previous year and for non-residential 17,527 permits representing annual decline by 7.4 percentage points. The largest share in the number of building permits issued in 2014 got traditionally Central-Bohemian region with 19.0% and the second was South Moravian region with 12.2%. In the second quarter of 2015 however monthly and annually was noticed the first increase in the number of construction permits, annually grow by 4.5 percentage points. In case of new residential building there was an increase of 7.5% in year to year comparison. The distribution of construction permits among the regions remained the same as in 2014 with similar values.

The last factor which had positive effect on construction industry in 2014 is **mortgage market**. Mortgage market in 2014 benefited from low interest rates, improving financial situation of households and a great supply of apartments and houses. At the end of 2014 were signed 40 thousand new mortgage contracts (an annual increase by 25.8 percentage points), of which 34.8 thousand were for residential buildings. The total volume of mortgages by the end of 2014 had reached 1 172.5 billion CZK (8.9% more than in 2013), of which mortgages for residential building represented 844.7 billion CZK (annual growth of 6.9%). The reason for continuously high demand for housing loans is the record low interest rate. While in December 2013 the interest rate from new mortgage loans was on average 3.26%, in December 2014 it was only 2.37%. Low interest rates on mortgages have helped to revive the real estate market in the Czech Republic and the higher demand for apartments and non-residential buildings have provided new orders for the construction industry.

Economic analysis compared to EU development

In 2014 construction output in the EU increased by 2.7 percentage points (in the euro zone only by 1.5 percentage points) confirming the trend of gradual growth which started in the second quarter of 2013. The main contribution had civil engineering, which in the EU increased year to year by 3.8 percentage points, while building construction decreased by 1.6 percentage points. Can be said that in 2014 construction in EU and in euro zone had finally ended the recession after six years of unpleasant development (in 2013 drop by 2.5 percentage points).

Unlike the previous four years the construction output in the Czech Republic with annual growth of 4.3% recorded more favorable growth rates

than the whole EU. The ran up of Czech Republic was particularly influenced by those countries that have undergone the most intense decline during the recession such as Greece, Slovenia or Spain. In comparison with 2007, the production in the Czech Republic in last years decreased in real terms by one-fifth which is the same way as in the EU. Following figures show the evolution of construction output for the last 6 years and secondary the international comparison of construction production in years 2013 and 2014.

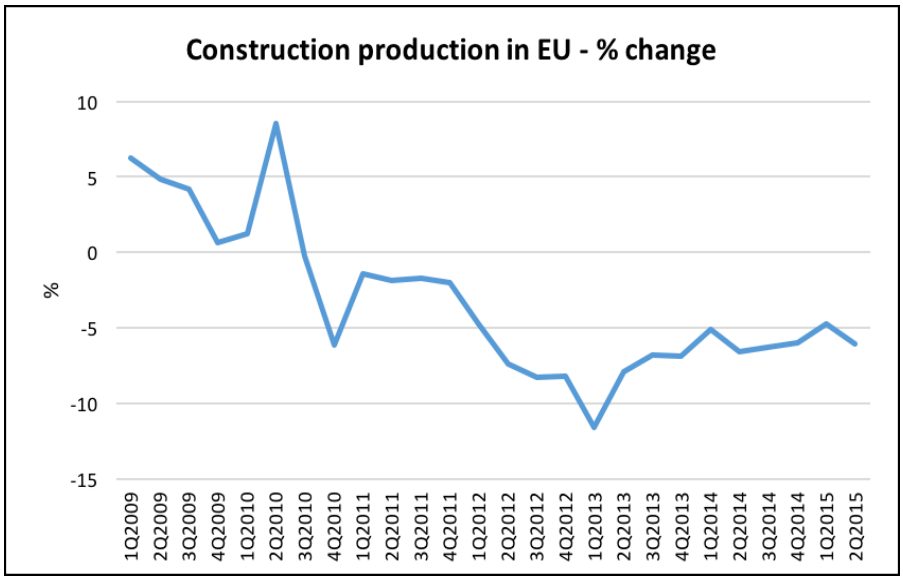

Figure 10 Construction development in EU between years 2009 to 2015 [%]
Source: Eurostat, edited by author

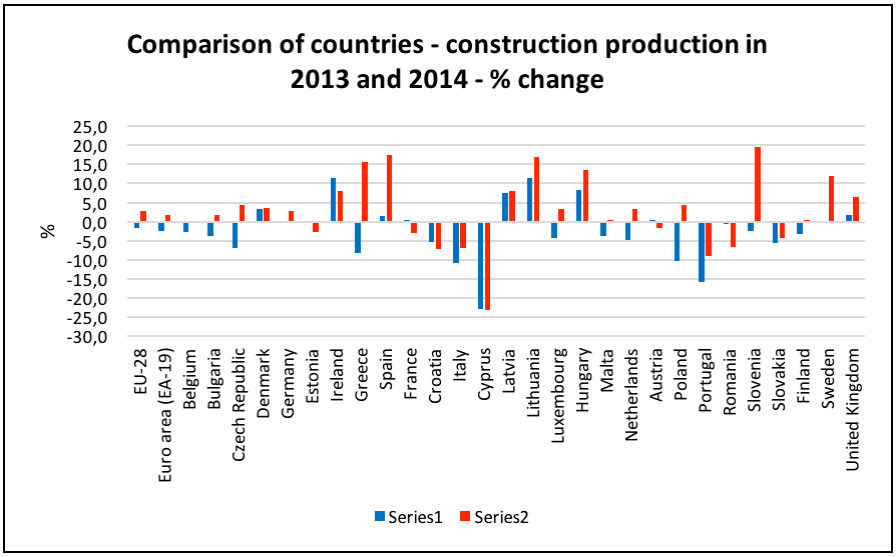

Figure 11 International comparison of construction production 2013 and 2014 [%]
Source: Eurostat, edited by author

5.2.2 INFA financial analysis of construction branch in the Czech Republic

Financial analysis by Ministry of Industry and Trade focuses on assessing of effectiveness of industry, construction and selected services. By financial indicators gives a picture of their competitiveness. Pyramidal decomposition of economic value added indicator then quantifies the impact of various factors on-year development in 2014.

In 2014, the creation of **Economic Value Added** (EVA) in the non-financial sector was moving in the negative values however shrunk in the year to year comparison. This relative improvement was mainly achieved by significant reduce of risk-free rate (the yield from 10-year government bonds declined from 2.26% to 1.58%). Nevertheless the effectiveness of the corporate sector, measured by Return on Equity worsen year on year. In construction occurred recovery in 2014, which was seen in reduce of its negative EVA values, while civil engineering ended the year with a positive value of EVA. The first half of 2015 was continuing in growth rate started in 2014 and the negative values of EVA annually improved. Again only the civil engineering reached the positive numbers of EVA in the first half of 2015. Development of economic value added for years 2013 and 2014 is captured in Figure 12 where is evident the difference in three main components of construction sector. (Blue – Building construction, Red – Civil engineering and Green – Specialized construction works)

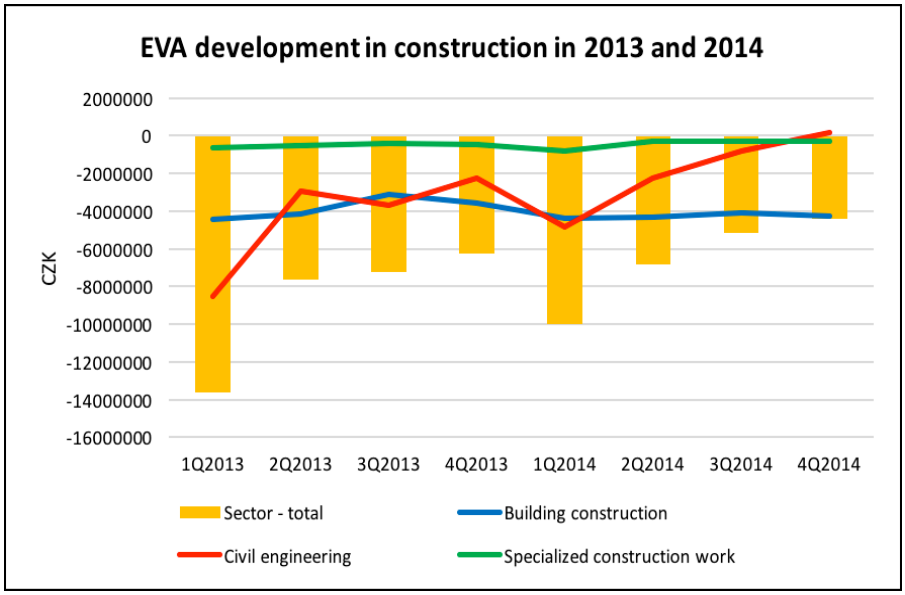

Figure 12 Development in EVA [CZK]
Source: Ministry of Industry and Trade, edited by author

Speaking more in detail about EVA development in years 2013 and 2014 is necessary. Even if the values of EVA are still negative, -6,279 billion CZK in 2013 and -4,389 billion CZK in 2014, they recorded positive development mainly thank to decrease of risk (year to year from 13% to 11%). In sector

division the positive values can be seen in civil engineering which recorded EVA values of 2.3 billion CZK and in specialized construction activities with 0.2 billion CZK. In the first half of 2015 which is not anymore on the graphical illustration in annual comparison was reached again improvement from -5,793 billion CZK in the first half of 2014 to -3,272 billion CZK in first half of 2015. Quiet all factors creating economic value added react positively beyond investments (still around -44 billion CZK) and stability. In the following figures are captured the individual components of EVA – Return on Equity, Opportunity cost of Equity and Shareholder's funds.

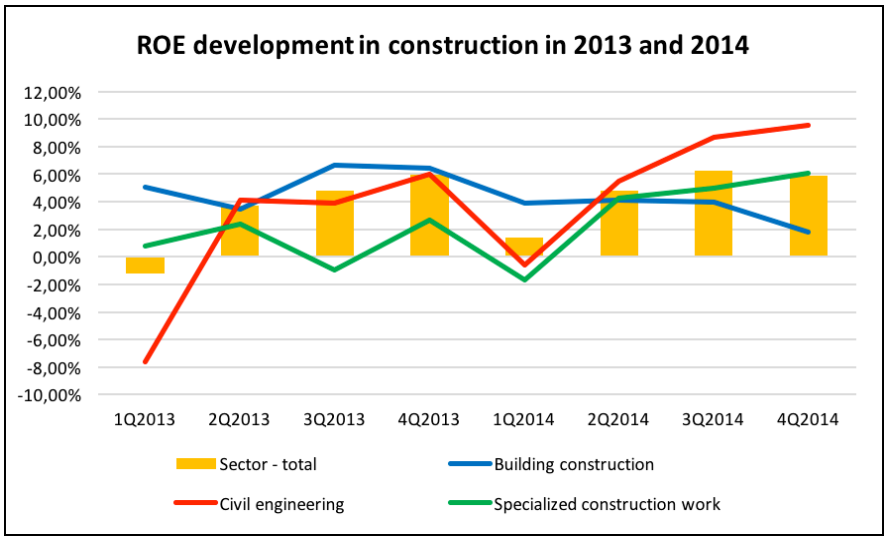

Figure 13 Development in ROE [%]
Source: Ministry of Industry and Trade, edited by author

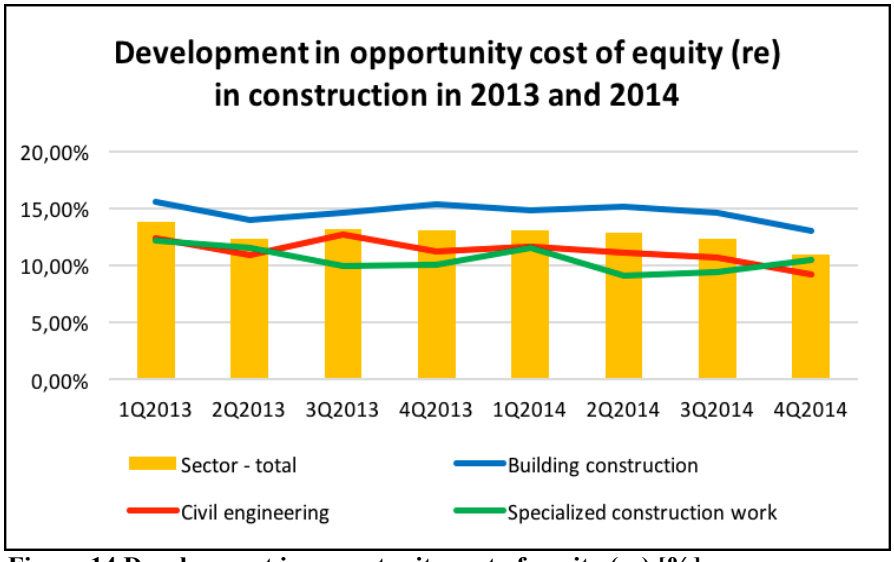

Figure 14 Development in opportunity cost of equity (re) [%]
Source: Ministry of Industry and Trade, edited by author

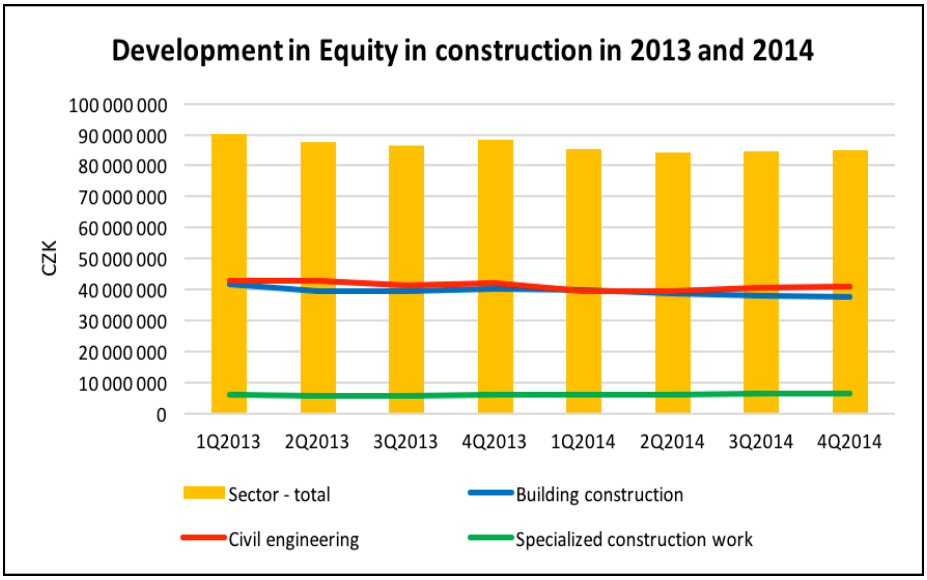

Figure 15 Development in Equity [%]
Source: Ministry of Industry and Trade, edited by author

5.3 Financial analysis of companies' sample

In this part of my diploma thesis I am evaluating a group of construction companies. This sample of construction companies was obtained from the database Amadeus. The main focus is on development of financial indicators influencing the companies through the economic crisis in 2007 – 2013 and lately to highlight their competitiveness using Return on Equity. All the results are then compared with sector averages according benchmarking diagnostic system of financial indicators INFA used by Ministry of Industry and Trade. The indicator ROE is later decomposed into analytic indicators to provide the effect of each component on the whole indictor and is used for Spread calculation.

In the following text I am working with comparison of two main groups of companies – active companies and companies which were bankrupt during the crisis. There is analyzed separately companies' sample of active construction companies in the Czech Republic and in the South Moravian region and the same division for bankrupt companies' sample.

5.3.1 Active companies' sample in the Czech Republic

According the financial analysis of active small and medium companies in the sample constituted within companies settled in the Czech Republic in construction sector, there is evident drop in all financial indicators from 2008 such as net income, turnover, amount of total assets or shareholder's funds. Using the median values of all companies in the Table 10 can be seen the year on year development of some financial indicators. This development is followed by graphical illustration. The recovery from the crisis is evident already in 2013 where the net income increased by small amount however the main recovery is in 2014.

Table 10 Development of financial indicators among active Czech companies sample– median values [CZK]

Year	Turnover	Net income	Total assets	Shareholder's funds
2006	13472000	210000	6220000	1511000
2007	13554000	246000	6076000	1572000
2008	11362500	168000	5376500	1469000
2009	8838000	80500	4770000	1290000
2010	7426000	49000	4260000	1050000
2011	6786000	50000	4123500	878000
2012	6376000	25000	3970500	900500
2013	6072000	28000	4097000	937000
2014	6303000	57000	4258500	1014000

Source: Author's calculations

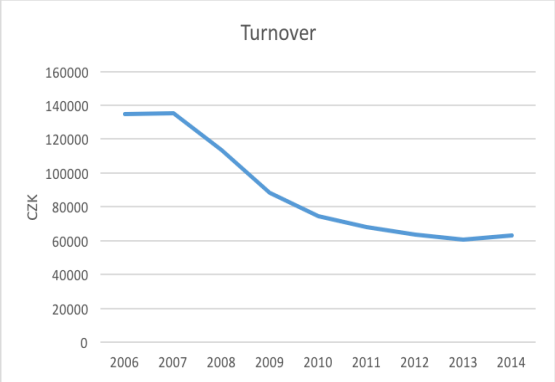

Figure 16 Development of Turnover among active Czech companies sample – median values
Source: Author's calculations

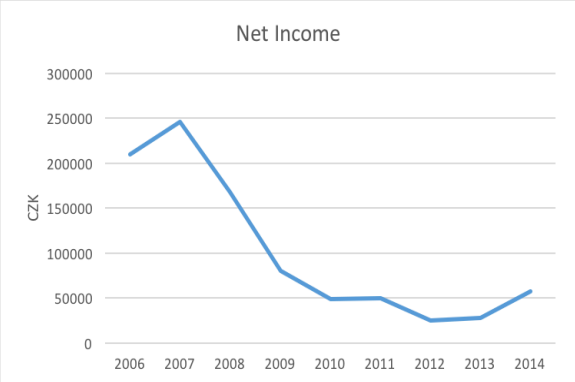

Figure 17 Development of Net income among Czech active companies sample – median values
Source: Author's calculations

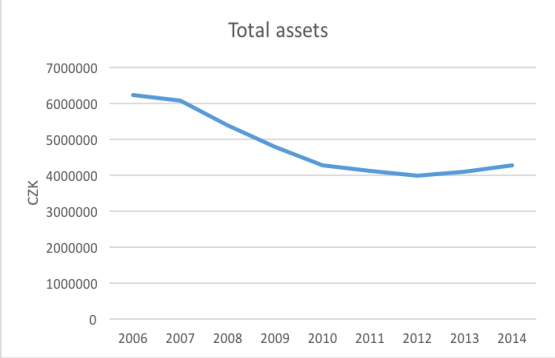

Figure 18 Development of Total assets among Czech active companies sample – median values
Source: Author's calculation

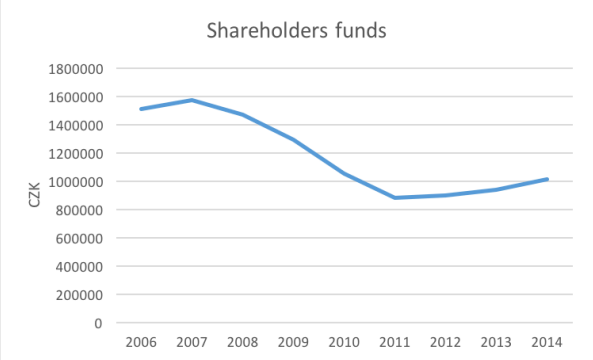

Figure 19 Development of Shareholder's funds among Czech active companies sample – median values
Source: Author's calculations

According the data samples were calculated the profitability ratios. As in the theoretical part was explained the main ratios influencing the profitability which were calculated are Return on Assets, Return on Equity and Return on Sales. In the Table 11 is described the development of observed indicators through the years of financial crisis and this table is followed again by figure of time. Again as well the ratios have confirmed the drop from 2008 till 2012 which was followed by very slight improvement in 2013 and more evident recovery in 2014.

