Mendel University in Brno
Faculty of Regional Development and International Studies

Impact of Company Research on Cash Flow and Stability of Enterprises

Diploma Thesis

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Abstract
Maršálková, H. M. Impact of Company Research on Cash Flow and Stability of Enterprises. Diploma thesis. Brno: Mendel University, 2014.

One of the best ways to improve innovation potential of companies and whole economy is to search, develop and implement new ideas and technologies into products and services. This can be realized through the licence of patented intellectual property, or through the realization of own research. The aim of the thesis was to assess the impact of the implementation of corporate research and utilization of project subsidies on the stability and CF of the companies, for which an analysis of granted funds for the support of research was performed and the financial situation of companies was assessed through financial analysis. In this thesis three companies different in the size were compared and realized comparative study showed that the effectiveness of own research projects is the best for the small-sized company (with less than 50 employees in the EU terminology of SMEs), where research results are implemented in to the company's products and services. Micro-sized company (with less than 10 employees) can be temporary destabilized by co-financing needs and bureaucratic controls of projects for applied research and technological development. Larger companies (with more than 50 employees), in principle, do not need this kind of support but use it as an employment support, however employees work also for other company's needs. Quite new phenomenon reflecting the need of bureaucratic reporting and uncertain financial control rules of projects is appearing around the Europe, including the Czech Republic, companies realize research and technological development independently on the subsidies, they collect own money and reach results more quickly and effectively. Academic-university sphere is not properly integrated with needs of companies, as the criteria of their evaluation are based on scientometry (Impact factor papers, number of citations on Web of Science, H-index of scientists, or points from Register of Information about Results) which are far away from needs of companies. This is the reason why companies use academic-university sphere for services, but for research purposes companies established own research and development divisions, where topics and aims are driven by real needs and available time, which is not expected from the academic sphere. Projects for scientific research and technological development offered by TACR, MIT (Ministry of Industry and Trade), Horizon 2020 etc. are useful employment support, but frequently slow, bureaucratic and only seldom driven by a real topic, which a company does not want to publish in proposal, because of a competition among companies. The agencies should seriously consider the reporting requirements and bureaucratic ballast, because the statement of companies is, that the projects are nice support of research and development, but slow, stressing and bureaucratic.

Keywords
Company research, cash flow, stability of enterprise, financial assessment.

Abstrakt

Maršálková, H. M. Vliv podnikového výzkumu na peněžní tok a stabilitu podniků. Diplomová práce. Brno: Mendelova univerzita v Brně, 2014.

Jedna z nejlepších cest jak podpořit inovační potenciál firem a celé ekonomiky je sledovat, vyvíjet a zavádět nové nápady a technologie do produktů a služeb. To může být realizováno pomocí licence patentovaného duševního vlastnictví nebo realizací vlastního výzkumu. Cílem práce bylo posoudit vliv provádění firemního výzkumu a čerpání projektových podpor na stabilitu a CF firem, k čemuž byla provedena analýza čerpaných prostředků k podpoře výzkumu a posouzena finanční situace firem pomocí finanční analýzy. V této diplomové práci byly srovnány tři firmy, které se liší svou velikostí, a srovnávací studie prokazuje, že efektivita vlastního výzkumu je nejlepší v malé firmě (s méně než 50 zaměstnanci dle terminologie EU o MSP), kde výsledky výzkumu jsou využity a přímo realizovány v nabídce vlastních výrobků a služeb. Drobná firma (s méně než 10 zaměstnanci) může být dočasně destabilizována potřebou kofinancování, byrokracií a četností kontrol těchto projektů aplikovaného výzkumu a technologického vývoje. Větší firmy (s více než 50 zaměstnanců) tento typ podpory v podstatě nepotřebují, ale používají ho jako podporu zaměstnanosti, i když zaměstnanci pracují také pro jiné potřeby firmy. Zcela nový fenomén reflektující zkušenosti firem s projekty podpory výzkumu, především nutnost byrokratických zpráv a nejistých pravidel finančních kontrol se začíná projevovat v Evropě i v ČR, firmy realizují výzkum a technologický vývoj nezávisle, bez dotací a z vlastních zdrojů, přičemž získají výsledky mnohem efektivněji, rychleji a bez byrokratických kontrol. Akademicko-univerzitní sféra má jiné zájmy a kritéria hodnocení, než mají firmy, protože jejich hodnocení jsou na základě scientometrických metod (impaktované publikace, citace na Web of science, H-indexy vědců a body z Registru informací o výsledcích). To je důvod, proč firmy využívají akademicko-univerzitní sféru pro služby, ale pro účely výzkumu mají firmy vlastní divize pro výzkum a vývoj, který je řízen reálnými potřebami a dostupným časem, což neočekávají od akademické sféry. Projekty vědeckého výzkumu a technologického vývoje vyhlašované v TAČR, MPO, Horizont 2020 a pod. jsou vítanou podporou zaměstnanosti výzkumných divizí firem, ale pro reálnou podporu jsou příliš pomalé, byrokratické a pouze zřídka v nich firmy oznámí nosnou myšlenku a to z důvodu vykrádání projektů konkurencí. Agentury by měly vážně promyslet a ustálit způsob psaní zpráv, zjednodušit byrokratickou zátěž, protože stanovisko firem je, že projekty jsou dobrá podpora výzkumu a vývoje, ale firmy ho jsou schopny realizovat mnohem rychleji, s méně stresy a s mnohem menší byrokratickou zátěží.

Klíčová slova

Podnikový výzkum, peněžní tok, stabilita podniku, finanční hodnocení.

Content

1 Introduction and Objectives

The Czech Republic, as the member of the European Union, needs to increase innovation potential of the whole economy. One of the prominent ways to do it is to support the scientific research, applied research and technological development. To support innovation potential of real end-users of the scientific and applied research, the broad spectrum of the support subsides exists on both - the national and international level. Recently, serious question concerning the right way for the support of innovative business has risen. What are the best, quickest, focused, or generally more useful and the most productive ways how to support innovation in companies? Experience shows, that research represents one of the most risky ways of investment. From the other point of view, research, innovation and technological development is the only way how to improve economy and sustain to be resistant to the increasing pressure of products from China, India, or Brazil.