Table 11 Development of ratios ROA, ROE, ROS through crisis among Czech active companies sample – median values [%]

Year	ROA	ROE	ROS
2006	5,37%	13,90%	1,65%
2007	6,37%	15,65%	1,94%
2008	5,19%	11,44%	1,61%
2009	3,21%	6,24%	0,96%
2010	2,37%	4,67%	0,71%
2011	2,47%	5,69%	0,80%
2012	1,69%	2,78%	0,42%
2013	1,66%	2,99%	0,49%
2014	2,61%	5,62%	0,97%

Source: Author's calculations

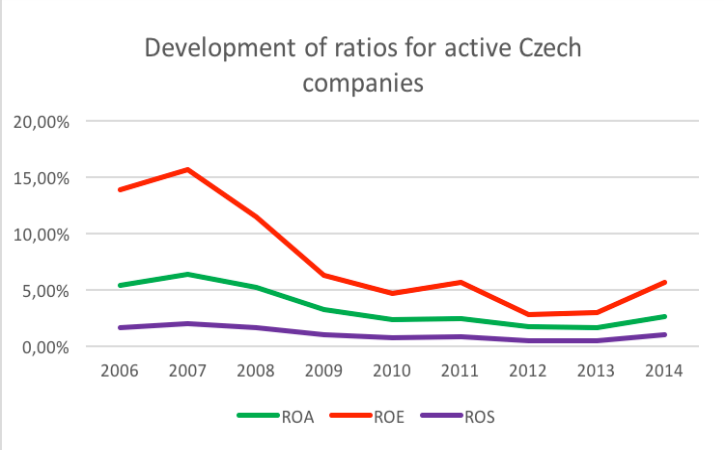

Figure 20 Development of ROA, ROE, ROS among Czech active companies sample – median values

Source: Author's calculations

The analyse provided above can be seen as interesting and as underlying the situation reported my Ministry of Industry and Trade however with comparison with other companies and all industry this analysis can reveal more information and become more interesting. That is why based on this analyse was elaborated the benchmarking diagnostic INFA analyses using the median values of financial indicators in period 2007 – 2014. This analyse is able to come up with the comparison of the sample example data and the average of the sector.

According the INFA financial analysis can be seen that before the crisis the sample of companies were performing better than the sector average and at the begging of the crisis still were creating the value in double digit number. However, with deeper crisis these companies were worsening their performance much more than the other companies in the sector till the 2012 were the indicator ROE was at its minimum of 2.77%. The recovery can be seen then from 2014. Even if the drop in Return on Equity was large, there can still be seen the better performance than in case of unprofitable companies of the sector. Examined companies even if they very loosing large part of their profits they were still able

to keep positive ROE during all crisis. Of course the numbers are calculated as it was already mentioned as median of all values of all examined companies and there were of course companies dealing with negative values of net income or even with negative values of shareholder's funds. In Table 12 are provided the values of ROE for companies' sample and the sector average. The graphs which were obtained from the benchmarking diagnostic INFA system are attached in the annex A.

Table 12 Development of ROE in sector comparison for Czech active companies sample – median values [%]

ROE	2007	2008	2009	2010	2011	2012	2013	2014
Companies sample	15,65	11,44	6,28	4,67	5,69	2,77	2,99	5,62
Sector average	13,09	12,56	19,39	11,84	9,20	6,76	6,52	5,87
Unprofitable companies	-47,89	-13,71	-21,68	-30,21	-26,85	-22,68	-11,74	-17,33

Source: Ministry of Industry and Trade, edited by author

Based on data provided in benchmarking diagnostic INFA system there was elaborated the decomposition of ROE indicator for all years observed. This decomposition is pointing out the influence of each part on total indicator Return on Equity. The year on year calculation were elaborated for years 2007 – 2014 and is provided in following tables.

Table 13 Decomposition of ROE indicator for active Czech companies sample – year on year change 2007 – 2008

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2007	0,1565	0,7523	0,0538	3,8651
2008	0,1144	0,8000	0,0391	3,6600
Change	-0,0421	0,0477	-0,0148	-0,2052
Influence of partial elements		0,0099	-0,0456	-0,0064

Source: Author's calculations

Table 14 Decomposition of ROE indicator for active Czech companies sample – year on year change 2008 – 2009

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2008	0,1144	0,8000	0,0391	3,6600
2009	0,0624	0,9096	0,0186	3,6977
Change	-0,0520	0,1096	-0,0205	0,0377
Influence of partial elements		0,0157	-0,0683	0,0006

Source: Author's calculations

Table 15 Decomposition of ROE indicator for active Czech companies sample – year on year change 2009 – 2010

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2009	0,0624	0,9096	0,0186	3,6977
2010	0,0467	1,2250	0,0094	4,0571
Change	-0,0157	0,3154	-0,0092	0,3595
Influence of partial elements		0,0216	-0,0415	0,0041

Source: Author's calculations

Table 16 Decomposition of ROE indicator for active Czech companies sample – year on year change 2010 - 2011

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2010	0,0467	1,2250	0,0094	4,0571
2011	0,0569	1,1364	0,0107	4,6965
Change	0,0103	-0,0886	0,0013	0,6393
Influence of partial elements		-0,0034	0,0059	0,0078

Source: Author's calculations

Table 17 Decomposition of ROE indicator for active Czech companies sample – year on year change 2011 - 2012

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2011	0,0569	1,1364	0,0107	4,6965
2012	0,0278	2,7778	0,0023	4,4092
Change	-0,0292	1,6414	-0,0084	-0,2873
Influence of partial elements		0,0823	-0,1096	-0,0018

Source: Author's calculations

Table 18 Decomposition of ROE indicator for active Czech companies sample – year on year change 2012 - 2013

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2012	0,0278	2,7778	0,0023	4,4092
2013	0,0299	2,8000	0,0024	4,3725
Change	0,0021	0,0222	0,0002	-0,0368
Influence of partial elements		0,0002	0,0021	-0,0003

Source: Author's calculations

Table 19 Decomposition of ROE indicator for active Czech companies sample – year on year change 2013 - 2014

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2013	0,0299	2,8000	0,0024	4,3725
2014	0,0562	1,0364	0,0129	4,1997
Change	0,0263	-1,7636	0,0105	-0,1728
Influence of partial elements		-0,0188	0,0475	-0,0023

Source: Author's calculations

Based on data provided in the above listed tables was determined the effect of individual components of ROE. There can be seen that the most negatively influential component was the ROA estimation from the beginning of the crisis. ROA estimation was negatively influencing ROE first three years of crisis. The component financial leverage was in negative numbers mainly the last three years, however these numbers were closed to zero so I consider them less significant. So at the end can be concluded that the main negatively influencing component was ROA estimation which caused the drop in ROE indicator the most.

Based on previously provided data is possible to calculate the economic value added however I am using as main indicator Spread INFA (the difference between Return on Equity and Opportunity cost of equity) which development is provided in Table 20 and graphical illustration is provided in annex A.

Table 20 Development of INFA Spread in sector comparison for Czech active companies sample – median values [%]

INFA Spread	2007	2008	2009	2010	2011	2012	2013	2014
Companies' sample	-16,01	-20,71	-25,81	-26,47	-25,37	-27,02	-27,29	-23,45
Sector average	2,96	1,29	5,79	-0,84	-3,24	-4,82	-6,31	-5,17
Unprofitable companies	-63,97	-30,18	-48,33	-46,22	-47,38	-43,03	-30,23	-41,13

Source: Ministry of Industry and Trade, edited by author

According above provided table can be seen large difference between the development of companies' sample and the development of all sector. Companies sample was behaving worse than other companies. The spread of observed companies was worsening through all economic crisis and already before the crisis in the year 2007 started in negative values. The worst drop was recorded in the first two years of economic crisis were the INFA Spread drop each year by 5 percentage points. Next four years the situation remain the same till year 2014 were can be seen light improvement by 4 percentage points. Based on the data provided above, observed companies were behaving worse than the sector average however still did not reach the values of unprofitable companies.

Cluster analysis

Employing the cluster analysis, it is able to identify the major indicator which distribute the large companies sample to smaller clusters. The cluster analysis was elaborated with focus on years 2008 and 2013 which I considered as significant, 2008 as the year of beginning of financial crisis and year 2013 as the year with first recorded recovery after the economic crisis.

As the most important indicators were defined for active Czech companies sample Turnover, Sales and Total assets for both observed years 2008 and 2013 base on the magnitude of F values. In the Table 21 are provided the individual indicators examined and their values of F statistics. The cluster analysis divided the group of observed companies into five clusters with Euclidean distance. The table is followed by graphical explanation of means for each cluster.

Table 21 F statistics for cluster analysis for active Czech companies sample

Variables	F statistics 2008	F statistics 2013
Turnover	2258,78	2597,57
Net Income	152,21	81,304
Total assets	1298,35	1615,75
Shareholder's funds	235,85	727,07
Number of employees	236,21	421,99
Sales	1565,07	2037,27
EBIT	219,79	206,72
Stock	292,15	141,63
Debtors	445,20	754,70
Cash & cash equivalent	124,05	225,34
Current assets	852,92	879,71
Current liabilities	807,91	628,33
Long term debt	19,38	100,79
Other current liabilities	468,21	230,28
Material costs	263,84	581,10
Costs of employees	454,90	665,73
Interest paid	147,08	331,64

Source: Statistica, edited by author

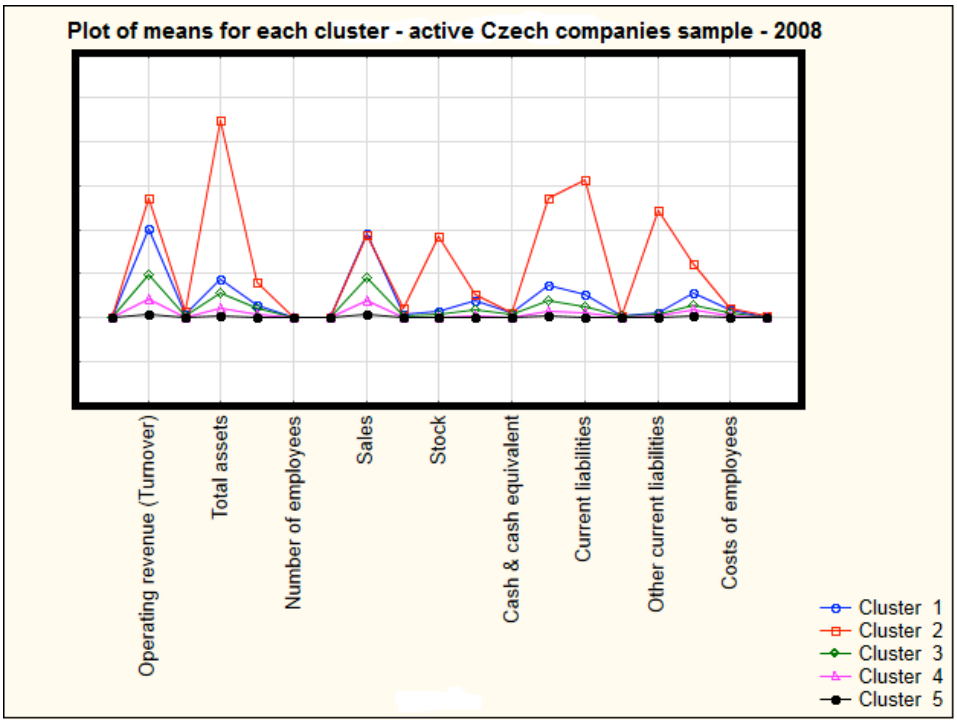

Figure 21 Plot of means for each cluster – active Czech companies sample – 2008
Source: Statistica, edited by author

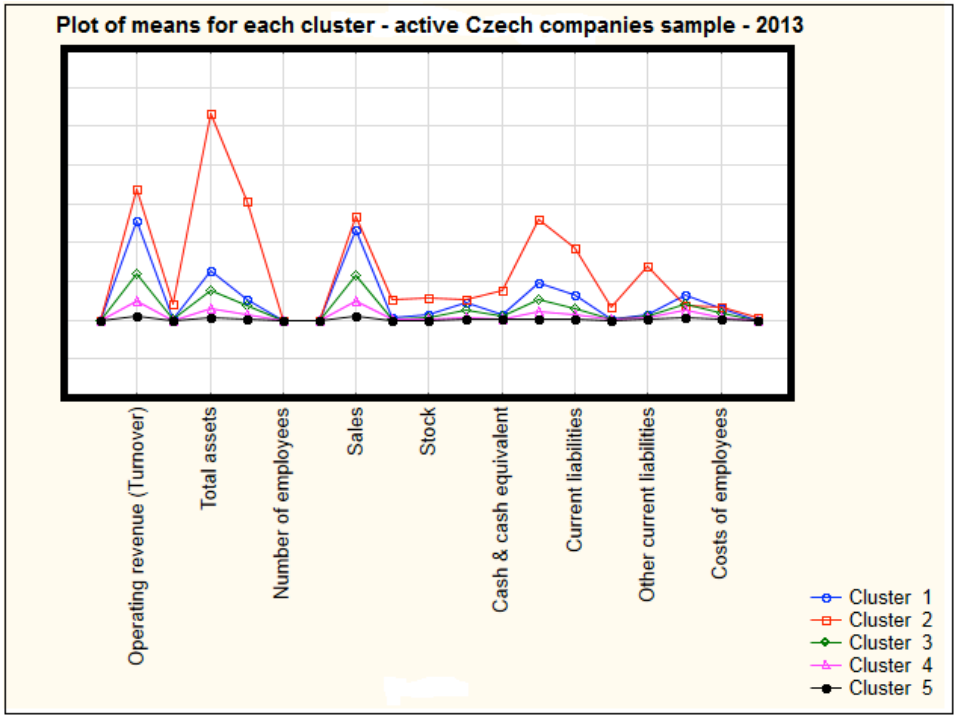

Figure 22 Plot of means for each cluster – active Czech companies sample – 2013
Source: Statistica, edited by author

Based on Figure 21 and Figure 22 can be said that companies from cluster 2 have the most different development to other cluster. Companies classed in cluster 2 are companies with much higher amount of assets and as well liabilities. These companies as well operate with higher amount of stock and have higher sales. Difference in the observed years can be seen in values of stocks were is evident the drop of stock for 1. cluster during the economic crisis. During the crisis these companies were as well able to lower their values of liabilities. Companies with very low values of all financial indicators were then by cluster analysis classified in the cluster 5.

5.3.2 Bankrupt companies' sample in the Czech Republic

The same analysis which was elaborated for active companies was elaborated as well for companies which have bankrupt or got into the liquidation during the economic crisis. There were examined 1023 companies which bankrupt or went into the liquidation. In Table 22 there are stated the median values of all companies. The difference in comparison with active companies is their drop into the negative values from 2011 in net income values and these retained losses caused negative values of equity in 2013 and 2014. The table is followed by figures of time again.

Table 22 Development of financial indicators through crisis among Czech bankrupt companies sample – median values [CZK]

Year	Turnover	Net income	Total assets	Shareholder's funds
2006	23038000	169000	11606000	1340000
2007	13333000	52500	7055000	250000
2008	6282000	7000	2670000	351000
2009	16556000	21000	10575000	829000
2010	11608000	0	8452000	566000
2011	9375000	-22000	8177000	293000
2012	6682000	-12000	5501500	179000
2013	1381000	-53000	2392000	-41000
2014	50000	-11000	1379000	-152000

Source: Author's calculations

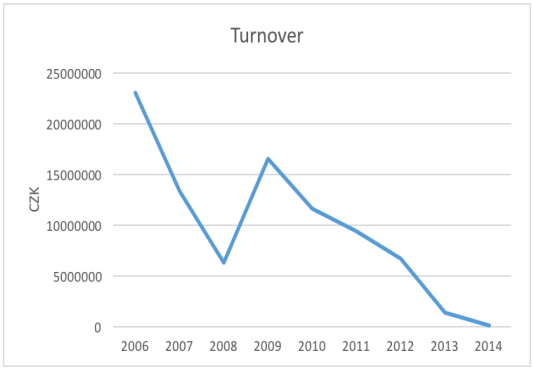

Figure 23 Development of Turnover for Czech bankrupt companies sample – median values
Source: Author's calculations

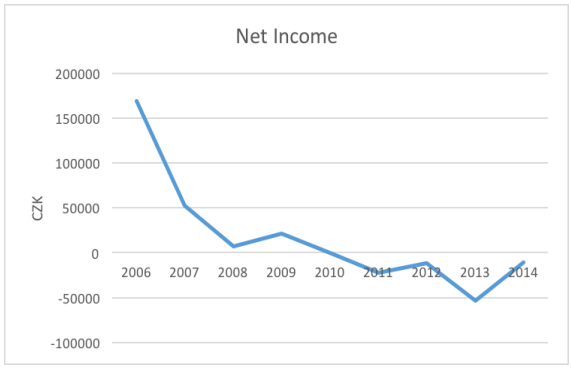

Figure 24 Development of Net income for Czech bankrupt companies sample – median values
Source: Author's calculations

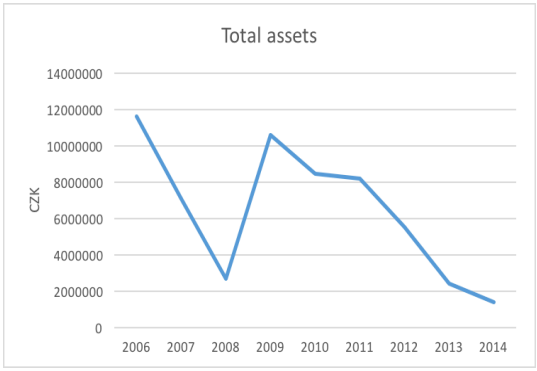

Figure 25 Development of Total assets for Czech bankrupt companies sample – median values
Source: Author's calculations

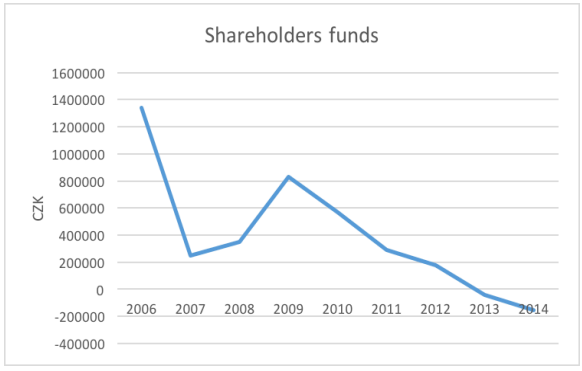

Figure 26 Development of Shareholders funds for Czech bankrupt companies sample – median values
Source: Author's calculations

These bankrupt companies have experienced the negative development already in year on year comparison 2006 to 2007. There can be seen drop in net income from 2006 to 2007 to less than one third. The following drop between years 2007 to 2008 when the economic crisis boost was not so large as in previous year. It is crucial for any company the state in which the company is entering to the economic crisis. Another interesting fact is the development of turnover, total assets and shareholder's fund in year 2009. From the graphical illustration is evident large increase in assets, equity and turnover even with only light increase of Net income. In 2010 then these companies had reached 0 values of net income but still it was in connection with positive value of equity. In 2011 nevertheless indicator Net income felt into negative values which caused in following years negative values of Equity. According the available data can be deducted that due to the slow-down of negative development in 2009 these companies were able to continue their businesses and most of these companies have bankrupt in 2013 and 2014 and not earlier.

According analyses of absolute indicators there were calculated the ratios dealing with profitability. All three observed ratios – Return on Assets, Return on Equity and Return on Sales have experienced the drop into the negative numbers in 2011 however the last two indicators reached zero value already in the previous year. Negative values were not recovered due to the fact that retained losses caused the negative values of shareholder's funds. For the examined group of companies, the negative values of equity were recorded in 2013 and 2014. In case of ROE in years 2013 and 2014 where both values entering to the formula were negative the interpretation can be explained as the situation of negative profitability which is deepening the losses from previous years. For indicator ROS was not able to calculated the last year value, because the sales were in median equal to zero. The table and development of three basic ratios is captured in Table 23 followed by figure of time.

Table 23 Development of ratios through crisis among Czech bankrupt companies sample – median values [%]

Year	ROA	ROE	ROS
2006	3,47%	12,61%	0,77%
2007	1,71%	21,00%	0,40%
2008	1,82%	1,99%	0,11%
2009	0,98%	2,53%	0,15%
2010	0,13%	0,00%	0,00%
2011	-0,04%	-7,51%	-0,26%
2012	-0,04%	-6,70%	-0,24%
2013	-1,00%	-	-6,68%
2014	-0,58%	-	-

Source: Author's calculations

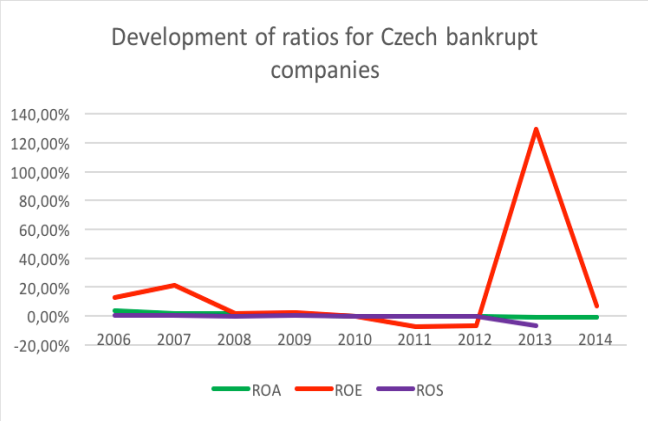

Figure 27 Development of ROA, ROE, ROS among Czech bankrupt companies sample – median values [%]
Source: Author's calculations

The development of three observed ratios points out the unfavourable situation of companies' sample. In the sector comparison provided by benchmarking diagnostic INFA analyses the Return on Equity indicator is providing the insight of industry situation. In the following table can be seen that till year 2010 companies sample were performing with values of ROE in positive range. Stagnant companies were reaching the value of ROE -30% at the end of 2010. From 2011 however the companies' sample start to experience the drop which reached values of -7,5% in 2011 and similar development in 2012 were the negative values of ROE was only deepening the losses from previous years. That led to negative values of equity in 2013 and 2014 and the bankrupt of many companies. The situation is described in following table and graphs are attached in the annex B.

Table 24 Development of ROE in sector comparison for Czech bankrupt companies sample – median values [%]

ROE	2007	2008	2009	2010	2011	2012	2013	2014
Companies sample	21,2	1,99	2,53	0	-7,51	-6,70	-	-
Sector average	13,09	12,56	19,39	11,84	9,20	6,76	6,52	5,87
Unprofitable companies	-47,89	-13,71	-21,68	-30,21	-26,85	-22,68	-11,74	-17,33

Source: Ministry of Industry and Trade, edited by author

Based on disposable above provided data and the data from diagnostic benchmarking INFA system was elaborated the decomposition of ROE indicator on its analytical components. The decomposition is valuable because reveals the effect of individual components on whole indicator. The decomposition was calculated for all observed years – 2007 - 2014 and is described in following tables.

Table 25 Decomposition of ROE indicator for bankrupt Czech companies sample – year on year change 2007 - 2008

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2007	0,2100	2,3333	0,0032	28,2200
2008	0,0199	0,5185	0,0051	7,6068
Change	-0,1901	-1,8148	0,0019	-20,6132
Influence of partial elements		-0,1633	0,0273	-0,0540

Source: Author's calculations

Table 26 Decomposition of ROE indicator for bankrupt Czech companies sample – year on year change 2008 -2009

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2008	0,0199	0,5185	0,0051	7,6068
2009	0,0253	-0,4200	-0,0047	12,7563
Change	0,0054	-0,9385	-0,0098	5,1495
Influence of partial elements		-0,0361	0,0313	0,0102

Source: Author's calculations

Table 27 Decomposition of ROE indicator for bankrupt Czech companies sample – year on year change 2009 - 2010

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2009	0,0253	-0,4200	-0,0047	12,7563
2010	0,0000	0,0000	-0,0166	14,9329
Change	-0,0253	0,4200	-0,0118	2,1765
Influence of partial elements		-0,0253	0,0000	0,0000

Source: Author's calculations

Table 28 Decomposition of ROE indicator for bankrupt Czech companies sample – year on year change 2010 - 2011

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2010	0,0000	0,0000	-0,0166	14,9329
2011	-0,0751	0,1528	-0,0176	27,9078
Change	-0,0751	0,1528	-0,0010	12,9750
Influence of partial elements		**-0,0378**	**-0,0024**	**-0,0349**

Source: Author's calculations

Table 29 Decomposition of ROE indicator for bankrupt Czech companies sample – year on year change 2011 - 2012

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2011	-0,0751	0,1528	-0,0176	27,9078
2012	-0,0670	0,1121	-0,0194	30,7346
Change	0,0080	-0,0406	-0,0018	2,8268
Influence of partial elements		**0,0200**	**-0,0058**	**-0,0062**

Source: Author's calculations

Table 30 Decomposition of ROE indicator for bankrupt Czech companies sample – year on year change 2012 - 2013

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2012	-0,0670	0,1121	-0,0194	30,7346
2013	1,2927	0,5300	-0,0418	-58,3415
Change	1,3597	0,4179	-0,0224	-89,0761
Influence of partial elements		**-0,2498**	**-0,3642**	**1,9737**

Source: Author's calculations

Table 31 Decomposition of ROE indicator for bankrupt Czech companies sample – year on year change 2013 - 2014

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2013	1,2927	0,5300	-0,0418	-58,3415
2014	0,0724	0,2821	-0,0283	-9,0724
Change	-1,2203	-0,2479	0,0135	49,2691
Influence of partial elements		**-0,6048**	**-0,2226**	**-0,3930**

Source: Author's calculations

The tables above provide the insight into the effects of individual component on ROE. In comparison with active Czech companies sample can be deducted that the main negative effect on ROE did not have only ROA estimation component. From the tables is evident that negative index during all observed period had the component Level of taxation (expect 2011-2012). The financial leverage was influencing the ROE negatively as well during quite all years. The ROA estimation index have felt into negative numbers only for last four year on year calculations. In years 2010 – 2011 which is the period from which the ROE indicator started to deal with negative values and in ears 2013 – 2014 all the components were at the same time influencing ROE negatively.

As the last part of financial analysis was examined the development of INFA Spread situation. The INFA Spread gives better insight to the negative development of sample companies. In the Table 32 are evident the values reaching development of unprofitable companies already in 2008. The drop in Spread INFA in 2008 was really huge, the values reached three times worse situation then in 2007. Can be seen that the Spread INFA had maintain its value around -30% till 2010 and even if seemed to improve its performance due to improvement of Spread in years 2011 and 2012, in 2013 the negative values of shareholder's fund caused negative profitability which have only deepen the losses from previous years.

Table 32 Development of INFA Spread in sector comparison for Czech bankrupt companies sample – median values [%]

INFA Spread	2007	2008	2009	2010	2011	2012	2013	2014
Companies' sample	-10,46	-30,16	-29,56	-30,26	-27,61	-25,52	-	-
Sector average	2,96	1,29	5,79	-0,84	-3,24	-4,82	-6,31	-5,17
Unprofitable companies	-63,97	-30,18	-48,33	-46,22	-47,38	-43,03	-30,23	-41,13

Source: Ministry of Industry and Trade, edited by author

Cluster analysis

After the financial analysis was elaborated the cluster analysis. In comparison with table of cluster analysis provided for active Czech companies sample can be already from the first sight evident the difference in magnitude of F statistics and different clustering for observed years 2008 and 2013. For cluster analysis for bankrupt Czech companies were elaborated only three cluster due to lower number of companies in the sample than for active companies. In 2008 judging from the magnitude of the F values, variables Stocks, Current assets and Debtors are the major criteria for assigning objects to clusters. However, for year 2013 the main variables are Current liabilities, Total assets and Current assets. According this difference can be deducted that the companies which have bankrupt are much more heterogenic than the active companies. As well the difference can be explained by fact that between observed years some companies have already bankrupt and so are not anymore in the analysis in years 2013. The individual variables and its F statistics values are described in Table 33 which is followed by graphical representation of plot of means for each cluster.

Table 33 F statistics for cluster analysis for bankrupt Czech companies sample

Variables	F statistics 2008	F statistics 2013
Turnover	42,96	175,70
Net Income	2,21	16,25
Total assets	56,56	420,82
Shareholder's funds	2,18	100,86
Number of employees	25,31	41,89
Sales	37,51	43,21
EBIT	6,28	8,34
Stock	787,83	25,34
Debtors	78,22	36,11
Cash & cash equivalent	7,95	34,59
Current assets	143,93	404,89
Current liabilities	72,69	689,19
Long term debt	0,11	6,95
Other current liabilities	4,06	180,74
Material costs	2,24	31,254
Costs of employees	60,18	39,03
Interest paid	5,81	29,44

Source: Statistica, edited by author

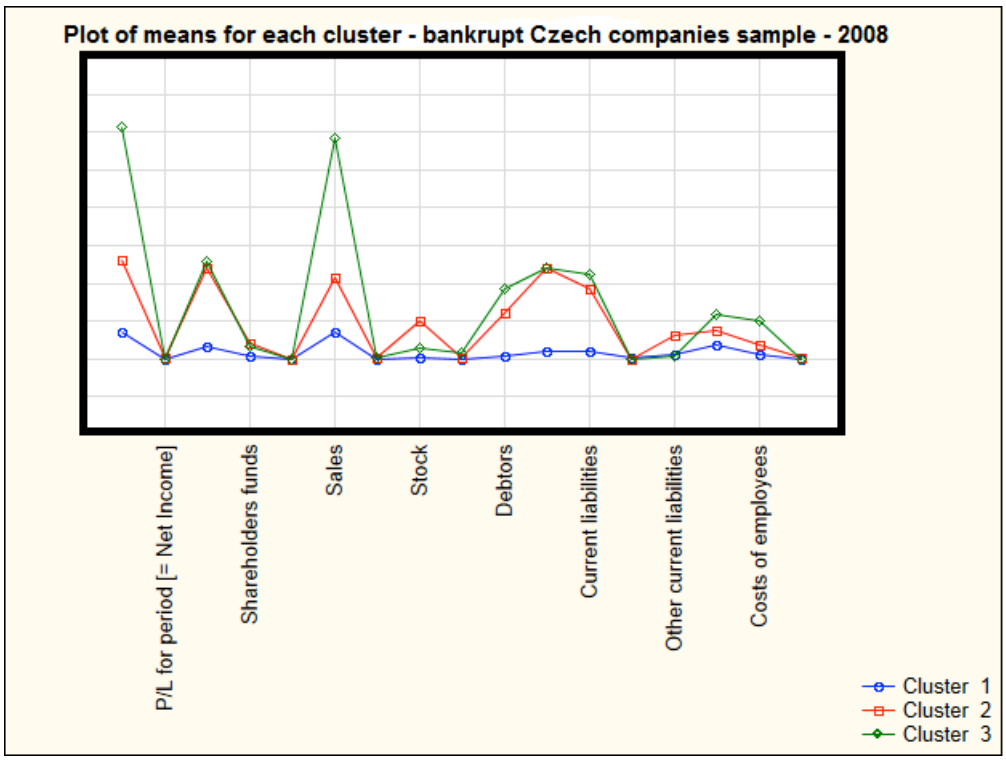

Figure 28 Plot of means for each cluster – bankrupt Czech companies sample – 2008
Source: Statistica, edited by author

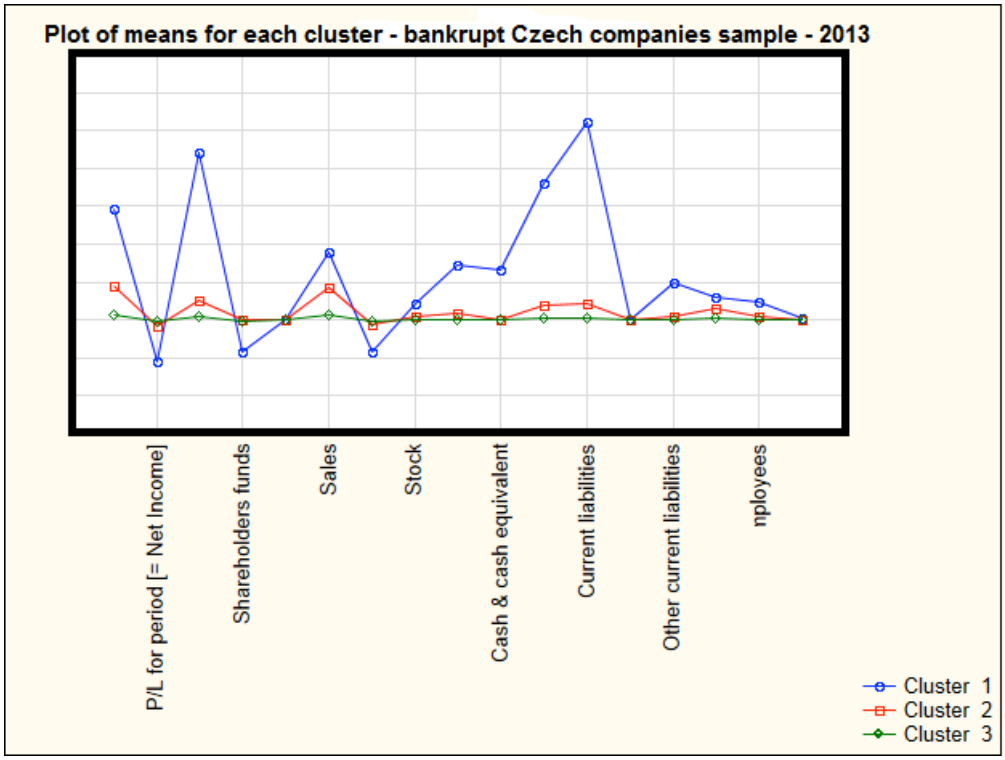

Figure 29 Plot of means for each cluster – bankrupt Czech companies sample – 2013
Source: Statistica, edited by author

From the graphical representation can be concluded that for year 2008 companies in 3. cluster have higher values in general of Turnover and Sales that clusters 1 and 2. There can be seen similar trend for cluster 2 and 3 however cluster 3 is dealing with much higher values than others. In case of clustering in year 2013 there can be seen huge difference among cluster 1 and others two. Cluster one contains companies with high values of Turnover, Total assets, Sales, Current assets and Current liabilities. Cluster 2 and 3 then have much more similar development than cluster 1 with much lower values of financial indicators.

5.3.3 Active companies sample in South Moravia region

The analysis of South Moravia region was based on financial analysis of 777 small and medium companies. For all companies were generated the absolute indicators from financial statements for years 2006 – 2014 and according their median values was elaborated the financial analysis. Firstly, I am providing the values of turnover, net income, total assets and shareholder's funds. The absolute values are described in Table 34 which is followed by graphical explanation of their development.

South Moravia region was developing in the same way as all country. The same as for active companies' sample of the Czech Republic there is firstly smaller increase in net income from 2012 to 2013 and lately larger increase in next year which is the same tendency as in the Czech Republic. South Moravia can be considered as a region with higher proportion of turnover than average of the Czech Republic because during all years even though out the crisis has maintained the higher level of this financial indicator. The same tendency can be seen in total assets values and shareholder's funds which as well are higher than for the Czech Republic. In comparison of indicator net income for active South Moravian companies sample the drop was deeper the in case of the Czech Republic, however South Moravian companies were able to deal better with their profits in the last years (from 2011).

Table 34 Development of financial indicators through the crisis for active South Moravian companies sample – median values [CZK]

Year	Turnover	Net Income	Total assets	Shareholder's funds
2006	15342000	212000	6993000	1550000
2007	13708500	247500	6587000	1618500
2008	13166000	144000	5983000	1486000
2009	9920000	57000	4728000	1326000
2010	8199000	37000	4397000	1087000
2011	6839000	62000	4228000	1057000
2012	6649000	37000	4122000	995000
2013	6806000	42000	4336000	1094000
2014	6680000	62000	4173000	1161000

Source: Author's calculations

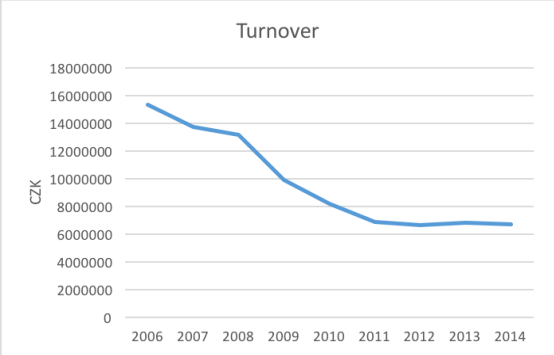

Figure 30 Development of Turnover among active South Moravian companies sample – median values
Source: Author's calculations

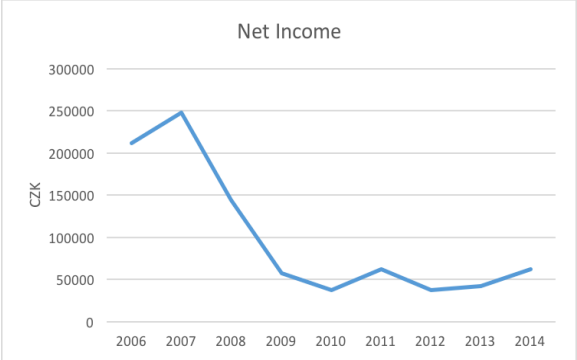

Figure 31 Development of Net income among active South Moravian companies sample – median values
Source: Author's calculations

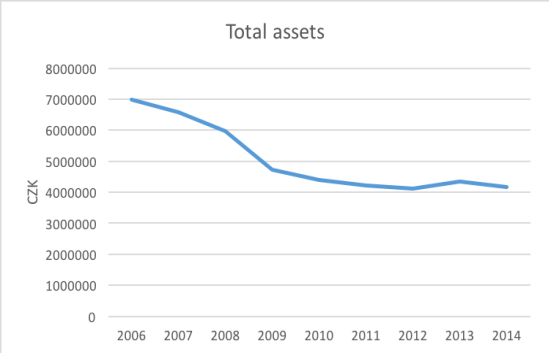

Figure 32 Development of Total assets among active South Moravian companies sample – median values
Source: Author's calculations

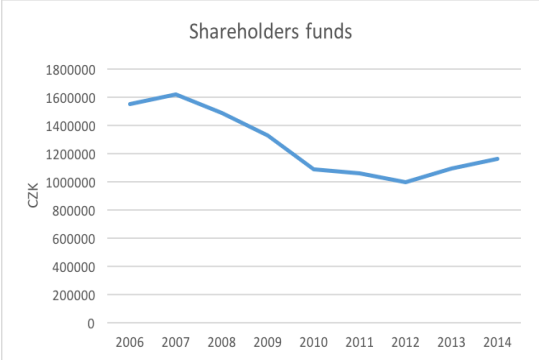

Figure 33 Development of Shareholder's funds among active South Moravian companies sample – median values
Source: Author's calculations

In case of ratios analysis in South Moravia can be observed better recovery than in the Czech Republic as whole. All the ratios till 2010 are a little behind the Czech Republic values however from 2011 can be seen better results which are exceeding the values of the Czech Republic. It is of course influenced by the fact that in values of the Czech Republic as whole are included all regions, as well the poorest ones. The overall time trend however is quite the same for active South Moravian companies sample and for Czech active companies' sample. In following Table 35 and Figure 34 are captured the values and the time trends.

Table 35 Development in ratios in active South Moravian companies sample – median values [%]

Year	ROA	ROE	ROS
2006	4,78%	13,68%	1,50%
2007	6,43%	15,29%	1,89%
2008	4,04%	9,69%	1,23%
2009	2,96%	4,30%	0,62%
2010	1,91%	3,40%	0,49%
2011	2,63%	5,87%	1,02%
2012	2,26%	3,72%	0,60%
2013	2,17%	3,84%	0,70%
2014	3,09%	5,34%	1,02%

Source: Author's calculations

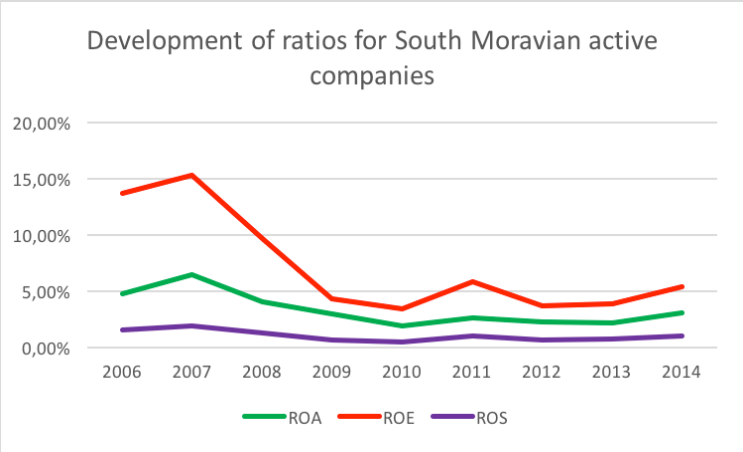

Figure 34 Development of ROA, ROE, ROS among active South Moravian companies sample – median values
Source: Author's calculations

Following section provides the benchmarking diagnostic INFA system, which offers the comparison with the sector development and based on which is calculated the decomposition of ROE indicator. According Table 36 can be deducted that the companies' sample was behaving similarly to sector average however with the values of ROE much more behind. In comparison with development of ROE indicator for the Czech Republic how was already described, the indicator was a little behind the Czech values in the first part of economic crisis however from 2011 the South Moravian companies sample perform better in terms of profitability. The development is described in Table 36 and the graphical illustration is provided in the annex C.