Company, as an end-user of the support, considers seriously the broad spectrum of consequences of offered support or subsidies. The most discussed consequences are:

- level of support - percentage of co-financing
- speed of the support - waiting longer than 10 months is not effective and company will select other way how to bring life to innovation
- publication need - companies do research and development to be advanced and better than competitors, but some EU or even national regulations press them to publish all achievements realized under the public support
- frequency and approaches of controlling - this is the most discussed point by the innovative companies, where the increasing conclusion is, that unclear regulations and vain control systems prevent to apply projects for innovative research in number of companies

This thesis brought the comparison of three companies and assessed the effect of research and development to support projects not only on the cash flow and economical stability, but also on the competition potential of Czech companies. As the author spent a lot of time in discussion with the leaders of companies during the thesis preparation, she trusts, that their comments and the discussion could be a serious inspiration not only for other scientists in company research, but also for the agencies, which offer projects for innovative development.

The major objective of the diploma thesis was to evaluate the impact of project schemes of applied research on cash flow and stability of enterprises.

Particular aims were:

1. to realize a literature research from the basic terms to the technology transfer, corresponding to the structure of the practical part

2. to select the companies which represent three different sizes according to internationally respected standards

3. to evaluate the involvement of individual companies in the corporate research and evaluate the utilisation of project support from the public funds

4. to evaluate the financial analysis and economical health of compared companies, from which the conclusions and recommendations for both companies and grant agencies will be suggested

2 Literature Research

The chapter provides a literature overview of examined area. At the beginning of this chapter, it is necessary to provide the presentation of key concepts of the field, followed by other related topics.

2.1 Presentation of Key Concepts

2.1.1 Regional Policy

There are many definitions of regional policy, but there is no generally accepted definition. Regional policy can be understood as a set of objectives, measures and instruments to reduce excessive differences in socio-economic level of individual regions. (Stejskal and Kovárník, 2009, p. 14) The regional policy can be characterized from a macroeconomic perspective as conceptual and efficient activities of the state and its regional administrative authorities. (Stejskal and Kovárník, 2009, p. 14). Skokan (2004) expanded this definition and argues that the institutions have to establish the guidelines and strategic objectives in regional development and should also develop methods, processes and resources for their implementation.

The author of the submitted thesis agrees with the following definition, mentioned by Hitiris (2003, p. 223) that regional policy is an intervention by the state in selected regions in an order to reduce the socioeconomic disparities between diverse parts of the state and renew prosperity. Regional policy, on the basis of knowledge about regional development from academical and practical approach (see part 2.1.3) affects the real regional development and it affects retroactively the regional policy. Regional policy (RP) has two basic concepts, traditional and modern one. Traditional RP is focused on reducing regional disparities, it uses interregional redistribution and it is characterized by centralization. Modern RP is characterized by decentralization, and it is focused on SMEs and innovations. (Wokoun, 2008, p. 12-13)

Regional Policy in the European Union

Regional policy of the European Union is highly linked to the regional disparities of the EU states and their regions. The nature of these disparities is explained by Hitiris (2003, p. 221) as inequalities in employment, levels of income, growth of output, and economic inequality in general between the geographic regions of a state. Regions with higher income are mostly those, where the centres of inhabitants, industry and government can be found.

For the programming period 2007-2013 there were determined three basic objectives of regional policy. They were Convergence, Regional Competitiveness and Employment and thirdly European territorial cooperation. The objectives of RP resulted in the formation of Structural Funds, which serve as the major instrument of the EU structural policy. (Hitiris, 2003, p. 231) Alongside the Structural Funds (European Regional Development Fund and European Social Fund) there is also Cohesion Fund, which provides a means to economically weaker EU countries. The basic purpose of the Structural Funds creation was through the development of programs and projects reduce the backwardness of disadvantaged regions, including rural regions and ensure balanced and sustainable development in these areas. (Wokoun, 2008, p. 329) The sources for financial contributions are created by all member states.

Regional and mainly structural policy is ensured by wide variety of legal acts. The implementation of structural and regional policy in the EU is based on The Treaty of the European Community. The measures relating to various aspects of the implementation of structural policy are enshrined in the regulations of the EU Council. (Wokoun, 2008, p. 338) The structure of programming documents 2007-2013 had this form: The Community Strategic Guidelines, The National Development Plan, National Strategic Reference Framework and operational programmes. (Wokoun, 2008, p. 375)

Regional Policy in the Czech Republic

Currently, under the term Czech regional policy it is understood a conceptual activity of the state, regional and local authorities, whose aim is to contribute to the balanced and harmonious development of individual regions of the CR, to the reducing of disparities between the levels of development of individual regions and improvement of the regional economic structure. (Wokoun, 2008, p. 397-398) The basic documents of the national level which were in force during the programming period 2007-2013 were National Development Plan and National Strategic Reference Framework (above them were The Community Strategic Guidelines). Both documents cover all three objectives of cohesion policy: Convergence, Regional competitiveness and employment and European territorial cooperation. (Stejskal and Kovárník, 2009, p. 62)

For the regional policy in the Czech Republic it is essential the Act No. 248/2000 Coll., on Regional development support and Strategy of Regional Development. (Wokoun, 2008, p. 13) The drawing of financial resources is in the EU regional policy implemented through the operational programmes (OPs), which appear in several variants - e.g. thematic OPs solve the problems of the sector or region (entrepreneurship, environment, transport). Regional OPs are always related to one region in the CR. All OPs are designed for the three objectives of EU cohesion policy, which were mentioned above. The Czech government adopted on the basis of National Development Plan 2007-2013 and the National Strategic Reference Framework 24 OPs. (Marek and Kantor, 2009, p. 37-39)

2.1.2 Region

The term region is used for a long time, but for many years, experts are unsuccessfully trying to create universally accepted definition of this term and in the various regional works the term is used in the different senses. This problem can be overcome by understanding the region as a complex emerging regional differentiation of the landscape sphere. (Wokoun, Mates and Kadeřábková, 2011, p. 84)

Based on the typology of the regions in terms of their socio-economic development, there can be identified the following types of regions at the regional level in the Czech Republic. Among the fast growing regions belongs only Praha, which is on the highest stage of development. Among the developing regions belong the South Moravian Region, Central Bohemian Region and the Pilsen Region, which have significant growth potential. Among the regions with low growth dynamics belong South Bohemian Region, Hradec Kralove, Pardubice, Zlin and Liberec Region, which in some indicators are below the average results of the CR and in others are doing very well. Among the lagging regions belong Vysocina Region and Karlovy Vary Region because of the low growth of GDP. The last group, regions of decline, is represented by Olomouc, Moravia-Silesia and Usti nad Labem Region. All three regions have a major problem in its socio-economic development. (Wokoun, 2008, p. 383-385)

Some regions seem to be innovative leaders. They are the sources of the important inventions and take the leadership in applying these inventions in the form of new products or more efficient methods of producing current products. (Armstrong and Taylor, 2000, p. 80) In the case of the Czech Republic our capital city Prague can be considered to be such innovative leader, but according to the author's opinion Brno has also huge innovative potential and in the South Moravian Region is definitely its innovative leader.