Table 36 Development of ROE in sector comparison for South Moravian active companies sample – median values [%]

ROE	2007	2008	2009	2010	2011	2012	2013	2014
Companies sample	15,32	9,69	4,3	3,4	5,87	3,72	3,84	5,34
Sector average	13,09	12,56	19,39	11,84	9,20	6,76	6,52	5,87
Unprofitable companies	-47,89	-13,71	-21,68	-30,21	-26,85	-22,68	-11,74	-17,33

Source: Ministry of Industry and Trade, edited by author

Based on data provided from benchmarking diagnostic INFA system of Ministry of Industry and Trade was able to elaborate the decomposition of ROE into its component. The effect of individual parts of ROE is described in the following tables which captures the year on year development for all observed period.

Table 37 Decomposition of ROE indicator for active South Moravian companies sample – year on year change 2007 - 2008

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2007	0,1529	0,6471	0,0581	4,0698
2008	0,0969	0,8045	0,0299	4,0262
Change	-0,0560	0,1574	-0,0282	-0,0436
Influence of partial elements		0,0372	-0,0922	-0,0010

Source: Author's calculations

Table 38 Decomposition of ROE indicator for active South Moravian companies sample – year on year change 2008 - 2009

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2008	0,0969	0,8045	0,0299	4,0262
2009	0,0430	0,6590	0,0183	3,5656
Change	-0,0539	-0,1455	-0,0116	-0,4606
Influence of partial elements		-0,0175	-0,0308	-0,0056

Source: Author's calculations

Table 39 Decomposition of ROE indicator for active South Moravian companies sample – year on year change 2009 - 2010

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2009	0,0430	0,6590	0,0183	3,5656
2010	0,0340	1,3704	0,0061	4,0451
Change	-0,0089	0,7114	-0,0122	0,4795
Influence of partial elements		0,0464	-0,0594	0,0040

Source: Author's calculations

Table 40 Decomposition of ROE indicator for active South Moravian companies sample – year on year change 2010 - 2011

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2010	0,0340	1,3704	0,0061	4,0451
2011	0,0587	1,1698	0,0125	4,0000
Change	0,0246	-0,2006	0,0064	-0,0451
Influence of partial elements		-0,0050	0,0303	-0,0007

Source: Author's calculations

Table 41 Decomposition of ROE indicator for active South Moravian companies sample – year on year change 2011 - 2012

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2011	0,0587	1,1698	0,0125	4,0000
2012	0,0372	0,9024	0,0099	4,1427
Change	-0,0215	-0,2674	-0,0026	0,1427
Influence of partial elements		-0,0134	-0,0093	0,0013

Source: Author's calculations

Table 42 Decomposition of ROE indicator for active South Moravian companies sample – year on year change 2012 - 2013

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2012	0,0372	0,9024	0,0099	4,1427
2013	0,0384	0,9438	0,0103	3,9634
Change	0,0012	0,0414	0,0003	-0,1793
Influence of partial elements		**0,0017**	**0,0012**	**-0,0017**

Source: Author's calculations

Table 43 Decomposition of ROE indicator for active South Moravian companies sample – year on year change 2013 - 2014

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2013	0,0384	0,9438	0,0103	3,9634
2014	0,0534	0,8052	0,0185	3,5943
Change	0,0150	-0,1386	0,0082	-0,3691
Influence of partial elements		**-0,0056**	**0,0261**	**-0,0055**

Source: Author's calculations

Speaking about the individual components of ROE can be concluded that the development if very similar to the development in case of active Czech companies sample. The first three years of the economic crisis the ROE is negatively influenced by ROA estimation. Between years 2008 and 2009 all the components reached negative index values. The next years even if there are negative values for financial leverage and level of taxation in some years, the total effect on the ROE is very small.

At the end of the financial analysis is provided the calculation of INFA Spread. According the following table can be characterized the development of Spread INFA indicator. The values of active South Moravian companies sample are well behind the sector average. The development in comparison with active companies' sample of the Czech Republic is very similar. The first four observed years are describing the little bit worse values for South Moravian companies than for the Czech Republic active sample however this trend is reversed next four years. From 2014 the active South Moravian companies were able to keep better results than whole Czech Republic sample. There is seen the recovering tendency at the end of year 2014, same for South Moravian companies as for whole Czech Republic. Even with highly negative values of Spread INFA during all observed years, the companies' sample neither in one year reached the unprofitable values offered by benchmarking diagnostic INFA system.

Table 44 Development of INFA Spread in sector comparison for South Moravian active companies sample – median values [%]

INFA Spread	2007	2008	2009	2010	2011	2012	2013	2014
Companies' sample	-16,34	-22,46	-27,79	-27,74	-25,19	-26,07	- 26,44	-23,73
Sector average	2,96	1,29	5,79	-0,84	-3,24	-4,82	-6,31	-5,17
Unprofitable companies	-63,97	-30,18	-48,33	-46,22	-47,38	-43,03	-30,23	-41,13

Source: Ministry of Industry and Trade, edited by author

Cluster analysis

The following text is dealing with cluster analysis. In case of South Moravian active companies sample, the companies were divided into three main clusters. According the analysis of variance as the main criteria for assigning the companies into the cluster were defined Sales, Turnover, Total assets and Current assets for year 2008 which is quite the same redistribution as for companies active in the Czech Republic. For companies from the whole Czech Republic the assigning criteria were same for both observed years. In case of South Moravian companies sample, the distribution is very similar just in different order, the major criteria here is the Current assets in comparison to Sales in 2008. The F values for all variables are provided in the Table 45which follows.

Table 45 F statistics for cluster analysis for active South Moravian companies sample

Variables	F statistics 2008	F statistics 2013
Turnover	385,06	503,55
Net Income	76,99	42,01
Total assets	281,17	306,88
Shareholder's funds	92,62	91,91
Number of employees	81,60	102,03
Sales	393,71	488,31
EBIT	72,67	56,90
Stock	31,60	144,75
Debtors	98,55	206,11
Cash & cash equivalent	33,64	100,78
Current assets	267,21	619,11
Current liabilities	100,81	254,13
Long term debt	16,35	4,90
Other current liabilities	18,10	47,70
Material costs	65,39	226,56
Costs of employees	101,57	30,55
Interest paid	30,29	160,58

Source: Statistica, edited by author

According the graphical illustration on Figure 35 and Figure 36 can be described the means for each cluster. In case of year 2008 same as for year 2013 companies in cluster 1 are characterized by higher values of Turnover, Assets and Sales and all clusters have similar time trend.

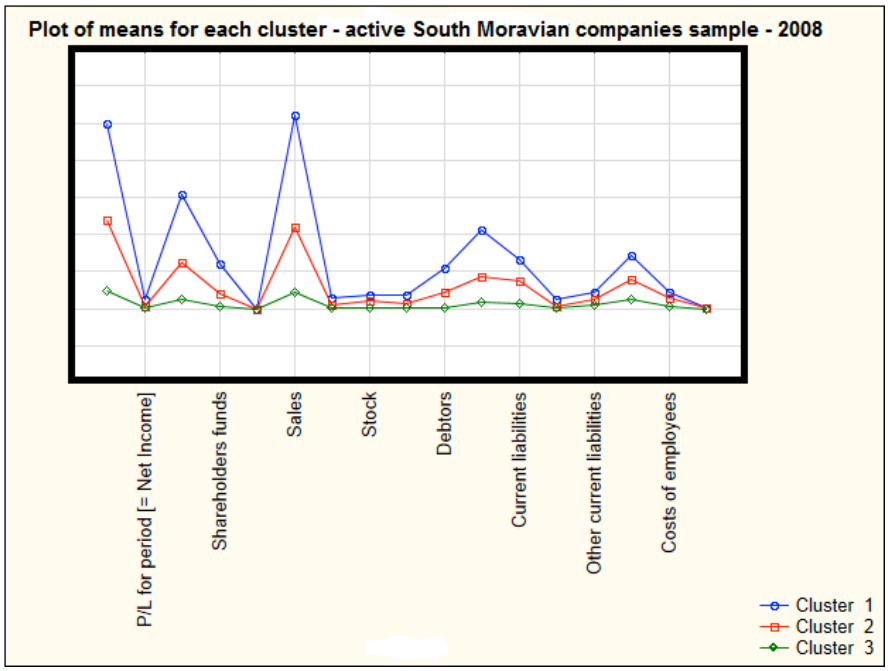

Figure 35 Plot of means for each cluster – active South Moravian companies sample – 2008
Source: Statistica, edited by author

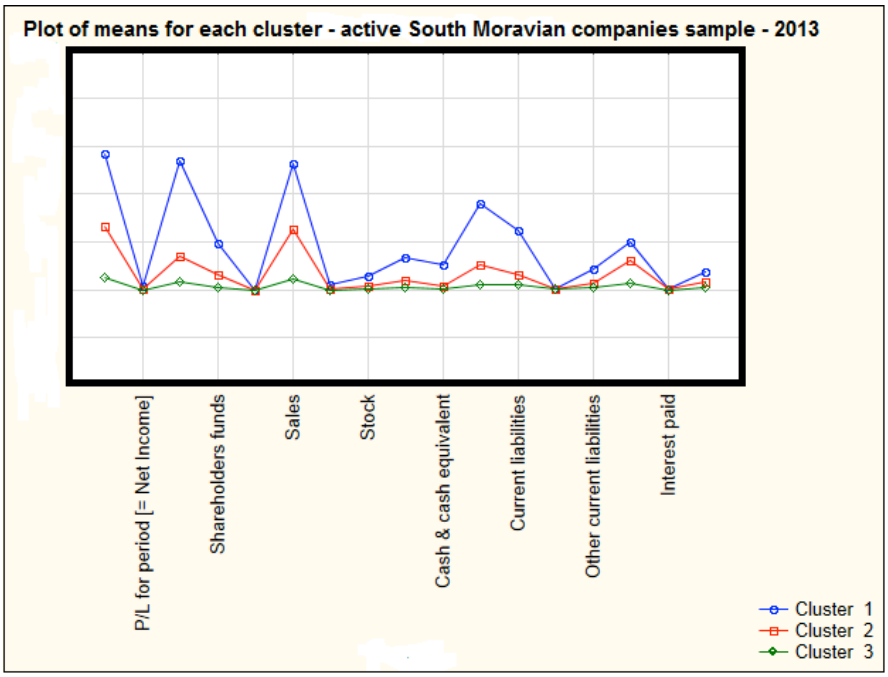

Figure 36 Plot of means for each cluster – active South Moravian companies sample – 2013
Source: Statistica, edited by author

5.3.4 Bankrupt companies sample in South Moravia region

The last category of companies which was examined is the bankrupt companies sample on the territory of South Moravia region. Among the bankrupt companies are as well enterprises which entered into the liquidation during the financial crisis in years 2008 – 2014. There were examined in total 126 companies however due to the fact that they bankrupt during the examined period, for year 2014 there remained only 10 companies which were able to be observed. I am providing the overview of development of absolute indicators in in Table 46 and graphs which follow.

Table 46 Development of financial indicators through crisis for bankrupt South Moravian companies sample – median values [CZK]

Year	Turnover	Net Income	Total assets	Shareholder's funds
2006	29546000	145000	16281000	1364000
2007	27552000	224000	13971500	1295000
2008	29288000	17500	13209000	608000
2009	17457000	32000	10960000	442000
2010	8968000	4000	7802000	523000
2011	9716000	0	9148000	120000
2012	6503000	-145000	6733500	-879000
2013	204000	-13000	516500	-46000
2014	14000	-4000	238500	-56500

Source: Author's calculations

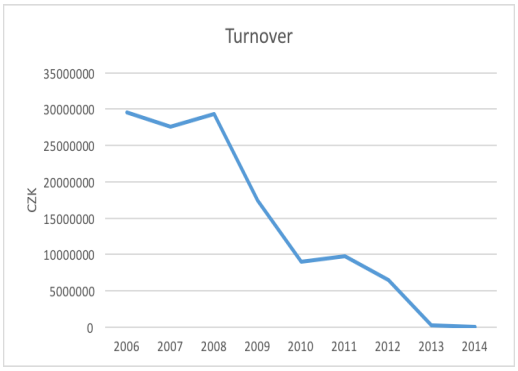

Figure 37 Development of Turnover among bankrupt South Moravian companies sample – median values
Source: Author's calculations

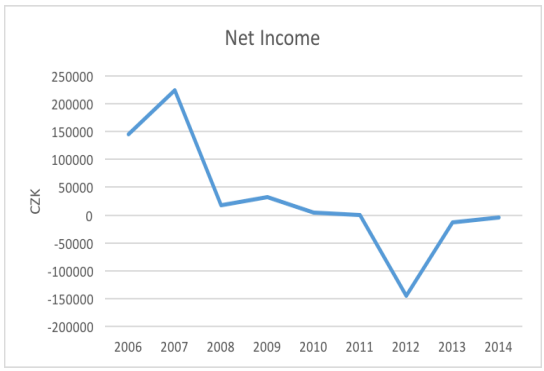

Figure 38 Development of Net Income among bankrupt South Moravian companies sample – median values
Source: Author's calculations

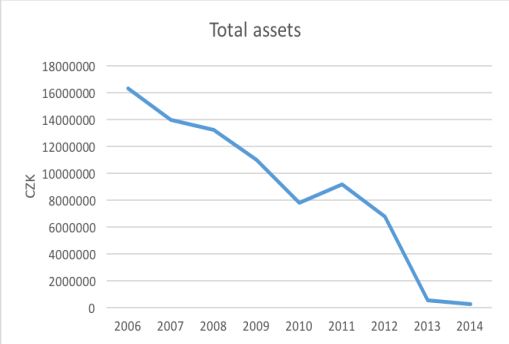

Figure 39 Development of Total assets among bankrupt South Moravian companies sample – median values
Source: Author's calculations

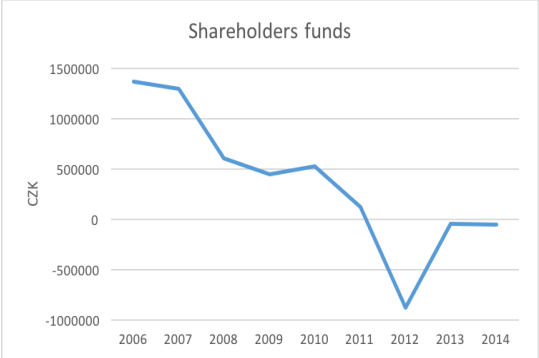

Figure 40 Development of Shareholder's funds among bankrupt South Moravian companies sample – median values
Source: Author's calculations

According the comparison with bankrupt companies in the Czech Republic in the previous section, there can be seen better development for South Moravia. There is not that strange drop in indicators between years 2006 and 2007 as it was for bankrupt companies in the Czech Republic. The decline in net income is more slow and South Moravian enterprises were able to keep above the zero level of net income one year more till 2011. The negative values of Net income in years 2012 – 2014 however caused the negative values of Shareholder's funds as well for the same years. Even if in years 2013 and 2014 the negative of net income was improving, it did not help to maintain the companies active and prevent their bankrupts.

In following table and graphs are provided observed ratios. The negative values of Equity in last three years caused problems in ROE calculations when the negative profitability deepen the losses from previous years. In comparison with Czech bankrupt companies the South Moravian ones were able to keep their values positive one year more in case of ROE and ROS indicator.

Table 47 Development of ratios in bankrupt companies in South Moravian companies sample - median values [%]

Year	ROA	ROE	ROS
2006	1,68%	10,63%	0,48%
2007	3,37%	17,30%	0,86%
2008	0,72%	2,88%	0,06%
2009	1,23%	7,24%	0,20%
2010	0,68%	0,76%	0,04%
2011	-0,26%	0,00%	0,00%
2012	-0,63%	-	-2,67%
2013	-1,74%	-	-8,28%
2014	-1,68%	-	-28,57%

Source: Author's calculations

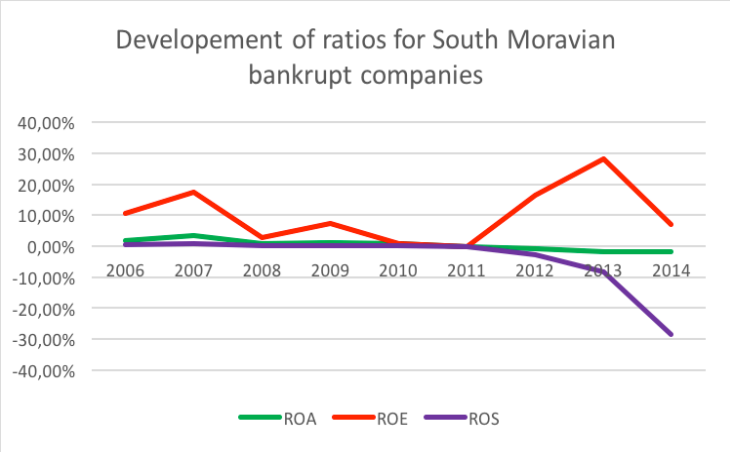

Figure 41 Development of ROA, ROE, ROS among bankrupt South Moravian companies sample – median values
Source: Author's calculations

The comparison of ratios of bankrupt companies in the Czech Republic and in South Moravia points out development with very similar features. The ROE indicator was well behind the sector average values from 2008 till 2011 when the ROE reached 0 value. From year 2011 then the losses from previous years caused negative values of shareholder's funds which led to worsening of the ROE situation even more. From year 2012 observe companies reached the values of unprofitable companies. The development in sector comparison is described in Table 48 which follows and graphs are attached in the annex D.

Table 48 Development of ROE in sector comparison for South Moravian bankrupt companies sample – median values [%]

ROE	2007	2008	2009	2010	2011	2012	2013	2014
Companies sample	17,3	2,96	7,24	0,76	0	-	-	-
Sector average	13,09	12,56	19,39	11,84	9,20	6,76	6,52	5,87
Unprofitable companies	-47,89	-13,71	-21,68	-30,21	-26,85	-22,68	-11,74	-17,33

Source: Ministry of Industry and Trade, edited by author

Based on data provided from benchmarking diagnostic system of Ministry of Industry and Trade were calculated the decompositions of ROE indicator to its analytical parts which provides insight into the causalities of ROE negative development. For all observed years the decompositions are provided (is missing only the last year which was not able to calculate due to missing data).

Table 49 Decomposition of ROE indicator for bankrupt South Moravian companies sample – year on year change 2007 – 2008

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2007	0,1730	0,6579	0,0244	10,7888
2008	0,0288	-11,6667	-0,0001	21,7253
Change	-0,1442	-12,3245	-0,0245	10,9365
Influence of partial elements		**-3,2405**	**3,0819**	**0,0145**

Source: Author's calculations

Table 50 Decomposition of ROE indicator for bankrupt South Moravian companies sample – year on year change 2008 – 2009

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2008	0,0288	-11,6667	-0,0001	21,7253
2009	0,0724	1,7778	0,0016	24,7964
Change	0,0436	13,4444	0,0018	3,0711
Influence of partial elements		**-0,0332**	**0,0678**	**0,0090**

Source: Author's calculations

Table 51 Decomposition of ROE indicator for bankrupt South Moravian companies sample – year on year change 2009 – 2010

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2009	0,0724	1,7778	0,0016	24,7964
2010	0,0076	-0,0541	-0,0095	14,9178
Change	-0,0648	-1,8318	-0,0111	-9,8786
Influence of partial elements		**-0,0746**	**0,0149**	**-0,0051**

Source: Author's calculations

Table 52 Decomposition of ROE indicator for bankrupt South Moravian companies sample – year on year change 2010 – 2011

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2010	0,0076	-0,0541	-0,0095	14,9178
2011	0,0000	0,0000	-0,0178	76,2333
Change	-0,0076	0,0541	-0,0083	61,3156
Influence of partial elements		**-0,0076**	**0,0000**	**0,0000**

Source: Author's calculations

Table 53 Decomposition of ROE indicator for bankrupt South Moravian companies sample – year on year change 2011 – 2012

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2011	0,0000	0,0000	-0,0178	76,2333
2012	0,1650	0,7989	-0,0270	-7,6604
Change	0,1650	0,7989	-0,0091	-83,8937
Influence of partial elements		**-1,0852**	**-0,5564**	**1,8066**

Source: Author's calculations

Table 54 Decomposition of ROE indicator for bankrupt South Moravian companies sample – year on year change 2012 – 2013

Year	ROE	Level of taxation	ROA estimation	Financial leverage
2012	0,1650	0,7989	-0,0270	-7,6604
2013	0,2826	0,2407	-0,1045	-11,2283
Change	0,1176	-0,5582	-0,0776	-3,5679
Influence of partial elements		**-0,1153**	**0,1431**	**0,0898**

Source: Author's calculations

According the tables provided above the effects on ROE are quite single valued. In all observed years the level of taxation was effecting the indicator negatively and in significant values. The other components were negative or 0 only in years 2010 and 2011 so can be considered as not so influential. The major negative effect had the level of taxation on negative value of ROE. The decomposition was not able to calculate for last observed years 2013 – 20144 due to the missing data for interest paid by companies.

Last part of financial analysis is again dealing with INFA Spread values. According the table provided, the Spread INFA had reached the unprofitable values already in the 2008. There was however small recovery in years 2009 – 2010 which allowed to the companies to continue their businesses without getting into the liquidation. The situation however has worsen and in 2012 due to the impossibility of covered previously generated losses the companies got bankrupts during 2013 and 2014. The development of Spread INFA in sector comparison is described in Table 55 and the graphs are provided in the annex D.

Table 55 Development of INFA Spread in sector comparison for South Moravian bankrupt companies sample – median values [%]

INFA Spread	2007	2008	2009	2010	2011	2012	2013	2014
Companies' sample	-14,36	-29,19	-24,85	-30,38	-30,48	-	-	-
Sector average	2,96	1,29	5,79	-0,84	-3,24	-4,82	-6,31	-5,17
Unprofitable companies	-63,97	-30,18	-48,33	-46,22	-47,38	-43,03	-30,23	-41,13

Source: Ministry of Industry and Trade, edited by author

Cluster analysis

The last part is dedicated to cluster analysis. In case of bankrupt South Moravian companies sample, the companies were divided again into three clusters. According the analysis of variance as the main criteria for assigning the companies into the cluster were defined Sales, Turnover, Total assets and Shareholder's funds for year 2008. For year 2013 the major variables were Cost of employees, Stock and Cash and its equivalents. This different redistribution is given due to the small number of companies entering into the cluster analysis in year 2013. In this year 2013 there remained only 23 companies to be examined and to be redistributed into the clusters. The F statistics values are described in the Table 56.

The graphical illustration which follows the table is describing the means for each cluster. According these graphs for year 2008 the companies in third cluster are characterized by higher values of Turnover, Assets, Sales and Material costs. In case of year 2013 the cluster one contains companies with high level of Turnover, Assets, Sales, Current Liabilities and Cost of employees.

Table 56 F statistics for cluster analysis for bankrupt South Moravian companies sample

Variables	F statistics 2008	F statistics 2013
Turnover	153,85	25,04
Net Income	9,49	52,00
Total assets	59,11	10,97
Shareholder's funds	58,11	0,22
Number of employees	22,10	-
Sales	162,54	24,49
EBIT	3,67	35,67
Stock	7,21	445,78
Debtors	10,48	2,50
Cash & cash equivalent	16,42	69,19
Current assets	27,06	14,83
Current liabilities	28,26	17,16
Long term debt	10,33	0,60
Other current liabilities	6,11	0,43
Material costs	17,61	0,68
Costs of employees	25,46	609,32
Interest paid	19,19	0,86

Source: Statistica, edited by author

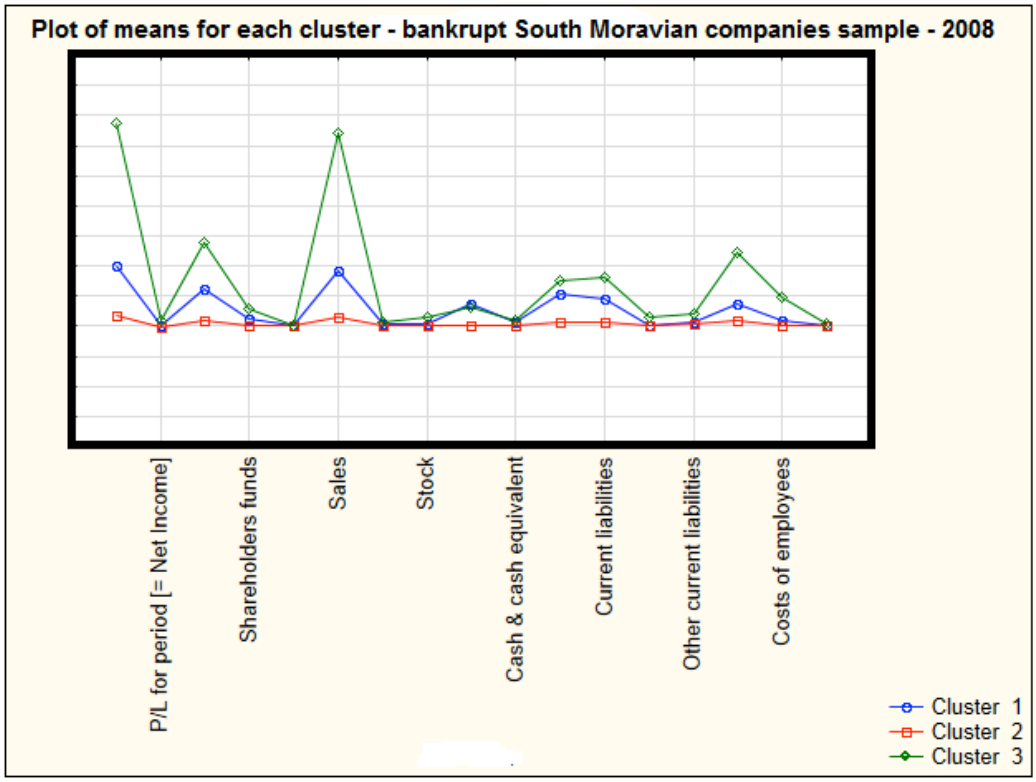

Figure 42 Plot of means for each cluster – bankrupt South Moravian companies sample – 2008
Source: Statistica, edited by author

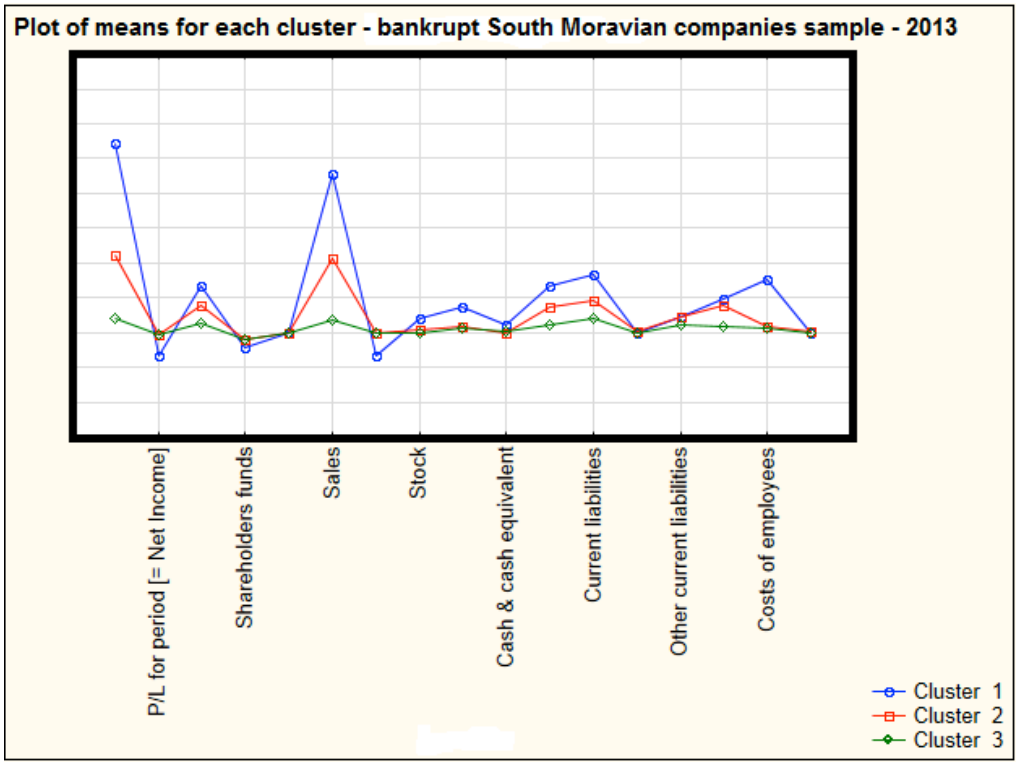

Figure 43 Plot of means for each cluster – bankrupt South Moravian companies sample – 2013
Source: Statistica, edited by author

6 Discussion

This diploma thesis was focusing on identification of main factors of competitiveness and sustainable economic performance by evaluating the construction industry and its performance during the economic crisis and based on which are answered settled research questions. Construction industry as one of the most important sectors of any national economy had experienced one of the worse decline in comparison with other branches during last five - six years however from 2014 there can be seen an improvement in the output of construction enterprises.

According the external environments' conditions which have been analysed by detailed PESTEL analysis can be pointed out the main characteristics influencing the construction sector. The political environment has shown what negative implications the actions of political representation have on the sector since the public spending represents half of the whole demand for construction works. The unsystematic, irresponsible and anticyclical government actions contributed to the deep decline of Czech construction industry during the economic crisis. Important role in the political sphere is playing the membership in the European Union thanks to which the construction sector is affected by large funds for public construction. With bidding conditions of membership in the EU is closely connected as well the environmental policy and view at sustainable development which have however slowing effect on the construction output.

The social factors of PESTEL analysis have revealed the issue of ageing of the population which is influencing the construction industry as well. The generation of post-world baby boom is reaching the age of retirement and together with nowadays increase in university educated students which are not willing to work in the construction sector, this industry is losing its workers. This fact could be compensated with nowadays situation of migration crisis where the incoming migrants are one of the possibilities how to substitute the manual work on construction site and so fill in the market gap.

Last part which should be mentioned regarding the analysis of influencing factors is the technological environment. The potential improvement of whole construction sector lays in the innovations of materials. The construction companies are now dealing much more with low energy houses or recycled materials. The orientation of construction companies on construction of so called passive houses, may be considered as one of the main factors of competitiveness.

According the second analysis of empirical part was characterized the financial and economic performance of companies in construction industry based on reports of Ministry of Industry and Trade and the performance of companies' samples which were observed. The output of observed branches within the construction industry was experiencing negative trend till the end of the year 2013 however years 2014 and 2015 have brought up a slight improvement. Mainly thanks to the investment activity of public sector and favourable weather conditions during the winters the construction output was able to grow. In the com-

parison of individual parts of construction sector, the best performance was recorded by civil engineering which provides construction mainly demanded by public authorities and is financed by public resources and EU subsidies. The building construction has experienced increase in output as well however not as evident as the civil engineering had. Important role was playing the mortgage market which contributed positively to the construction performance. The record low interest rate during the economic crisis became the incentive for high demand for housing loans.

The financial analysis of construction industry and its performance was described by the development of Economic Value Added (EVA) using the INFA approach. According the last available data EVA indicator is still dealing with negative values, however overall trend is regarded to be positive. Meanwhile at the beginning of 2013 the EVA indicator was more than -13 million CZK in mean values, at the end of 2014 the mean value has declined to -4 million CZK how was recorded by analysis of Ministry of Industry and Trade. Construction sector as whole was dealing with these negative values however the branch of civil engineering was able to come up with lightly positive values at the end of 2014. The indicator Return on Equity was able to keep the positive values from the second quarter of 2013 till the last available data of the first half of 2015.

According the financial analysis of companies' sample were identified main tendencies in observed categories. The companies' sample operating with active small and medium enterprises on the territory of the Czech Republic have confirmed the sector development according financial analysis of Ministry of Industry and Trade. The development of absolute indicators of observed group of companies has confirmed the decreasing tendency for all observed indicators between years 2008 and 2012 which was followed by slight recovery in 2013 and much more evident improvement in 2014. Based on calculated ratios of profitability the negative development of observed companies during the economic crisis was similar to the sector development. The values of ROE indicator were only in years 2009 and 2010 significantly below the sector average however not even during one year felt into negative values. According the decomposition of ROE indicator into its analytical components was found out that in the first three observed years the ROA estimation negatively influenced the profitability of equity, namely negative influence of -5%. The component level of taxation and financial leverage felt into the negative values in some years however their negative effect was prevailingly less then 1% so I considered them as not influencing factor.

According all the data provided was conducted by employing financial analysis of companies' sample of active Czech companies, the comparison of EVA/Spread INFA development. How was pointed out already, in average the EVA indicator in years 2013 and 2014 was improving even if was both years dealing with negative values. In case of observed companies using the median values, the improving trend was confirmed as well where the negative Spread INFA value has improved by 5 percentage points. However during all observed

years the values of Spread INFA were significantly behind the sector average. This difference I interconnect to the fact that from the 6100 companies observed the major part are companies from NACE 41 and 43 which according the Ministry of Industry and Trade are step behind the Civil engineering represented by NACE 42. (For the analysis were used 2625 companies dealing with Building construction, 3108 companies operating in the field of Specialized construction works and only 367 companies of Civil engineering.) Based on all provided analyses can be concluded that the observed companies' sample was performing similarly to the average however due to the fact that the proportion of Building construction companies and Specialized construction companies was really high, the final values of Spread INFA or EVA are worse than in case of all sector. According the decomposition of ROE indicator was find out that the main negative influencing factor was the ROA estimation which however was negatively affecting ROE only in the first three years of the economic crisis and so did not cause serious problems to the companies' samples' performance.

The second group of companies which was observed was the companies' sample of small and medium enterprises on the territory of Czech Republic which has bankrupt or got into the liquidation during the economic crisis. There were analysed in total 1023 companies. In the comparison with active companies this companies' sample have experienced large drop in absolute financial indicators already between years 2006 and 2007. This drop may be considered as the one of the main reasons why these companies were not able to economically sustain during the economic crisis. Based on this fact can be said that the initial situation of companies when the economic recession is coming is crucial. Another difference which should be pointed out is the amount of each absolute indicator. According the comparison, sample of bankrupt companies were dealing with double values of turnover than the active companies however their profits were by double lower as well. In case of assets the bankrupt companies' sample recorded slightly higher values of assets however the interesting indicator is equity. Amount of equity may be considered as another factor of competitiveness because the bankrupt companies sample was dealing with significantly lower values of equity. It is evident that the profits which the companies gain should not be used only for satisfy the shareholders however some part of these profits should be retained in the company in form of reserves for covering the risk of future losses.

According the profitability ratio analysis was seen worse performance than in case of active companies. The ROE indicator felt rapidly between years 2007 and 2008 by almost 20 percentage points and from 2011 the values dropped into the negative values. These negative values of ROE indicator were not recovered due to the fact that retained losses caused negative values even of equity. How have been already pointed out the insufficient amount of equity is the crucial item. That is the reason why the indicator ROE was identified within its negative values for years 2013 and 2014 where the negative profitability only deepened the losses from previous years. In comparison with sector average

values of ROE of the observed companies' sample were performing already from year 2008 below the sector values which from 2011 dropped into the negative values. According the ROE decomposition, the main negative effect had level of taxation which has influencing ROE all years negatively. Already in 2008 by -16%. From year 2011 all the components of ROE started to influence the indicator negatively.

The last step of financial analysis dealing with Spread INFA evaluation proved the unwelcoming development of companies' sample. The Spread INFA values in sector comparison shown that the values of observed companies' sample were similar to unprofitable companies. According the data provided from the database Amadeus about the observed companies the most of them have bankrupt in the year 2014 where bankrupt in total 662 companies. In year 2013 it was 181 companies and in 2015 93 companies. To conclude companies' sample was able to economically sustain the crisis till the time the values of equity remained positive. However, when the negative values of shareholder's fund dropped into the negative values, companies' sample was not able to cover the losses from previous years and that caused their bankrupt or liquidation. The composition of companies in the observed companies' sample is the same as for case of active Czech companies which means that the major part of observed companies were companies under NACE 41 and 43. There were only around 44 companies from 1023 which were operating in the field of civil engineering which is considered the most competitive branch of construction industry.

The financial analysis was conducted for South Moravian companies' sample as well. In case of active companies operating on the territory of South Moravia there were analysed 777 small and medium companies. In comparison with Czech sample there was observed better performance for South Moravian companies' sample. In case of absolute indicators South Moravian companies recorded higher proportion of turnover, assets and equity. Net income values have dropped deeper during the economic crisis however were as well able to recover faster. The values of profitability ratios during all observed years remained in the positive values. Again in comparison with examined sample of Czech active companies the recovery from 2011 in case of South Moravian companies' sample recorded better results. According the comparison of ROE with sector average can be identified, same as for Czech companies' sample, legging behind the average in years 2009 and 2010. However, from 2011 the recovering tendency has reached the values of sector average in 2014. Due to the decomposition of ROE indicator same as in case of Czech companies' sample there have been observed the negative effect of ROA estimation in first three years of economic decline. This effect was higher than in case of Czech companies. There was as well observed negative influence by level of taxation component or by financial leverage component, however same as in case of first observed companies' sample, these values had rarely exceed the values of 1%.

According all provided data there was elaborated the calculation of Spread INFA. Even if in the graphical illustration provided in annex C the values

of Spread INFA are reaching unprofitable area, still the companies' sample was able to improve its value from 2013 to 2014. Again this trend is influenced by the composition of companies in the sample. As well in this companies' sample same as in previous ones there is the major part of companies composed by companies dealing with Building construction or Specialized construction work. There were observed only 47 companies operating in the field of Civil engineering. These companies in average have as well reached much higher profit then companies of other two branches. (In case of Civil engineering the net income using mean values for year 2014 was around 2.5 million CZK, in case of Building construction only 0.7 million CZK and for Specialized construction only 0.4 million CZK. Even worse proportion was recorded during economic crisis. In case of turnover using mean values the Civil engineering reached three times higher values then other two construction branches.)

Last observed group of companies were companies which have bankrupt or got into the liquidation during economic crisis and were performing their businesses on the territory of South Moravia. There were analysed 126 companies in total which however were bankrupt during the observed years what could distorted a little the analysis or make impossible to calculate some data due to the missing information. In case of absolute indicators, the South Moravian sample in comparison with Czech one was performing well before the crisis. Companies were generating profit in year on year comparison in 2006 and 2007. There was however drop in 2008 and in mean values the net profit has decrease on the value of 8% of previous year result. Even if the year 2009 came up with small improvement, year 2010 came back with worsening of the situation. From year 2012 the companies' sample recorded negative values of profit and equity as well. In comparison with Czech bankrupt companies' sample, the South Moravian ones were able to keep their profits in mean values positive one year more than the Czech companies. Even if the companies had the values of equity on similar level as active ones they, nevertheless, lost more than half in the first year of the economic crisis which was only hardly able to be recovered.

According the calculated ratios of profitability, the declining trend of Return on Equity from 2008 reached negative values in 2012 due to the negative values of shareholder's funds which only deepen the losses from previous years. In the sector comparison was identified that till year 2010 – 2011 companies even if they were well below the sector average, they were still in similar position as observed active companies. The change came up in 2012 with the negative values of ROE and with it connected negative values of equity. According the decomposition of ROE indicator, the main negative effect had level of taxation during all observed years. Already in year 2008 the negative influence was recorded around -324%. The other components were mostly influencing the ROE positively.

It could be concluded with Spread INFA calculation that small and medium enterprises operating on the territory of South Moravia which have bankrupt during the crisis were not recovering the negative value of Spread INFA (so

neither of EVA INFA). The negative values were till 2011 still around -30% without any improving tendency and the year 2012 came up even with negative values of equity. Regarding the composition of observed companies, there were only 6 companies operating in the branch of civil engineering. The proportion of other two kinds of construction was almost equal. Most companies have bankrupt in 2014, where there bankrupt around three quarters of all observed companies. Another 21 companies bankrupt the year before.

To conclude, I am highlighting the main factors of competitiveness which were identified according the analysis of external environment and according the financial analysis which are at the same time answering the first research question settled in objectives of this diploma thesis. As the first competitive factor was identified the technological progress offering the possibility to build the low energy houses which is nowadays trend. As the second factor of competitiveness was described the initial financial health of a company when is entering into the economic recession. No company can expect the coming of economic recession however the continuous observation of financial health of the company is more than recommended. The last and most important factor of competitiveness is the performance of companies during the economic boom which is offering the possibility how to improve the sustainable economic performance of companies and by which is answered the second research question. Companies generating profits should not spend all the amount of profit on satisfying the shareholder's needs. Some parts of profits should be retained in the company to cover unpredictable future losses. The important fact here is the sustainable development. The business should be seen within the long term objectives' perspective and shareholders should invest into the company. During the recession there may be used the tools of cuts however firstly the company must be well prepared for any possible downturn.