2.1.3 Regional Development

Definition of regional development is not fully determined, but it can be said that regional development can be understood in two basic approaches in the practical and theoretical one. In a practical understanding the regional development means increasing the potential of the defined territory caused by spatial optimization of socio-economic activities and use of natural resources. This is reflected in improved competitiveness of the private sector, living standards of the population and the state of the environment. The potential of the region can be evaluated by using the indicators as GDP per capita, rate of unemployment, quality and avail-

ability of infrastructure etc. This approach can be found in the activities of non-academic institutions. On the other hand, academic approach sees regional development as an application of doctrines - economics, geography and sociology. (Wokoun, 2008, p. 11)

Stejskal and Kovárník (2009, p. 27) see the regional development as a targeted economic development of area larger than the geographically defined municipality. The term regional development refers to the growth of overall potential and the socio-economic level of the region, activation of using local development potential, improving of competitiveness, etc. from a practical point of view of regional policy regards it is an established term denoting targeted, strategically focused and coordinated efforts of local actors, oriented to improvement of the local social, economic and environmental levels and overall quality of life for local residents.

2.1.4 Importance of SMEs

Small and medium-sized enterprises are defined by Commission Regulation (EC) No. 364/2004, which is express graphically in the table 1.

Table 1: The criteria of a classification of small and medium-sized enterprises

Enterprise category	**Headcount**	**Turnover**
medium-sized	< 250	≤ € 50 million
small	< 50	≤ € 10 million
micro	< 10	≤ € 2 million

Source: Commission Regulation (EC) No. 364/2004

The medium-sized enterprises are those which annual turnover does not exceed EUR 50 million and have 50-249 employees. The small enterprises are those which annual turnover does not exceed EUR 10 million and have 10-49 employees, micro firms are those which annual turnover does not exceed EUR 2 million and have less than 10 employees. Alternatively, balance sheets of medium, small and micro enterprises should not exceed EUR 43 million, EUR 10 million and EUR 2 million.

The OECD defines small enterprises as those which have less than 50 employees and micro firms as those which have between 5 and 10 employees. The definition of SMEs is in the CR enshrined in the Law for the support of small and medium enterprise No 47/2002 Col. Another classification can be for example in the terms of the Czech Commercial Code or under the Accounting Act. The Czech Statistical Office also defines SMEs, but only by the number of employees. (Jáč, Rydvalová and Žižka, 2005, p. 12-15)

Small and medium enterprises play in developed economies very important economic as well as political and the stabilizing role. All democratic governments around the world are focusing on the assistance to SMEs and our executive devotes considerable attention to start-ups as well. Support from the state budget or from the EU subsidies is mediated by the relevant funds managed typically by the quasi-governmental organizations or private enterprises. (Vojík, 2009, p. 21)

Small and medium sized enterprises are according to Hitchens et al. (2003, p. 2) important to all European economies. They create jobs, are resources of innovation and competition, generate a dynamic healthy market economy and retain a stable economic base. Jáč et al. (2005, p. 163) think it is so because of their creativity, flexibility, simple organizational structure and personal responsibility of owners for the company's success in the market. Despite substantial ambitions by governments to inform SMEs of the potential economic benefits from rightly managing their performance, many of them are still unconvinced of the possible cost savings and market opportunities. (Hitchens et al., 2003, p. 2) The SMEs are more vulnerable to cyclical developments in the economy, since they usually do not have sufficient capital strength and do not have greater financial reserves in case of recession. (Jáč, Rydvalová and Žižka, 2005, p. 163)

In order to succeed in the competition the SMEs often use relative proximity with similar companies. After the integration to the EU, the importance of SMEs in our economy has been even stronger. The SMEs are the driving force for devel-

opment, economic growth, innovation and competitiveness. The Lisbon Strategy stated them as the basis of the European economy, with which is intended to achieve the stated objectives of the EU. For this reason, increased attention is dedicated to the SME sector also in creating a positive economic environment and various forms of public support. The importance of SMEs support is visible also from considerable activity of Ministry of Industry and Trade of CR, which developed the Conception of support for SMEs, indicated that the degree of support for SMEs in the period 2007-2013 is not likely to be repeated in the future, thanks largely financial support of Structural Funds. (Stejskal and Kovárník, 2009, p. 143-144)

Small enterprises are not just scaled down models of large ones. More than large firms, small ones are social entities that comprise personal relationships. There are several characteristics that are typical for small firms and underline their alternative approach to management and business. The first is that they are mostly short of cash. The second characteristic is for example that small enterprises are likely to work in a single market, or a limited range of markets. The SMEs are a fundamental segment of all EU economies, accounting for 65 per cent of EU turnover. (Burns, 2001, p. 9 and 15)

SME segment has proved to be a main engine of job creation while large companies in manufacturing have been engaged in a process of downsizing. Small businesses and technology are seen by many as being considerably superior methods of stimulating regional development than traditional regional policies with their vehemence on larger businesses and inward investment. (Armstrong and Taylor, 2000, p. 267 and 300)

2.1.5 Competitiveness of Regions

Skokan (2004, p. 60-61) in his monograph Competitiveness, innovation and clusters in regional development indicated, that competitiveness of companies is derived from the competitive advantage, which the company received by its manufacturing method and the effect on markets in comparison with its rivals

in the market. Competitiveness of the region is seen as an essential indicator of success or failure of policy with an emphasis on the competitiveness of industry. The main factors that contribute to the industrial competitiveness of whole region are considered to be: research and technological development, SMEs, foreign direct investment, research infrastructure, human capital, institutions and social capital.