7 Conclusion

The main objective of this diploma thesis was to reveal the main factors influencing the competitiveness and sustainable economic performance of small and medium size enterprises by evaluating the situation of the construction industry on the territory of the Czech Republic and in the South Moravian region. To fulfil the main objective had to be accomplished the partial goals and answered the research questions.

The first partial goal was the assessment of financial analysis for companies' sample. There were identified four main categories which were observed and for which was elaborated the financial analysis. The first two groups focused on active or bankrupt small and medium companies on the territory of the Czech Republic and the other two were covering active or bankrupt companies on the territory of the South Moravia region. For all companies' sample were observed the time trend in absolute indicators' values, were calculated the profitability ratios which were later introduced into the benchmarking diagnostic INFA system which offered the sector comparison with the companies' sample performance. Based on data provided from the INFA financial system was then measured the profitability by the aggregated indicator Return on Equity that was decomposed into its analytical components and where were identified the individual effects of each components on the ROE indicator. According the sector comparison were then calculated the values of INFA Spread which provides complex assessment of economic profit creation ability. All the results were compared among the individual groups and with the benchmark provided by Ministry of Industry and Trade.

In order to reveal further similarities within economic performance among observed sample of companies for each group of companies' sample was elaborated the cluster analysis to identify the main variables to categorized the individual companies into clusters.

The second partial goal was focusing on the evaluation of economic and financial analysis of construction industry based on records available from Ministry of Industry and Trade. Here was described the current situation of construction branch based on their economic and financial performance. The focus in the economic analysis was on the construction output, differences between individual branches of construction, employment, salaries and its productivity and to building permits and mortgage market. Regarding the employed financial INFA indicators there was in detailed observed the development of Economic Value Added and its analytical components.

The third partial goal was then dealing with the elaboration of detailed external environment analysis. Here were identified the main factors influencing the construction business in every day situation regarding political, economic, social, technological, legal and ecological environment. As the main areas connected with competitiveness were identified the responsible behaviour of government, EU funds and public spending, the current issues of ageing, migration

and employment and technological progress in innovations and ecologically friendly constructions.

The last partial goal was connected with elaboration of the theoretical background of given topic. This objective was accomplished based on available secondary data covering as well qualitative aspects connected with construction competitiveness. There were described parts focusing on the basis of entrepreneurships, construction management, elaboration of macro and micro environment analysis and financial analysis theory.

Based on accessible data - own calculations of companies' sample, the economic analysis and industry benchmarking INFA analysis of Ministry of Industry and Trade and the external environment conditions of construction industry - it was possible then to reveal the main factors influencing the competitiveness and sustainable economic performance as was settled as the main objective of this diploma thesis and by which were answered settled research questions. Among the main factors of competitiveness were identified among the non-financial factors the responsible behaviour of government supporting the construction industry by larger public spending, the usage of modern technologies for construction of the low energy buildings and the recruitment of low skilled foreign labour. Among the financial factors as the main factors of competitiveness were identified the financial situation of companies before the financial crisis, higher values of shareholder's funds in comparison with industry benchmark to prevent during the period of economic crisis their negative development of profitability and the continuous assessment of financial position of a business to be able to prevent the unfavourable development of financial performance indicators such as Return on Equity and to explicitly identify the key areas of profitability creation and its utilisation within the respective company. The second research question dealing with improvement of companies' performance was answered by conclusion that companies generating profits should not spend all the amount of profit on satisfying shareholders but that some parts of profits should be retained in the company to cover unpredictable future development.

Regarding the partial outcomes and presented results I consider the main objective of this diploma thesis to be fulfilled and the research questions to be answered.

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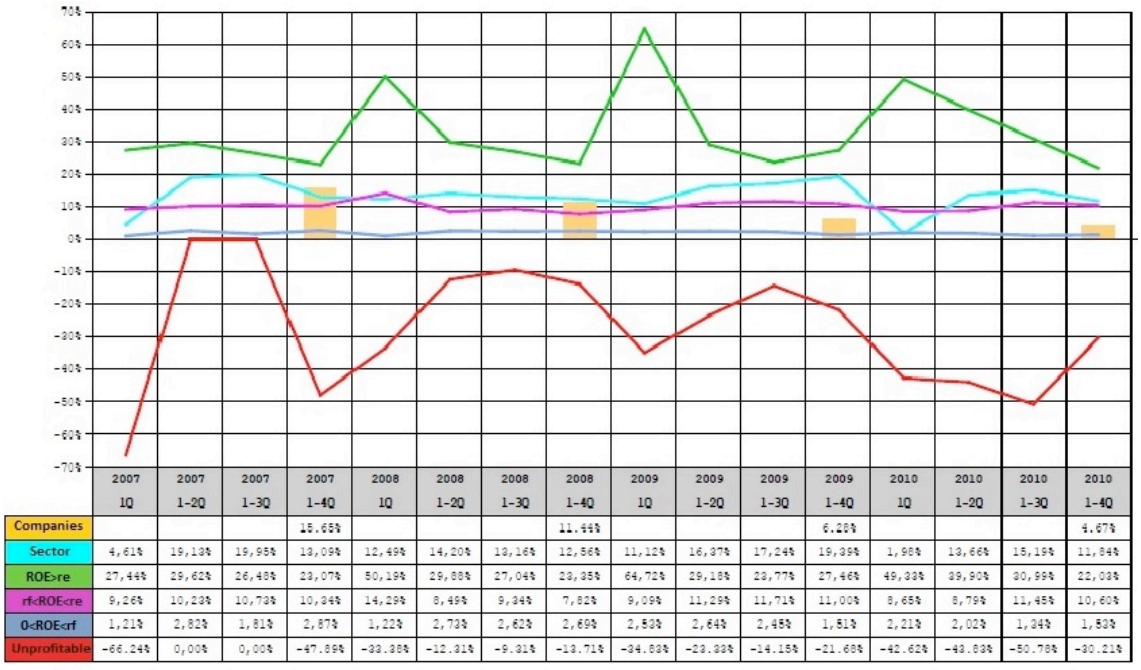
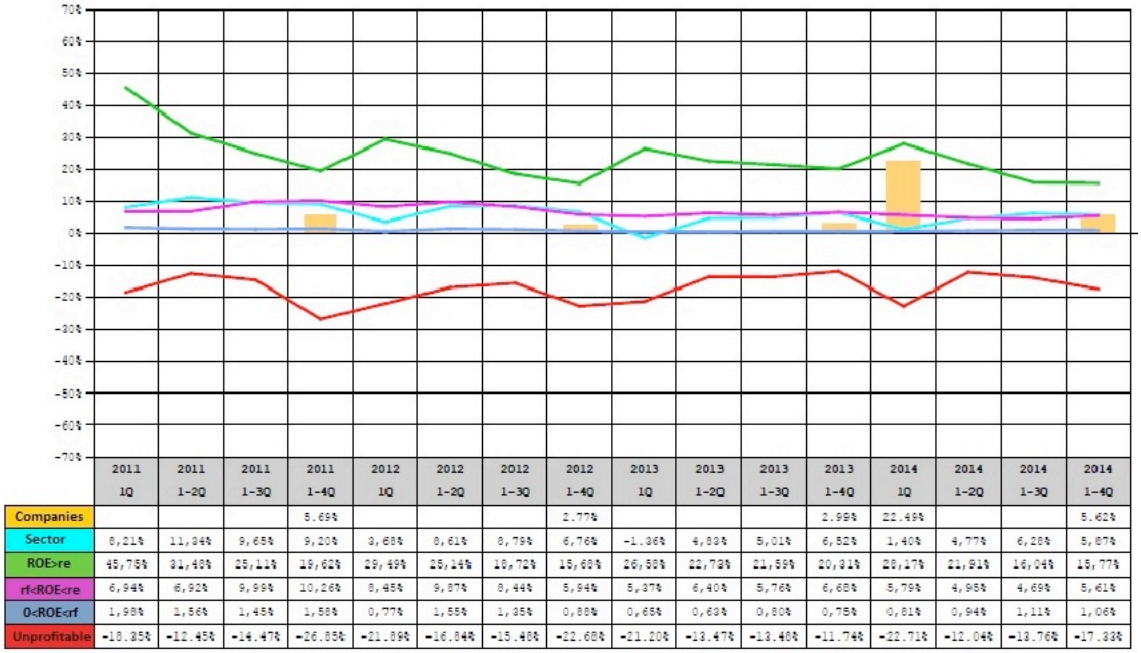
Annexes

A ROE and INFA Spread for active Czech companies' sample



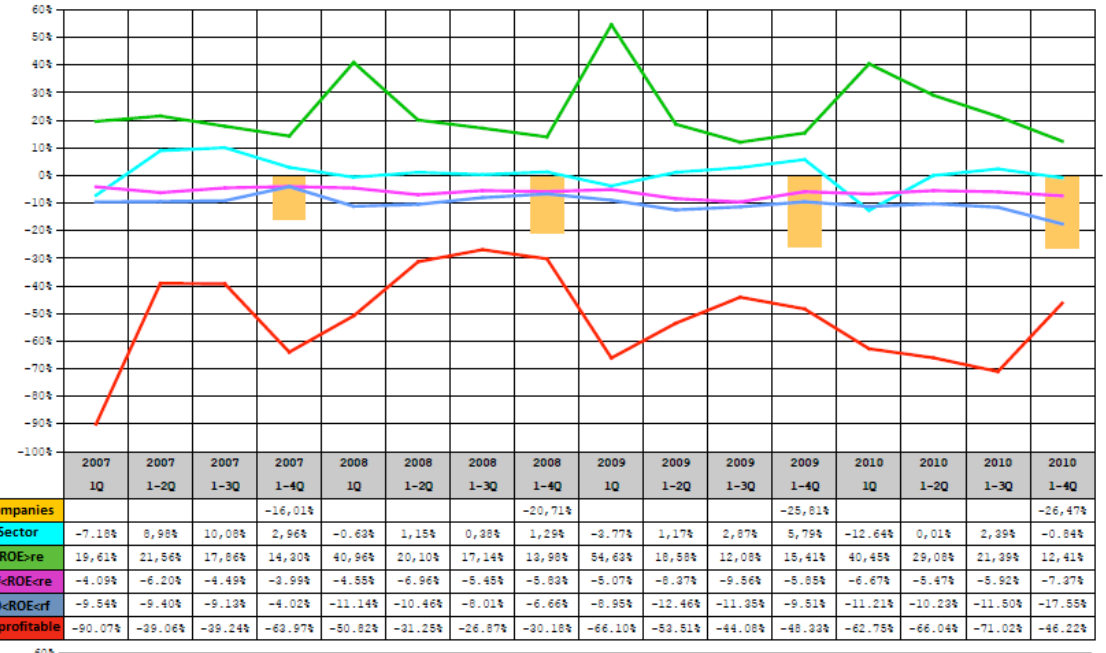
	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies				15,65%				11,44%				6,28%				4,67%
Sector	4,61%	19,13%	19,95%	13,09%	12,49%	14,20%	13,16%	12,56%	11,12%	16,37%	17,24%	19,39%	1,96%	13,66%	15,19%	11,84%
ROE>re	27,44%	29,62%	26,48%	23,07%	50,19%	29,88%	27,04%	23,35%	64,72%	29,18%	23,77%	27,46%	49,33%	39,90%	30,99%	22,03%
rf<ROE<re	9,26%	10,23%	10,73%	10,34%	14,29%	8,49%	9,34%	7,82%	9,09%	11,29%	11,71%	11,00%	8,65%	8,79%	11,45%	10,60%
0<ROE<rf	1,21%	2,82%	1,81%	2,87%	1,22%	2,73%	2,62%	2,69%	2,53%	2,64%	2,45%	1,51%	2,21%	2,02%	1,34%	1,53%
Unprofitable	-66,24%	0,00%	0,00%	-47,89%	-33,38%	-12,31%	-9,31%	-13,71%	-34,68%	-23,33%	-14,15%	-21,66%	-42,62%	-43,63%	-50,78%	-30,21%



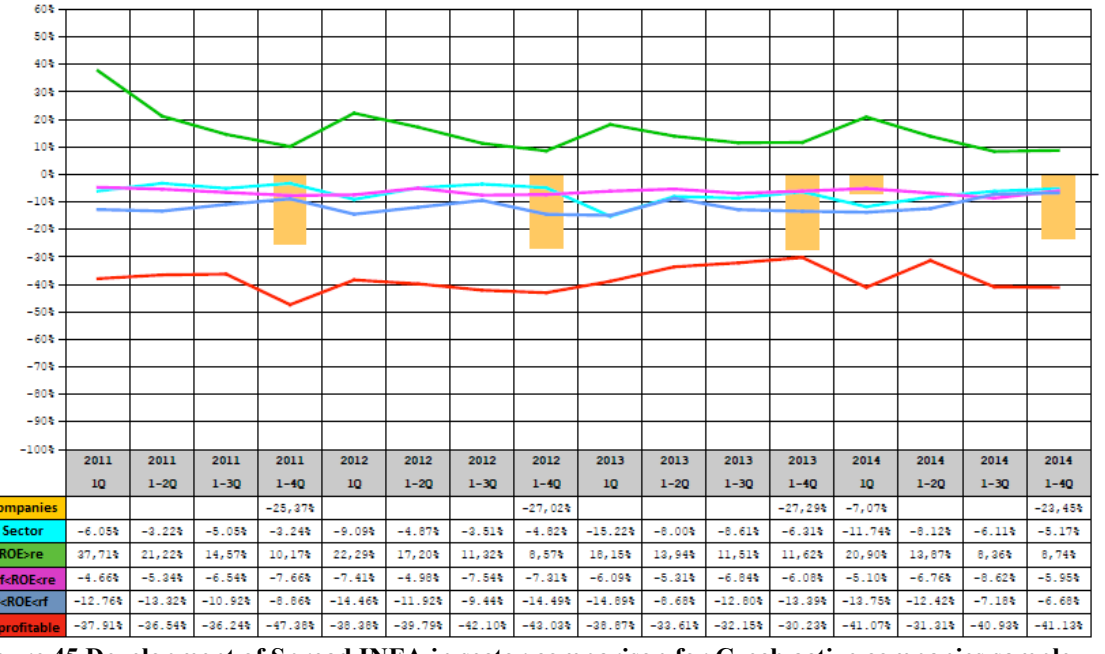
	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				5,69%				2,77%				2,99%	22,49%			5,62%
Sector	8,21%	11,84%	9,65%	9,20%	8,68%	8,61%	8,79%	6,76%	-1,36%	4,83%	5,01%	6,52%	1,40%	4,77%	6,28%	5,87%
ROE>re	45,75%	31,40%	25,11%	19,62%	29,49%	25,14%	18,72%	15,60%	26,58%	22,78%	21,59%	20,31%	28,17%	21,91%	16,04%	15,77%
rf<ROE<re	6,94%	6,92%	9,99%	10,26%	8,45%	9,87%	8,44%	5,94%	5,37%	6,40%	5,76%	6,65%	5,79%	4,95%	4,69%	5,61%
0<ROE<rf	1,98%	1,56%	1,45%	1,58%	0,77%	1,55%	1,35%	0,88%	0,65%	0,63%	0,80%	0,75%	0,81%	0,94%	1,11%	1,06%
Unprofitable	-18,35%	-12,45%	-14,47%	-26,85%	-21,89%	-16,84%	-15,46%	-22,68%	-21,20%	-13,47%	-13,48%	-11,74%	-22,71%	-12,04%	-13,76%	-17,33%

Figure 44 Development of ROE in sector comparison for Czech active companies sample – median values

Source: Ministry of Industry and Trade, edited by author



	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies				-16,01%				-20,71%				-25,81%				-26,47%
Sector	-7,18%	8,98%	10,08%	2,96%	-0,63%	1,15%	0,38%	1,29%	-3,77%	1,17%	2,87%	5,79%	-12,64%	0,01%	2,39%	-0,84%
ROE>re	19,61%	21,56%	17,86%	14,30%	40,96%	20,10%	17,14%	13,98%	54,63%	18,58%	12,08%	15,41%	40,45%	29,08%	21,39%	12,41%
rf<ROE<re	-4,09%	-6,20%	-4,49%	-3,99%	-4,55%	-6,96%	-5,45%	-5,83%	-5,07%	-8,37%	-9,56%	-5,85%	-6,67%	-5,47%	-5,92%	-7,37%
0<ROE<rf	-9,54%	-9,40%	-9,13%	-4,02%	-11,14%	-10,46%	-8,01%	-6,66%	-8,95%	-12,46%	-11,35%	-9,51%	-11,21%	-10,23%	-11,50%	-17,55%
Unprofitable	-90,07%	-39,06%	-39,24%	-63,97%	-50,82%	-31,25%	-26,87%	-30,18%	-66,10%	-53,51%	-44,08%	-48,33%	-62,75%	-66,04%	-71,02%	-46,22%

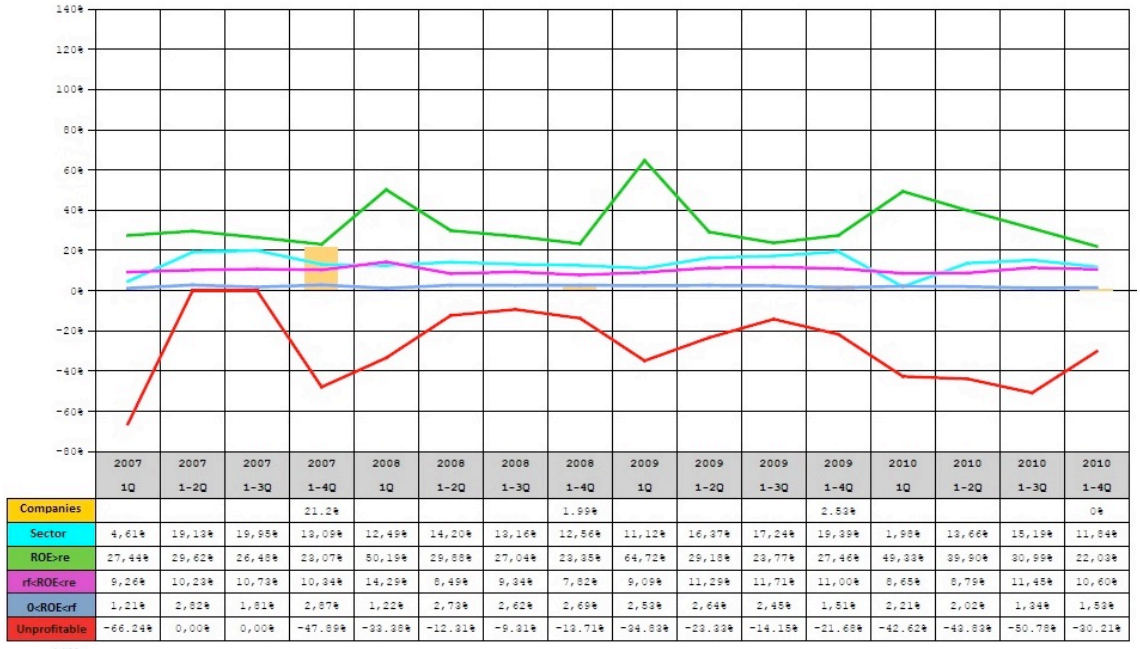


	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				-25,37%				-27,02%				-27,29%	-7,07%			-23,45%
Sector	-6,05%	-3,22%	-5,05%	-3,24%	-9,09%	-4,87%	-3,51%	-4,82%	-15,22%	-8,00%	-8,61%	-6,31%	-11,74%	-8,12%	-6,11%	-5,17%
ROE>re	37,71%	21,22%	14,57%	10,17%	22,29%	17,20%	11,32%	8,57%	18,15%	13,94%	11,51%	11,62%	20,90%	13,87%	8,36%	8,74%
rf<ROE<re	-4,66%	-5,34%	-6,54%	-7,66%	-7,41%	-4,98%	-7,54%	-7,31%	-6,09%	-5,31%	-6,84%	-6,08%	-5,10%	-6,76%	-8,62%	-5,95%
0<ROE<rf	-12,76%	-13,32%	-10,92%	-8,86%	-14,46%	-11,92%	-9,44%	-14,49%	-14,89%	-8,68%	-12,80%	-13,39%	-13,75%	-12,42%	-7,18%	-6,68%
Unprofitable	-37,91%	-36,54%	-36,24%	-47,38%	-38,38%	-39,79%	-42,10%	-43,03%	-38,87%	-33,61%	-32,15%	-30,23%	-41,07%	-31,31%	-40,93%	-41,13%

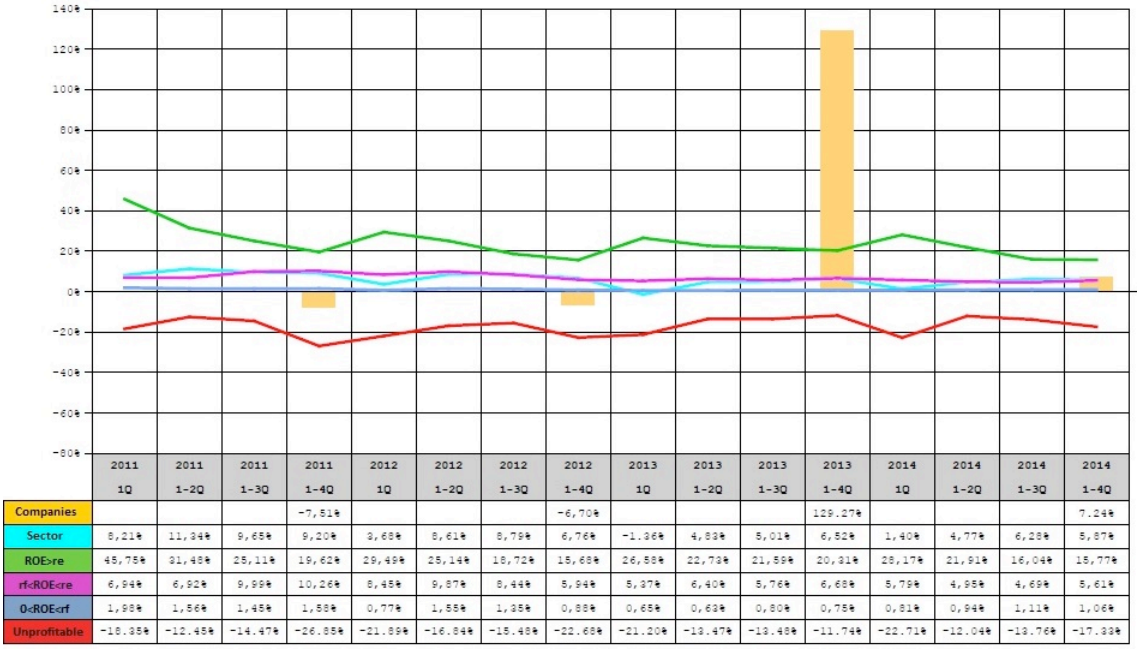
Figure 45 Development of Spread INFA in sector comparison for Czech active companies sample – median values

Source: Ministry of Industry and Trade, edited by author

B ROE and INFA Spread for bankrupt Czech companies' sample



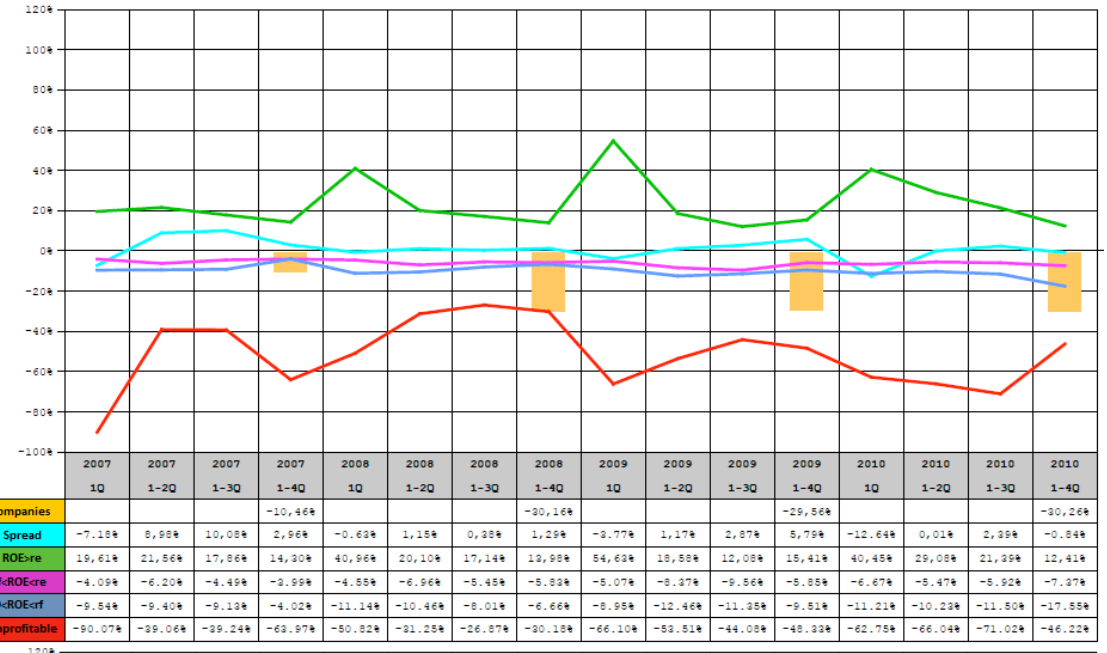
	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies				21.2%				1.99%				2.53%				0%
Sector	4,61%	19,13%	19,95%	13,09%	12,49%	14,20%	13,16%	12,56%	11,12%	16,87%	17,24%	19,39%	1,98%	13,66%	15,19%	11,84%
ROE>re	27,44%	29,62%	26,48%	23,07%	50,19%	29,88%	27,04%	23,35%	64,72%	29,18%	23,77%	27,46%	49,33%	39,90%	30,99%	22,03%
rf<ROE<re	9,26%	10,23%	10,73%	10,34%	14,29%	8,49%	9,34%	7,82%	9,09%	11,29%	11,71%	11,00%	8,65%	8,79%	11,45%	10,60%
0<ROE<rf	1,21%	2,82%	1,81%	2,87%	1,22%	2,73%	2,62%	2,69%	2,53%	2,64%	2,45%	1,51%	2,21%	2,02%	1,34%	1,53%
Unprofitable	-66.24%	0,00%	0,00%	-47.89%	-33.38%	-12.31%	-9.31%	-13.71%	-34.83%	-23.33%	-14.15%	-21.68%	-42.62%	-43.83%	-50.78%	-30.21%



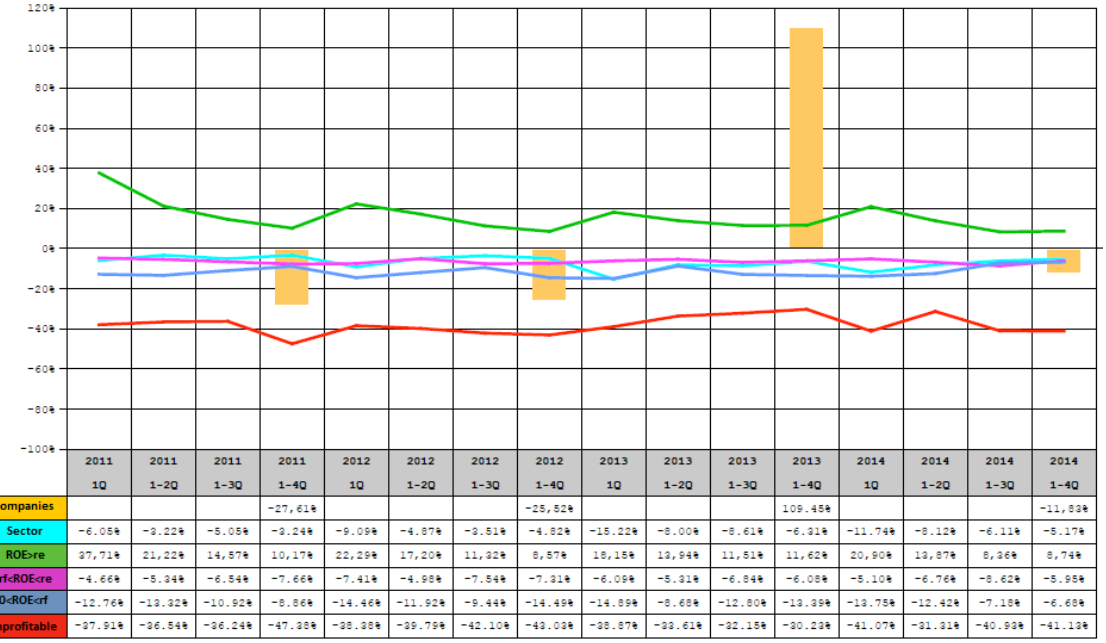
	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				-7,51%				-6,70%				129.27%				7.24%
Sector	8,21%	11,34%	9,65%	9,20%	9,68%	8,61%	8,79%	6,76%	-1.36%	4,83%	5,01%	6,52%	1,40%	4,77%	6,28%	5,87%
ROE>re	45,75%	31,48%	25,11%	19,62%	29,49%	25,14%	18,72%	15,68%	26,58%	22,73%	21,59%	20,31%	28,17%	21,91%	16,04%	15,77%
rf<ROE<re	6,94%	6,92%	9,99%	10,26%	8,45%	9,87%	8,44%	5,94%	5,37%	6,40%	5,76%	6,68%	5,79%	4,95%	4,69%	5,61%
0<ROE<rf	1,98%	1,56%	1,45%	1,58%	0,77%	1,55%	1,25%	0,88%	0,65%	0,63%	0,80%	0,75%	0,81%	0,94%	1,11%	1,06%
Unprofitable	-18.35%	-12.45%	-14.47%	-26.85%	-21.89%	-16.84%	-15.48%	-22.68%	-21.20%	-13.47%	-13.48%	-11.74%	-22.71%	-12.04%	-13.76%	-17.33%

Figure 46 Development of ROE in sector comparison for Czech bankrupt companies sample – median values

Source: Ministry of Industry and Trade, edited by author



	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies				-10,46%				-30,16%				-29,56%				-30,26%
Spread	-7,18%	8,98%	10,08%	2,96%	-0,63%	1,15%	0,38%	1,29%	-3,77%	1,17%	2,87%	5,79%	-12,64%	0,01%	2,39%	-0,84%
ROE>re	19,61%	21,56%	17,86%	14,30%	40,96%	20,10%	17,14%	13,98%	54,63%	18,58%	12,08%	15,41%	40,45%	29,08%	21,39%	12,41%
rf<ROE<re	-4,09%	-6,20%	-4,49%	-3,99%	-4,55%	-6,96%	-5,45%	-5,83%	-5,07%	-8,37%	-9,56%	-5,85%	-6,67%	-5,47%	-5,92%	-7,37%
0<ROE<rf	-9,54%	-9,40%	-9,13%	-4,02%	-11,14%	-10,46%	-8,01%	-6,66%	-8,95%	-12,46%	-11,35%	-9,51%	-11,21%	-10,23%	-11,50%	-17,55%
Unprofitable	-90,07%	-89,06%	-89,24%	-63,97%	-50,82%	-31,25%	-26,87%	-30,18%	-66,10%	-53,51%	-44,08%	-48,33%	-62,75%	-66,04%	-71,02%	-46,22%

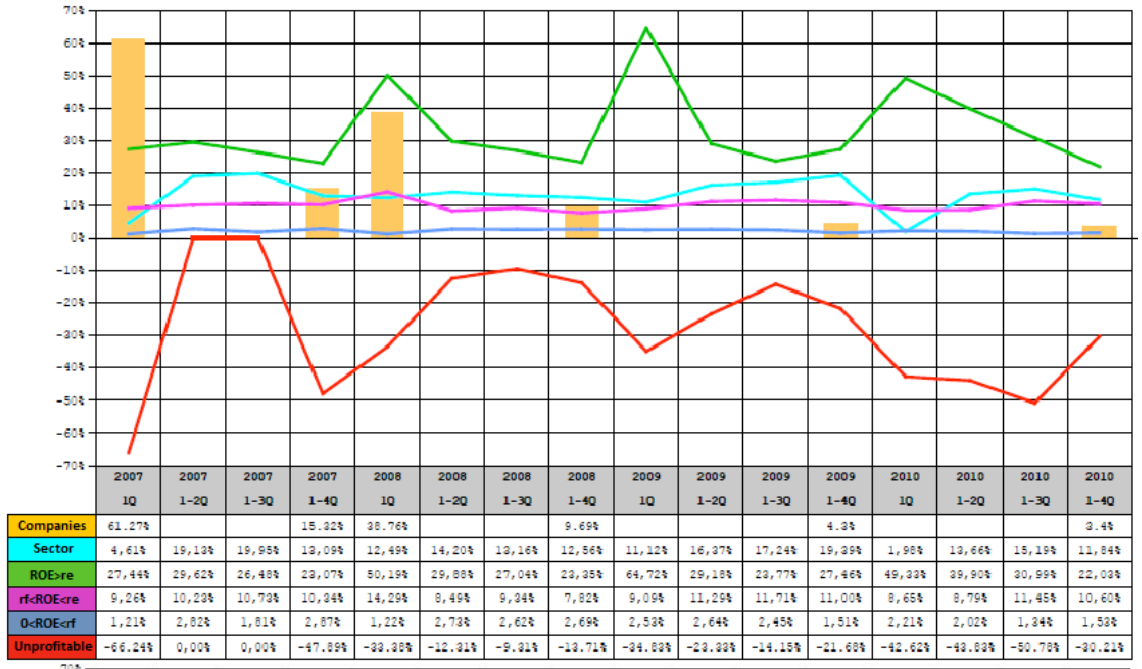


	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				-27,61%				-25,52%				109,45%				-11,83%
Sector	-6,05%	-3,22%	-5,05%	-3,24%	-9,09%	-4,87%	-3,51%	-4,82%	-15,22%	-8,00%	-8,61%	-6,31%	-11,74%	-8,12%	-6,11%	-5,17%
ROE>re	37,71%	21,22%	14,57%	10,17%	22,29%	17,20%	11,32%	8,57%	18,15%	13,94%	11,51%	11,62%	20,90%	13,87%	8,36%	8,74%
rf<ROE<re	-4,66%	-5,34%	-6,54%	-7,66%	-7,41%	-4,98%	-7,54%	-7,31%	-6,09%	-5,31%	-6,84%	-6,08%	-5,10%	-6,76%	-8,62%	-5,95%
0<ROE<rf	-12,76%	-13,32%	-10,92%	-8,86%	-14,46%	-11,92%	-9,44%	-14,49%	-14,89%	-8,68%	-12,80%	-13,39%	-13,75%	-12,42%	-7,18%	-6,68%
Unprofitable	-37,91%	-36,54%	-36,24%	-47,38%	-38,38%	-39,79%	-42,10%	-43,03%	-38,87%	-33,61%	-32,15%	-30,23%	-41,07%	-31,31%	-40,93%	-41,13%

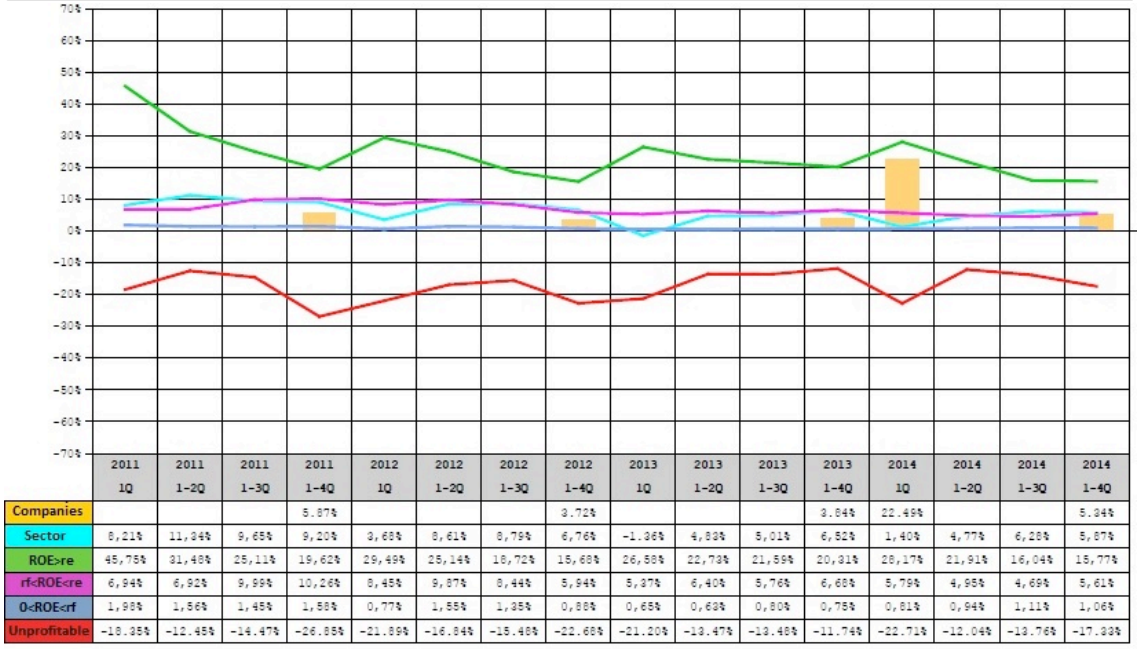
Figure 47 Development of Spread INFA in sector comparison for Czech bankrupt companies sample – median values

Source: Ministry of Industry and Trade, edited by author

C ROE and INFA Spread for South Moravian active companies' sample



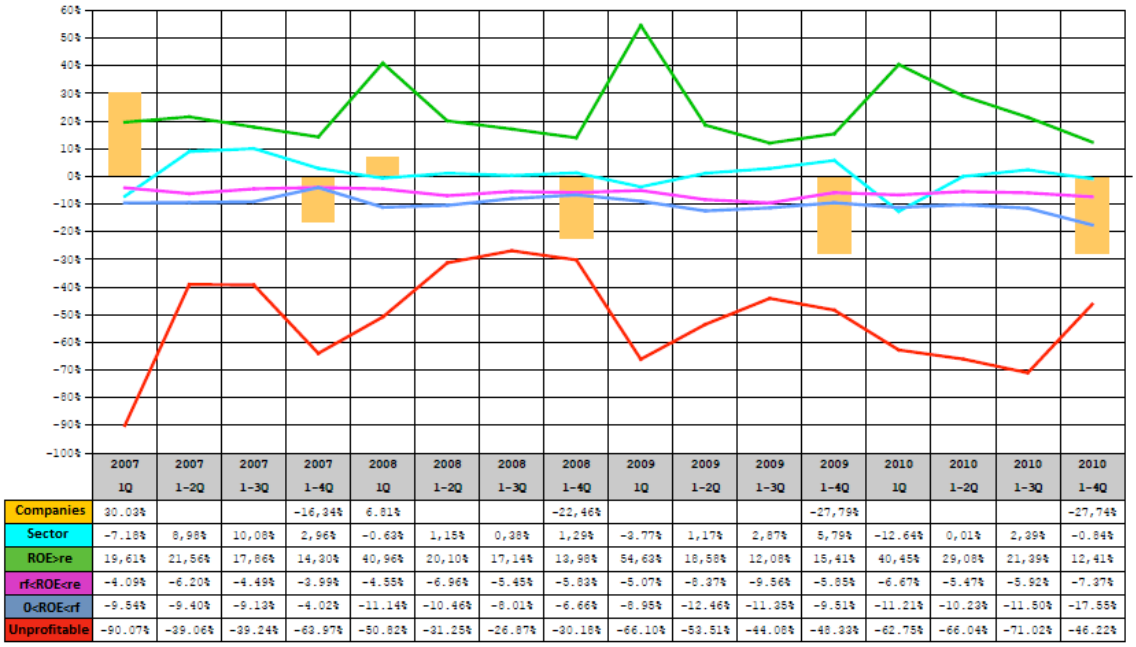
	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies	61.27%			15.32%	38.76%			9.69%				4.3%				3.4%
Sector	4,61%	19,13%	19,95%	19,09%	12,49%	14,20%	13,16%	12,56%	11,12%	16,37%	17,24%	19,39%	1,98%	13,66%	15,19%	11,84%
ROE>re	27,44%	29,62%	26,48%	23,07%	50,19%	29,88%	27,04%	23,35%	64,72%	29,18%	23,77%	27,46%	49,33%	39,90%	30,99%	22,03%
rf<ROE<re	9,26%	10,23%	10,73%	10,34%	14,29%	8,49%	9,34%	7,82%	9,09%	11,29%	11,71%	11,00%	8,65%	8,79%	11,45%	10,60%
0<ROE<rf	1,21%	2,82%	1,81%	2,87%	1,22%	2,73%	2,62%	2,69%	2,53%	2,64%	2,45%	1,51%	2,21%	2,02%	1,34%	1,53%
Unprofitable	-66.24%	0,00%	0,00%	-47.89%	-33.36%	-12.31%	-9.31%	-13.71%	-34.88%	-23.33%	-14.15%	-21.68%	-42.62%	-43.88%	-50.78%	-30.21%