2.1.6 Research and Development

Research and development is a systematic creative work which extends the rate of knowledge with the use of research findings or other ideas and experience a wide range of issues of quality of life in society, starting with the philosophical views of people in the world and ending with the improvement of products, services, processes in production and management of teams and communities. Research is then such systematic creative work of knowledge, including knowledge of human beings, culture and society. In the Czech Republic a distinction is made between the fundamental and applied research. Fundamental research is experimental or theoretical work in order to gain knowledge about the nature of observed phenomena without consideration for the specific application. Applied research is focused on the application of the results in practice. Next to that development (experimental) is a systematic creative application of research results to produce new or improved materials, equipments, products or technologies, services and systems. (Wokoun, 2008, p. 123)

In simplified way the research and development could be defined in the following manner. Research and development is a scientific investigation with a sight toward improving the present quality of human life, profits, products, factors of production or knowledge. (Todaro and Smith, 2011, p. 77)

2.1.7 Innovations

Innovations are crucial driving force behind productivity and competitiveness. More broadly the innovation can be defined as the introduction of a new or improved products, services, process or new forms of organization on the market-

place. In brief, innovation is the commercialization of the new thoughts and ideas. (Karlsson, 2008, p. 19 and 21)

Innovations are associated with a wide and uncertain complex of activities that cannot guarantee that embedded public resources evoke and can provide an innovation. Innovation can be achieved even in the long term, but politics and society demand the effects in short-term. Innovations cause the complex of multiple effects, which can be hardly foresight. (Wokoun, 2008, p. 121)

Knowledge-producing organizations have become more important to innovation as knowledge becomes an increasingly important sign in new product development. This enlargement of the concept of innovation makes university and government important actors in the innovation process, individually as well as collaboratively. Universities, enterprises, and governments in a region may engage in discussions to enlarge a local economy, establish a technology council or develop a regional growth agreement. Government and industry may then become engaged in conductive academic development. The foundation of a research centres, accelerated the academic research, which results were incorporated in a production. (Etzkowitz, 2008, p. 8)

The governments support innovations also on the grounds that there are social benefits from innovations beyond the private benefits, which rise up through payments to the innovator. Empirical studies of specific innovations proven that the social rate of return to innovation is in general higher than the private rate, sometimes helped by the spill-over effect. (Hall, Smith and Tsoukalis, 2000, p. 145)

Entrepreneurs apply innovation by which they exploit change as an opportunity in order to make a profit. (Burns, 2001, p. 18 and 53) Innovation is capable of being presented as a discipline, capable of being learned and capable of being practised. Entrepreneurs need to seek deliberately for the sources of innovation, the changes and their symptoms that indicate opportunities for favourable innova-

tion. The significance of SMEs in the process of product innovation is substantial, although they are much less presumptive to conduct R&D than larger firms. They conduct R&D more efficiently and introduce new products to the marketplace faster than larger firms. Burns concluded that it is not so clear if the innovative advantage is obviously linked with large or small firms. The innovatory advantages of bigger companies are in main associated with their relatively larger financial and technological resources, that is, their material advantages. On the other hand, small firms' advantages are those of entrepreneurial dynamism, responsiveness to changing circumstances and internal flexibility that is, behavioural advantages. (Burns, 2001, p. 53 and 56)

2.2 Research and Development Support

At the beginning of this part, it is suitable to mentioned that R&D activities are challenging both in terms of scale of the problems, which have to be solved, and in terms of employment potential and financial resources. Efficiently incurred and allocated funds for R&D are considered to be one of the most important tools for achieving the global competitiveness and employment, and through this to ensure economic growth while maintaining economic social cohesion. (Wokoun, 2008, p. 124) In the following two sections, there is considered the research and development support on the level of the European Union and further on the level of the Czech Republic.

2.2.1 Support on the European Union Level

The support of research and development is conducted through the indirect and direct form. By the indirect support is meant the creation of a favourable environment for SMEs, which is achieved mainly by simplifying of administration and by mitigation of potential adverse impacts of new legislation on SMEs which facilitates an access to information, education and counselling. Direct financial support consists mainly of instruments for increasing the access of SMEs to finance for the realization of their investment plans. In the case of direct support there are the funds either from the state budget or from the EU Structural Funds. The main

tools are: economical favoured guarantees for bank loans, loans with reduced interest rates, subsidies and financial contributions. The support from the Structural Funds is provided through the operational programmes. Operational Programme Industry and Enterprise was focused on developing the business environment and the development of the competitiveness of enterprises. (Jáč, Rydvalová and Žižka, 2005, p. 21) The EU Framework Programs (FPs) are focused on research and technological development of the enterprises with an emphasis on the application of the results in practice. (Jáč, Rydvalová and Žižka, 2005, p. 27)

The 7th FP took place over a period of 7 years from 2007 to 2013 with a budget of EUR 73 billion and its structure was based on four specific programs: Cooperation - concerns international research cooperation, Ideas - thoughts covering the basic research defined by the European Research Council, People - comprehensive of Marie Curie and Capacities - engaged in the promotion of research infrastructures and small and medium-sized enterprises. The above mentioned programmes emphasize collaborative research, which formed under the heading of the programme Cooperation the core of the EU research grants. Compared with the previous Framework Programme, it leaded to a substantial increase of resources (an increase of 41% at 2004 prices, 63% at current prices), which reflected the high priority of research in Europe. The Czech Republic was involved also in the Eurostars programme, a programme with a budget of EUR 800 million for the years 2007-2013, which is especially designed for small and medium-sized companies engaged in research and development.

The Competitiveness and Innovation Framework Programme (CIP) brings together a number of existing programmes relating to innovation, competitiveness, information and communication technology and energy. The 66% - 75% of the resources of this program is intended for SMEs. As regards the difference between the CIP and 7th FP it can be said that the 7th FP was focused on the creation and demonstration of new knowledge and products, while CIP was focused on the commercialization and widespread use of these outputs. (Jáč, Rydvalová and Žižka, 2005, p. 51-52)

Hall et al. (2000, p. 147) acknowledged that supporting of R&D helps to promote a growth from which the whole community will benefit. The Community shall have the aim of strengthening the technological and scientific base of the Community industry and encouraging it to become more competitive at the multinational level, while supporting all the research activities. (Hall et al., 2000, p. 147 and 150)

Moreover there is extended discontentment that the EU still slither behind the USA and Japan in technological category-tables and the difference has widened. In percentage of GDP spent on research and development, in patenting and in the top ten technological corporations, Europe shows up faintly by the comparison. Its research endeavours are also more differentiated. Widely, there is stressed the requirement for centres of excellence, networking, and targeted large-scale schemes. Additional intensification of SME technology as well as increased end-user involvement to exploit research and development results more effectively, improvements to research infrastructure covers electronic networking and more open admission to national programmes. The development of human resources is prioritized, comprehensive of cross-border mobility for researchers, the recruitment of more women into science and the attraction of more abroad scientists into the EU. (Artis, Nixson, 2001, p. 174)

2.2.2 Support on the Czech Republic Level

In the Czech Republic there is quantum of programs designed to support funding for science and research. Firstly, there are public support programmes of individual providers, which are financed from the state budget. Their attention is focused mainly on targeted support. Such programmes are announced mainly by the Ministries - the Ministry of Education, Youth and Sports, the Ministry of Industry and Trade, the Ministry of Agriculture, the Ministry of Health, The Ministry of Culture, the Ministry of Interior, the Ministry of Defence. And also institutions that deal with science and research - Czech Science Foundation (GACR in Czech) finances fundamental research and Technology Agency of the Czech Republic (TACR) applied research projects. The EU scientific research projects are

financed by Structural Funds through OPs. There is also the possibility of international cooperation, which is entered on the basis of international agreements. The CR is involved with its projects primarily in the Framework Programmes for Research and Development, in the programming period 2007-2013 it was for example 7th Framework Programme (or Competitiveness and Innovation Framework Programme, CIP) and for the programming period from the year 2014 it is Horizon 2020. Other programmes which could be mentioned are European Cooperation in the field of Scientific and Technical Research COST, EUREKA and EUROSTSRS. Another type of cross-border cooperation in research and development are bilateral and multilateral cooperation, which are organized by various international organizations.

2.3 Importance of Research, Development and Innovations in Society

In a changing world characterized by the accelerating globalization of research, development, innovations and the emergence of new powers in the field of science and technology, particularly in China and in India, the European Research Area is more than ever before important element of European society based on knowledge. Such a society is that one, in which there are fully mobilized research, education, training and innovation to fulfil the economic, social and environmental ambitions of the EU and expectations of its citizens. Research, development and innovations thus become, together with education and human resource management, very important areas to the creation of appropriate policies, whose common goal is the formation of a knowledge-based society on continental, national and regional level. (Wokoun, 2008, p. 116-117)

Today, the world economy is increasingly assimilated to a knowledge-based economy. It is named so as there are more and more emphasis placed on creativity and innovation which are considered to be the competitive weapons. (Cooke and Lazzeretti, 2008, p. 25)

2.3.1 Triple Helix and Role of Universities

The triple helix is defined by Etzkowitz (2008, p. 1) as the interaction among universities, industries and governments, which are the key to innovation and growth in today knowledge-based economy. These interactions have led to the venture capital firms, the science parks and the incubators. The universities are the generative element of the knowledge-based economies just as government and industry were the primary institutions in the industrial economy. The universities, enterprises and governments each take the role of the other in the triple helix mutual influences even as they sustain their main roles and distinct identities. The universities take the role of industry by stimulating the expansion of modern enterprises from research, representative the exploitation of knowledge as an academic objective. The enterprises develop practise to ever higher stages and share knowledge through joint ventures, acting a bit like universities. Governments act as public venture capitalists while conservative their intervening roles. In contrast to the theories that point out the activities of firms or governments in the innovations, the triple helix focuses on the universities as a source of entrepreneurship and technology as well as critical research. (Etzkowitz, 2008, p. 1)

The capacity of an area to create or absorb technological progress is not fairly a question of investing in physical or human capital. An area's capacity to absorb or create technological progress is determined by its institutional environment and by an aggregate learning advance within which people interact and exchange information and ideas there through providing a knowledge-rich environment. If such an environment is created, knowledge spreads speedily from one economic subject to another, compounding the intense formation of a wide variety of new ideas. Concentration of large numbers of highly educated manpower since their closeness to each other has the effect that there are more rapid transfer of knowledge and ideas. These ideas are then metamorphosed into new processes and products, thereby raising the productivity of labour. This means that technological progress is not fairly an automatic result of investment in regional development, but demands an institutional environment which is ancillary to the accep-

tance and readjustment of new ideas into the production system. Those areas which are knowledge-rich and which have relatively large numbers of human capital will specialize in innovative activities such as regional development, scientific research infrastructures and high-level service activities. (Armstrong and Taylor, 2000, p. 86-87)

Karlsson (2008, p. 149) highlighted the role of universities and asserted that universities are the key elements within the institutions, because they are producers of knowledge as teaching organization and create a bridge between technology and enterprises. Universities are also considerable inventors of knowledge and sources of tertiary-level graduates and of qualified manpower in science and technology. Therefore they are classified as the key elements of national innovation systems and technical knowledge spillovers.

The favourable relationship between university research, local industrial R&D spending and the local rate of innovation have been obviously documented. The physical closeness between a university and enterprises' R&D equipment has been observed to be a principal determinant of applied research financing at universities. The advancement of universities from the traditional teaching and research pattern into a more entrepreneurial pattern with economic evolution as an additional function has given a new significance to university-industry cooperation for the production and commercialization of knowledge. (Karlsson, 2008, p. 154 and 163)

The existence of a university is as an encouragement for enterprises to expand their activities in the region in order to take privilege of its highly skilled graduates. A university's valuable skilled staff may provide expert advice to local development organizations as well as to local enterprises in a wide range of business-related activities, such as finance, marketing or product development. Economists, for example, are often engaged in the assessment of regional development activities in the area in which their university is place. Management and business schools offer conventionalized trainings for the managers of firms placed in their

area and engineering detachments may be involved with local enterprises in developing new products and processes. Finally, the presence of a university in the region raises the cultural as well as the economic significance of the region, whereby raising the region's image not only to mobile enterprises but also to highly skilled workers. (Armstrong and Taylor, 2000, p. 19)