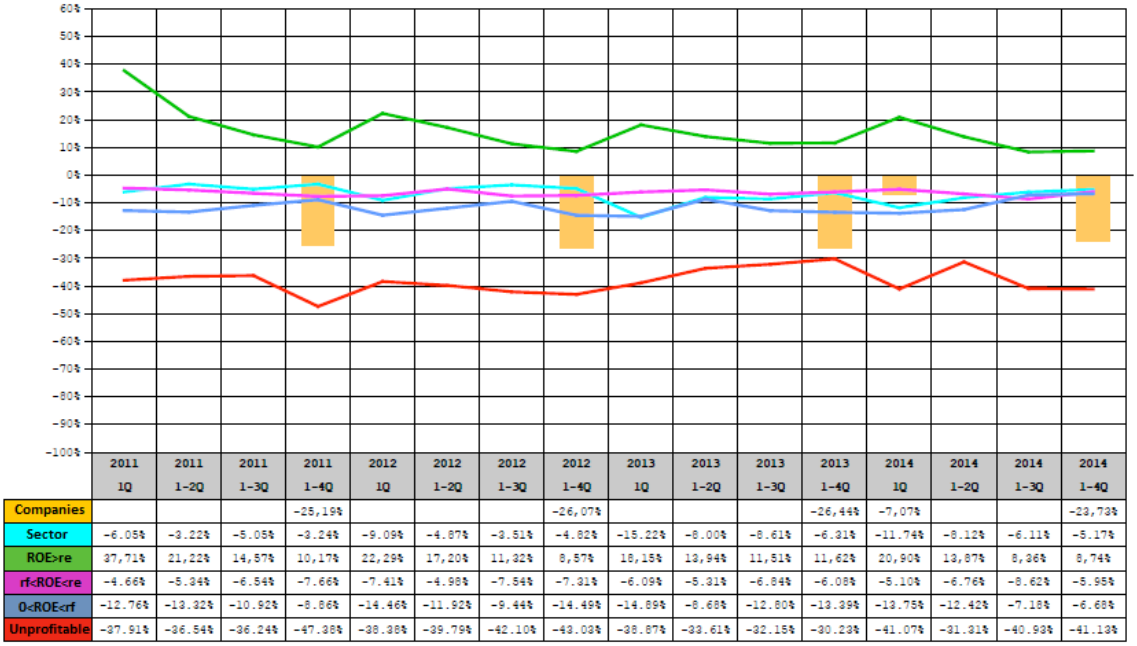
	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				5.87%				3.72%				3.84%	22.49%			5.34%
Sector	8,21%	11,34%	9,65%	9,20%	3,68%	8,61%	8,79%	6,76%	-1,36%	4,88%	5,01%	6,82%	1,40%	4,77%	6,28%	5,87%
ROE>re	45,75%	31,48%	25,11%	19,62%	29,49%	25,14%	18,72%	15,68%	26,58%	22,73%	21,59%	20,31%	28,17%	21,91%	16,04%	15,77%
rf<ROE<re	6,94%	6,92%	9,99%	10,26%	8,45%	9,87%	8,44%	5,94%	5,37%	6,40%	5,76%	6,68%	5,79%	4,95%	4,69%	5,61%
0<ROE<rf	1,98%	1,56%	1,45%	1,58%	0,77%	1,55%	1,35%	0,88%	0,65%	0,63%	0,80%	0,75%	0,81%	0,94%	1,11%	1,06%
Unprofitable	-18.35%	-12.45%	-14.47%	-26.85%	-21.89%	-16.84%	-15.48%	-22.68%	-21.20%	-13.47%	-13.48%	-11.74%	-22.71%	-12.04%	-13.76%	-17.33%

Figure 48 Development of ROE in sector comparison for active South Moravian companies sample – median values

Source: Ministry of Industry and Trade, edited by author



	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies	30.03%			-16,34%	6.81%			-22,46%				-27,79%				-27,74%
Sector	-7.18%	8,98%	10,08%	2,96%	-0.63%	1,15%	0,38%	1,29%	-3.77%	1,17%	2,87%	5,79%	-12.64%	0,01%	2,39%	-0.84%
ROE>re	19,61%	21,56%	17,86%	14,30%	40,96%	20,10%	17,14%	13,98%	54,63%	18,58%	12,08%	15,41%	40,45%	29,08%	21,39%	12,41%
rf<ROE<re	-4.09%	-6.20%	-4.49%	-3.99%	-4.55%	-6.96%	-5.45%	-5.83%	-5.07%	-8.37%	-9.56%	-5.85%	-6.67%	-5.47%	-5.92%	-7.37%
0<ROE<rf	-9.54%	-9.40%	-9.13%	-4.02%	-11.14%	-10.46%	-8.01%	-6.66%	-8.95%	-12.46%	-11.35%	-9.51%	-11.21%	-10.23%	-11.50%	-17.55%
Unprofitable	-90.07%	-39.06%	-39.24%	-63.97%	-50.82%	-31.25%	-26.87%	-30.18%	-66.10%	-53.51%	-44.08%	-48.33%	-62.75%	-66.04%	-71.02%	-46.22%

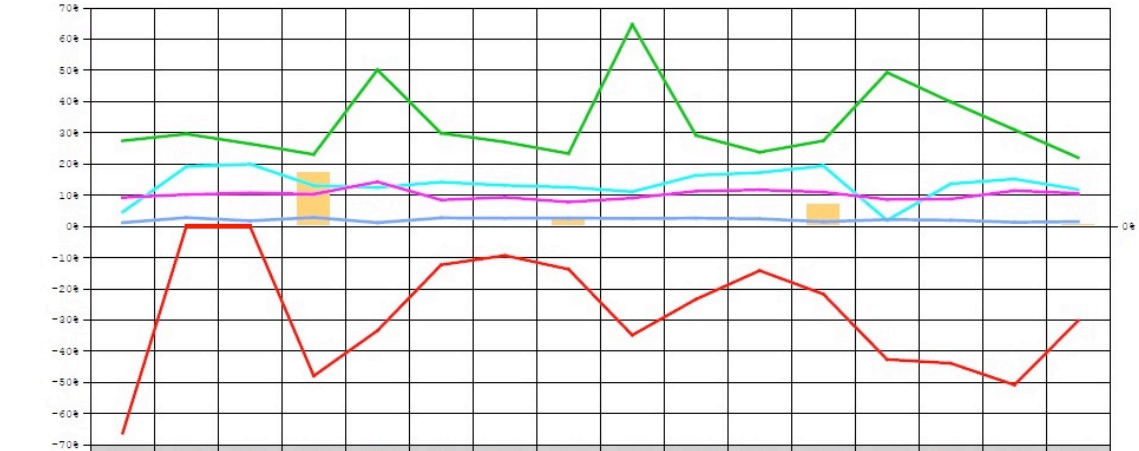


	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				-25,19%				-26,07%				-26,44%	-7,07%			-23,73%
Sector	-6.05%	-3.22%	-5.05%	-3.24%	-9.09%	-4.87%	-3.51%	-4.82%	-15.22%	-8.00%	-8.61%	-6.31%	-11.74%	-8.12%	-6.11%	-5.17%
ROE>re	37,71%	21,22%	14,87%	10,17%	22,29%	17,20%	11,32%	8,57%	18,15%	13,94%	11,51%	11,62%	20,90%	13,87%	8,36%	8,74%
rf<ROE<re	-4.66%	-5.34%	-6.54%	-7.66%	-7.41%	-4.98%	-7.54%	-7.31%	-6.09%	-5.31%	-6.84%	-6.08%	-5.10%	-6.76%	-8.62%	-5.95%
0<ROE<rf	-12.76%	-13.32%	-10.92%	-8.86%	-14.46%	-11.92%	-9.44%	-14.49%	-14.89%	-8.68%	-12.80%	-13.39%	-13.75%	-12.42%	-7.18%	-6.68%
Unprofitable	-37.91%	-36.54%	-36.24%	-47.38%	-38.38%	-39.79%	-42.10%	-43.03%	-38.87%	-33.61%	-32.15%	-30.23%	-41.07%	-31.31%	-40.93%	-41.13%

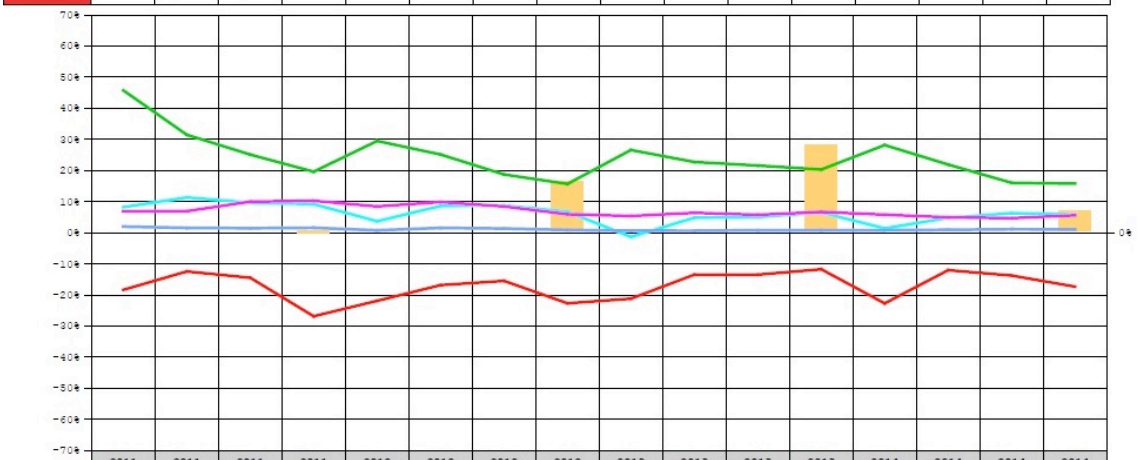
Figure 49 Development of Spread INFA in sector comparison for active South Moravian companies sample – median values

Source: Ministry of Industry and Trade, edited by author

D ROE and INFA Spread for South Moravian bankrupt companies' sample



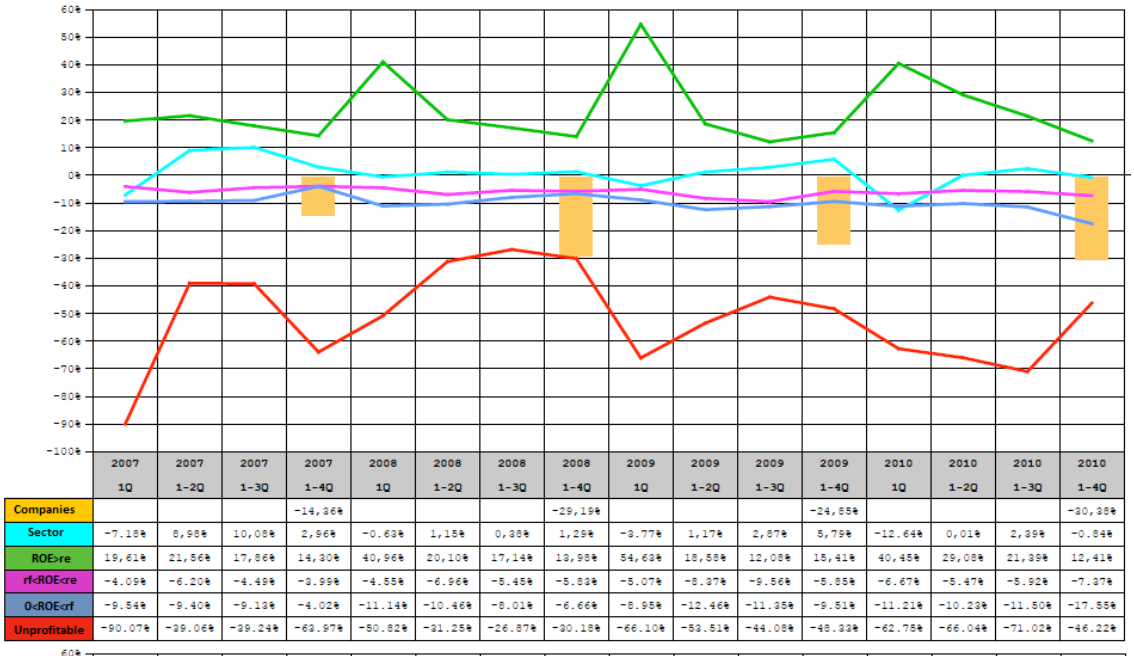
	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies				17.3%				2.96%				7.24%				0.76%
Sector	4,61%	19,13%	19,95%	13,09%	12,49%	14,20%	13,16%	12,56%	11,12%	16,37%	17,24%	19,39%	1,98%	13,66%	15,19%	11,84%
ROE>re	27,44%	29,62%	26,48%	23,07%	50,19%	29,88%	27,04%	23,35%	64,72%	29,18%	23,77%	27,46%	49,33%	39,90%	30,99%	22,03%
rf<ROE<re	9,26%	10,23%	10,73%	10,34%	14,29%	8,49%	9,34%	7,82%	9,09%	11,29%	11,71%	11,00%	8,65%	8,79%	11,45%	10,60%
0<ROE<rf	1,21%	2,82%	1,81%	2,87%	1,22%	2,73%	2,62%	2,69%	2,53%	2,64%	2,45%	1,51%	2,21%	2,02%	1,34%	1,53%
Unprofitable	-66.24%	0,00%	0,00%	-47.89%	-33.38%	-12.31%	-9.31%	-13.71%	-34.83%	-23.33%	-14.15%	-21.68%	-42.62%	-43.83%	-50.78%	-30.21%



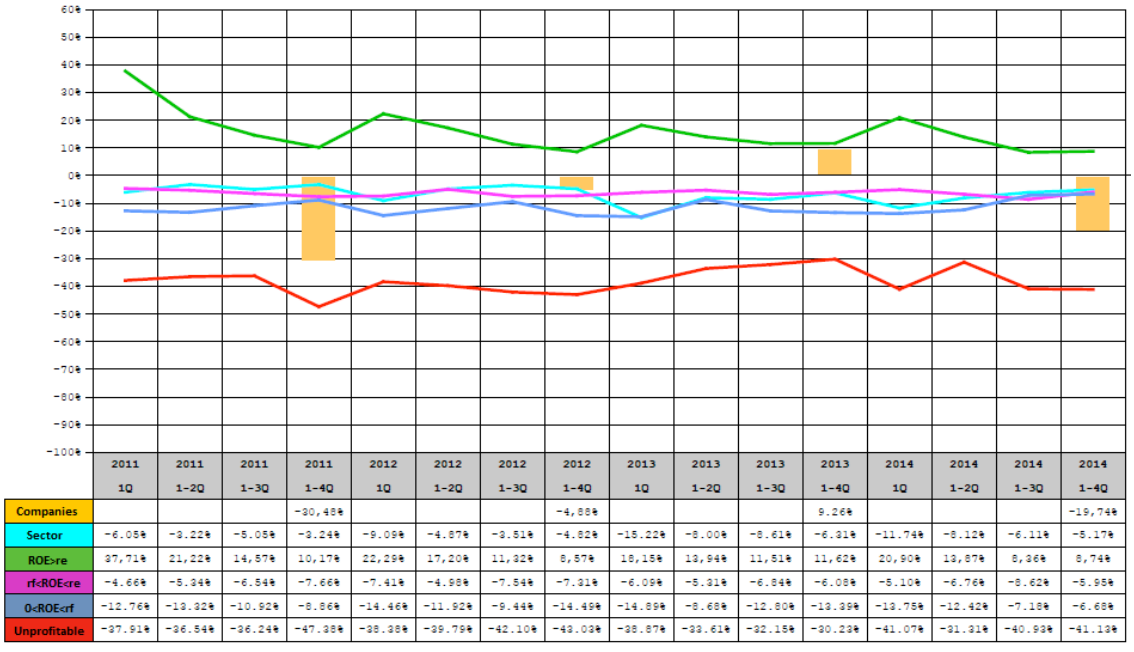
	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				0%				16.5%				28.26%				7.02%
Sector	8,21%	11,34%	9,65%	9,20%	8,68%	8,61%	8,79%	6,76%	-1.36%	4,83%	5,01%	6,52%	1,40%	4,77%	6,28%	5,87%
ROE>re	45,75%	31,48%	25,11%	19,62%	29,49%	25,14%	18,72%	15,68%	26,58%	22,73%	21,59%	20,31%	28,17%	21,91%	16,04%	15,77%
rf<ROE<re	6,94%	6,92%	9,99%	10,26%	8,45%	9,87%	8,44%	5,94%	5,37%	6,40%	5,76%	6,68%	5,79%	4,95%	4,69%	5,61%
0<ROE<rf	1,98%	1,56%	1,45%	1,58%	0,77%	1,55%	1,35%	0,88%	0,65%	0,63%	0,80%	0,75%	0,81%	0,94%	1,11%	1,06%
Unprofitable	-18.35%	-12.45%	-14.47%	-26.35%	-21.89%	-16.84%	-15.48%	-22.63%	-21.20%	-13.47%	-13.48%	-11.74%	-22.71%	-12.04%	-13.76%	-17.33%

Figure 50 Development of ROE in sector comparison for bankrupt South Moravian companies sample – median values

Source: Ministry of Industry and Trade, edited by author



	2007 1Q	2007 1-2Q	2007 1-3Q	2007 1-4Q	2008 1Q	2008 1-2Q	2008 1-3Q	2008 1-4Q	2009 1Q	2009 1-2Q	2009 1-3Q	2009 1-4Q	2010 1Q	2010 1-2Q	2010 1-3Q	2010 1-4Q
Companies				-14,36%				-29,19%				-24,85%				-30,38%
Sector	-7,18%	8,98%	10,08%	2,96%	-0,63%	1,15%	0,38%	1,29%	-3,77%	1,17%	2,87%	5,79%	-12,64%	0,01%	2,39%	-0,84%
ROE>re	19,61%	21,56%	17,86%	14,30%	40,96%	20,10%	17,14%	13,98%	54,63%	18,58%	12,08%	15,41%	40,45%	29,08%	21,39%	12,41%
rf<ROE<re	-4,09%	-6,20%	-4,49%	-3,99%	-4,55%	-6,96%	-5,45%	-5,83%	-5,07%	-8,37%	-9,56%	-5,85%	-6,67%	-5,47%	-5,92%	-7,37%
0<ROE<rf	-9,54%	-9,40%	-9,13%	-4,02%	-11,14%	-10,46%	-8,01%	-6,66%	-8,95%	-12,46%	-11,35%	-9,51%	-11,21%	-10,23%	-11,50%	-17,55%
Unprofitable	-90,07%	-39,06%	-39,24%	-63,97%	-50,82%	-31,25%	-26,87%	-30,18%	-66,10%	-53,51%	-44,08%	-48,33%	-62,75%	-66,04%	-71,02%	-46,22%



	2011 1Q	2011 1-2Q	2011 1-3Q	2011 1-4Q	2012 1Q	2012 1-2Q	2012 1-3Q	2012 1-4Q	2013 1Q	2013 1-2Q	2013 1-3Q	2013 1-4Q	2014 1Q	2014 1-2Q	2014 1-3Q	2014 1-4Q
Companies				-30,48%				-4,88%				9,26%				-19,74%
Sector	-6,05%	-3,22%	-5,05%	-3,24%	-9,09%	-4,87%	-3,51%	-4,82%	-15,22%	-8,00%	-8,61%	-6,31%	-11,74%	-8,12%	-6,11%	-5,17%
ROE>re	37,71%	21,22%	14,57%	10,17%	22,29%	17,20%	11,32%	8,57%	18,15%	13,94%	11,51%	11,62%	20,90%	13,87%	8,36%	8,74%
rf<ROE<re	-4,66%	-5,34%	-6,54%	-7,66%	-7,41%	-4,98%	-7,54%	-7,31%	-6,09%	-5,31%	-6,84%	-6,08%	-5,10%	-6,76%	-8,62%	-5,95%
0<ROE<rf	-12,76%	-13,32%	-10,92%	-8,86%	-14,46%	-11,92%	-9,44%	-14,49%	-14,89%	-8,68%	-12,80%	-13,39%	-13,75%	-12,42%	-7,18%	-6,68%
Unprofitable	-37,91%	-36,54%	-36,24%	-47,38%	-38,38%	-39,79%	-42,10%	-43,03%	-38,87%	-33,61%	-32,15%	-30,23%	-41,07%	-31,31%	-40,93%	-41,13%

Figure 51 Development of Spread INFA in sector comparison for bankrupt South Moravian companies sample – median values
Source: Ministry of Industry and Trade, edited by author