2.3.2 Innovative Infrastructure, Clusters

The target of the innovation infrastructure is to create the facilities for the system of innovation business. In the Czech Republic it is initiated by the Association for Innovation Entrepreneurship of the CR. Innovation infrastructure creates a system of relations between production, research, development, commercial, and other specialized bodies, which is characterized by their cooperation in order to commercialize the results of research and development through technology transfer, final production and marketing. (Jáč, Rydvalová and Žižka, 2005, p. 67)

Karlsson (2008, p. 431) defines a cluster as a geographically imminent agglomeration of interconnected firms and associated institutions, connected by commonalities and complementarities. Clusters may be formed up of diverse parties including companies in related industries, specialized suppliers, universities, service providers, trade associations and standards agencies. The idea is that geographical proximity of these organizations relieves the progression of ideas and people between them, which ultimately supports innovative behaviour. This idea may present the foundations for a wealthy regional innovation system.

Most regions in the Member States of the EU are lagging regions. To address this situation there is a support for the creation and building the clusters, which is a kind of cooperation not only of companies in the same industry, but also the suppliers, customers and universities or other research centres, thanks to which the cluster participants can easily and quickly develop and implement innovations. (Stejskal and Kovárník, 2009, p. 151)

Inspired by the Silicon Valley phenomenon, majority of governments endeavour to focus on high-tech clusters in their attempts to lift competitiveness. In general, high-tech activities as communication technology (ICT) and information, nanotechnology and biotechnology are considered to be modern and fascinating and therefore worth stimulating. (Karlsson, 2008, p. 437)

Firms in cluster are supposed to be more innovative that firms located somewhere else. On the demand side, the accomplishments arising from being placed in a cluster are related to a cut-down in transaction costs, to the lower costs of looking for information on customers' needs and to the higher inducements to engage in innovative activities linked with a huge local demand. On the supply side the accomplishments arising from being placed in a cluster are related to the accessibility of a localized pool of informational externalities, skilled workers, the local accessibility of industry-specific intermediate services and inputs, such as raining, research services, education or communication and transport networks. (Karlsson, 2008, p. 167)

The city in which the cluster is localized can be seen as innovative, such creative city displays key characteristic connected with being knowledge-receptive. Knowledge production is an exponential action, the more you have, the greater your capacity to gain more. Knowledge based cities have the capability to create value from the interaction of different knowledge types. (Cooke and Lazzeretti, 2008, p. 28)

The economies that were formed from being situated in an industrial cluster are described by knowledge spillovers. These may be defined as cogitations, opinions and research findings that innovative companions borrow from other enterprises without compensating them for the benefits received. The key element is that companies situated in clusters are more probable to benefit from knowledge spillovers and therefore can be expected to bring in more innovations than rivals situated somewhere else. (Karlsson, 2008, p. 168)

2.3.3 Transport of Innovations

One of the most known models of entrepreneurial regions in the word is according to Kenney (2000, p. 15-16) the Silicon Valley in San Francisco Bay Area, North California. Silicon Valley is great example of interconnection of university and the corporate sphere. Giunta et al. (2000, p. 28) explained the rise of the Valley by the continual large infusions of R&D money from the Department of Defence and National Space and Aeronautics Administration and government-subsidised recruitment of highly skilled scientists and engineers from other regions, that literally created the foundations for the development of new technologies. In the course of time, as commercial applications appeared, the compound inducement of large government and civilian sales, constant military research funding set up the relatively unique sector of smaller companies so much admired in the literature, as well as new large firms like Sun Microsystems or Apple.

Kenney (2000, p. 15-16) added that the growth of Silicon Valley has attracted worldwide attention because it seemed to offer the opportunity that a region with no earlier industrial history could make a direct jump to a leading-edge of industrial economy, given the right set of conditions, without the time and effort required to pass through any intermediate grades of development. The thought that so much growth could arise in so short time within such a small geographic territory sent planning bodies and government agencies from around the whole world the idea to grow the next Silicon Valley in their own region. Thus, the example of Silicon Valley became the Holy Grail of the economic development. An important role in Valley have played and still plays Stanford University within whose incubator has arisen such world-known companies as for example Hewlett Packard Company is. The accumulation of electronics firms around Stanford University is ascribed to Valley's genesis. A close relationship between local industries and the main research universities of the region as well as high level of intercompany collaboration contributed positively to the creation of the world-famous birthplace of ideas for a product mix with a focus on advanced communication technologies or electrotechnics, and many more.

All over the world, authorities who are responsible for cluster policy are trying to build their own 'Silicon Somewhere' in an attempt to imitate Silicon Valley, the world's most famous sample of geographical clustering of economic activity of the last three decades. Stanford's electrical engineering detachment in the first place became a breeding place for innovative firms. The achievement of Silicon Valley can be widely explained by the right entrepreneurial decisions at the right place at the right time. The Stanford University, for instance, benefited from Cold War federal defensive financing and the accessibility of venture capital. Furthermore, more than anywhere else in the world, Silicon Valley is supposed to have a positive climate for talents, cooperation, entrepreneurship and innovation which has its roots in rare regional conventions such as enthusiasm for technological modification, warmth to newcomers, possession with new ideas, tolerance of failure, risk seeking, job mobility and reinvestment in the community. Nobody projected the emergence of Silicon Valley. Evidently, high-tech clustering in the area of information technology provides the commotion and is something with which policymakers hope to ensure the competitiveness of a region. While clustering is worthy to the economy, governments do not have accession to the knowledge that would facilitate them to support the successful development of clustering. (Karlsson, 2008, p. 430-431)

2.4 Financial Statements Assessment

2.4.1 Analysis of Absolute Indicators

The analysis of absolute indicators includes mainly horizontal and vertical analysis. Horizontal analysis or trend analysis deals with the temporal changes of absolute indicators. Vertical analysis or percentage analysis deals with the internal structure of absolute indicators, sometimes it is also called analysis of components. This is a comparison of individual items of basic financial statements to the total sum of assets or liabilities. The application of this method facilitates comparability of financial statements with the previous period, the structure of assets and liabilities is considered. The structure of assets is designed to inform, to what the com-

pany invested entrusted capital and to what extent was taken into account profitability when the investment decision was made. The structure of liabilities shows us from what resources were assets acquired. Generally, it is cheaper foreign and short-term financing. The company should therefore distribute financial resources in an appropriate manner and spread the financial risk arising from utilized funding sources. (Růčková, 2011, p. 43-44)

2.4.2 Ratio Analysis

The financial analysis stands for the use of historical financial statements to measure a firm's performance and to provide financial scenarios of future performance. The analysis is especially based on the application of rations that help us to see critical relationships that might not otherwise be promptly identifiable. Ratios are used to standardize financial information so it is possible to make comparisons. (Keown, 2006, p. 102)

In the following section, there is a description of formulas which were used in the practical part. The explanation of all relationships involving indebtedness, liquidity, activity and profitability is based mainly on two books: Růčková, 2001, p. 44-61 and Kislingerová, 2005, p. 31-37. When another source is used, it is mentioned in the text. The used formulas are based on the course Business Finance, which was taught in the summer semester 2012.

Debt ratios assess the financial structure of the company in the long run. The ratios serve as the indicator of risk level which the company undergoes with certain structure of equity and debt. It also serves as a measure of the company's ability to multiply its profits using the equity. The term indebtedness reflects the fact that the company uses to finance its assets with foreign sources, i.e. debt. Indebtedness analysis compares the balance sheet items and on the basis of its results determines the extent to which the company's assets are finance by foreign sources. For the *total debt ratio* is generally valid the higher value the higher the risk for creditors and lenders, who prefer the lower value of this indicator. It also applies, that in a case of financially stable enterprise temporary growth of debt can

lead to an increase in the total return on investment. Total debt ratio is computed in the following manner:

Total debt ratio = Total debt / Total assets

In the case of *debt-equity ratio* there is a relation of foreign capital to equity, however more often it is used its inverse value, which measures the degree of financial autonomy of the company. Considering this indicator, financial analyst should take into account a lease financing, which should be attributed to foreign capital within the results objectification of financial autonomy.

Debt-equity ratio = Total debt / Common equity

Times interest earned tells us how many times a profit is higher than interest is. The indicator shows how big is the safety cushion for the creditors. After payment of interests from debt financing there should still remain sufficient effect for the shareholders.

When the money is borrowed, there is a minimum requirement that the company pay the interest on what it had borrowed. Thus, it is useful to compare the amount of operating income that is intended to pay the interest with the amount of interest to be paid. Stated as a ratio, there is computed the number of times when we are earning our interest. This relationship is commonly used when examining the firm's debt situation and it is computed in the following manner. (Keown, 2006, p. 114)

Times interest earned = EBIT / Interest expense

Liquidity ratios reveal the company's ability to repay short-term obligations, as permanent solvency is one of the basic conditions for successful business existence. The lack of liquidity leads to the fact that the company is not able to take advantage of profitable opportunities that appear in business or it is unable to pay its current which could result in insolvency and lead to bankruptcy. Management of the company prefer a different level of liquidity than owners who prefer a lower level of liquidity, as current assets are ineffective tying funding, which may reduce

the return on equity. The company is able to meet its obligations if it is liquid enough. On the other hand, too high rate of liquidity is unfavourable for the owners of the company, as funds are tied in assets that do not work in favour of strong valuation of financial assets and thus encroaching on profitability. It is therefore necessary to seek a balanced liquidity, sufficient to ensure both level of available money and the ability to meet its obligations.

Generally, the liquidity indicators have the common form of the ratio. Usually there are three basic indicators, which are visible below.

Current ratio = Current assets / (Short-term liabilities + Short-term bank loans)
Quick ratio = (Current assets - Inventory) / (Short-term liabilities + Short-term bank loans)
Cash ratio = Short-term financial assets / (Short-term liabilities + Short-term bank loans)

Current ratio is referred to liquidity of the third degree. Current ratio shows how many times current assets cover short-term liabilities of the company or even how many units of current assets is covered by one unit of short-term liabilities. It tells us whether the company would be able to satisfy its creditors if it had turned all current assets at any given time to cash. The higher the value of the indicator the more likely is to preserve the solvency of the company.

Cash ratio is also known as the liquidity of the first degree and it represents the narrowest definition of liquidity. The most liquid items from the balance sheet are part of the cash ratio. Although the optimum values are between 0.2 and 0.6 in the Czech Republic, the non-compliance with these values does not necessarily mean financial problems of the company.

Quick ratio is also known as the liquidity of the second degree. In this indicator, the numerator should be the same as the denominator. When the ratio is 1:1 the company should be able to settle its obligations without selling their stocks. The higher value of the indicator will be more favourable to creditors, but will not be favourable to shareholders and management. Excessive amount of current

assets leads to an unproductive use of investment and affects adversely the overall return on investment.

Activity indicators measure the effectiveness of business operations and resource utilization by the turnover speed of selected balance sheet items. Their analysis is intended to answer the question of how do we manage the assets and how does this affect the performance and liquidity. The activity ratios measure the company's ability to use the invested funds and dependence of individual capital components in different types of assets and liabilities. Their analysis is used to answer the question of how do we manage the assets and their individual components and also what effect this has on performance and liquidity of the company. There is an obvious interconnection with indicators of profitability. This indicator is expressed as a ratio of sales to total invested capital. Total asset turnover ratio measures how efficiently a company is using its assets to generate sales. (Keown, 2006, p. 111)

Total asset turnover = Sales / Total assets

Fixed assets turnover is an inverted indicator to relative commitment of fixed assets. The indicator is important in deciding whether to take further production assets. The lower value of the indicator than the industry average is a signal for production to increase capacity utilization, and financial managers to limit investment of the firm.

Fixed asset turnover = Sales / Fixed assets

Inventory turnover specifics how long are the current assets bound in the form of stocks. Generally, the higher the inventory turnover and shorter inventory turnover period is the better. The optimal size of inventories differs from company to company according to the specialization.

Inventory turnover = Sales/ Inventory

The profitability *ratios* compare the profit with other variables in order to reach the success in achieving goals of the firm. Profitability is a measure of the ability of a company to create new resources, make a profit by using invested capital.

In these indicators, there is the item in the numerator corresponding to the profit and there is some kind of capital in the denominator. Shareholders and investors are most interested in the result of these indicators. The time series should have a general upward trend. Generally, profitability is expressed by the ratio of profit to the amount of capital invested. By measuring the *return on assets (ROA)* there is reflected the overall effectiveness of the company's earning power or production power. The indicator evaluates profitability of total invested capital.
ROA = Earnings before interest and taxes EBIT / Total assets

Return on equity (ROE) expresses the profitability of capital invested by shareholders or owners of the company. It is an indicator through which investors can determine whether their capital is reproduced with proper intensity, appropriate to risk investments. The growth of indicator may mean improving profit, reducing the share of equity in a company or a decrease in interest on foreign capital.
ROE = Profit for the accounting period (Earnings after taxes) / Equity

Return on capital employed (ROCE) expresses the rate of appreciation of all the assets of the company financed by own and foreign long-term capital. It thus reflects the efficiency of the company.
ROCE = Profit / (Long-term debt + Equity)

Net working capital is in terms of methodological sorting part of differential ratios group, but it is closely related to liquidity, so it belongs to the ratio analysis. It is calculated as follows and it is closest to the current ratio, which is constructed in the same way but as a ratio. Net working capital is part of current assets of the short-term assets, which is financed by long-term financial resources and the company can dispose freely with it in the implementation of company's plans. It can also be seen as a financial cushion in the case of emergency. In some

countries, special statement is prepared about the creation and use of net working capital.

Net Working Capital = Current assets – Current liabilities

2.4.3 Analysis of Cash Flow

Retrospective cash flow (CF) represents an important category of dynamic financial analysis. The CF is in the financial analysis used in two basic forms: cash flow in a form of formally and substantively defined statement for the previous period and CF in a form of indicator. Cash flow in the concept of the statement it provides information enabling comprehensive analysis of financial and investment processes in the company in a given period. Contrary to the financial indicators CF statement allows the comprehensive description and evaluation of the financial affairs of the company. It captures in the form of flows of funds all financial and investment processes of certain period in their mutual relations and thus enables the detection and analysis of their interaction. (Freiberg, 1997, p. 13-14)

Operating activities means the basic gainful activity of an entity that is not included among the investing or financing activities. Investment activity is the acquisition and sale of fixed assets or activity associated with the provision of credits, loans and borrowings, which are not considered as operating activities. Financial activity is an activity that has resulted in changes in the size and composition of equity and long-term or short-term liabilities. (Landa, 2008, p. 119)

2.4.4 Selected Cash Flow Indicators

Cash flow in the form of indicator is used as part of financial analysis as a measure for the evaluation of the company financial position. The CF is in formulas generally related to other characteristics of corporate events, for example to the capital or total assets. Such relative indicators then demonstrate the extent of financial appreciation of capital or total assets. (Freiberg, 1997, p. 14)

The task of the cash flow analysis is to record the effects that indicate the payment difficulties and to assess to what outcome the financial situation of the company

is coming. Some warning signals arise from the structure of cash flow itself and also from the ratio between income and expenditure from financing activities. (Růčková, 2011, p. 63)

Substantial explicitness has indicator which measure cash flow from operating activities to some components of the profit and loss statement or balance sheet. The purpose of CF indicators is determined by the need to express inner financial potential of the firm, or its intrinsic financial strength. Such defined CF indicator is then a measure of the company ability to create from own economic activities the financial surpluses, usable to the financing of existentially significant needs, such as investments, dividends and liabilities.

In the following section there is a description of formulas which were used in the practical part. The explanation of all relationships is based mainly on these two books: Růčková, 2011, p. 64-65 and Sedláček, 2010, p. 78-79.

Return on equity from CF is a supplement to the return on equity indicator, where is counted with profit in the numerator. The indicator reflects the firm's ability to generate cash flows based on the use of equity.

Return on Equity = CF from operating activities / Equity

Return on paid-in capital measures the ability to receive loans, because CF from operating activities does not include financial costs. If the resulting value is lower than the average interest rate paid by the company to banks, assets not generate as much as it is necessary for repayment of loans, and they become risky. However, if the return on capital is higher than the average interest rate, it is advantageous for the company to receive new credits, because it will result in the growth of the company.

Return on paid-in capital = CF from operating activities / Total assets

Turnover profitability – in this case, we consider the turnover as revenues from ordinary business activities. Turnover profitability shows effectiveness

of corporate financial management or company's ability to generate financial surpluses, necessary for the further enhancing of the company position to maintain financial independence and service of capital. The value indicates how much the company has left to other investments in % of total earnings from operations. If the indicator declines in individual years, it means the increase of revenues or reduction of internal financial possibilities of the company.

Turnover profitability = CF from operating activities / Turnover

Liquidity from cash flow is an indicator that indicates the company's ability to repay its payable liabilities from generated funds. The indicator is derived from the liquidity ratios. How much of this year's CF (minimum of 40%) can pay for short-term. If the value of liquidity from cash flow is greater than 100%, it means that if the company would took all of its funds from CF from operating activities and it is able to repay all its obligations.

Liquidity from cash flow = CF from operating activities / Short-term liabilities

Discharge from debts degree reflects the company's ability to meet its obligations from its own budget. The reciprocal value of this indicator is called the payback period of the loan and the result is years. It is the ratio between foreign capital and financing capacity of the company to compensate liabilities arising from its own operations. In practice, this indicator is interpreted as the reciprocal value of the return period of the loan.

Discharge from debts degree = CF from operating activities / Foreign capital

3 Methodology of the Thesis

The diploma thesis consists of two main parts and it is also divided into chapters and subchapters. The first part is oriented on the literature research of the English and Czech publication sources related to the topic. The basic terminology and related topics are provided in that part. For the purposes of processing the theoretical part, the method of induction and deduction was used. Own research is based on the assessment of the current state of innovative potential of three different sized companies doing own R&D activities in the Czech Republic and in the South Moravian Region. Furthermore, the stability of selected enterprises was analyzed in connection with their innovative research through the financial analysis and analysis of cash flow. According to Commission Regulation (EC) No. 364/2004, the medium-sized enterprises are those which annual turnover does not exceed EUR 50 million and have 50-249 employees. The small enterprises are those with annual turnover not exceeding EUR 10 million and have 10-49 employees, micro firms are those whose annual turnover does not exceed EUR 2 million and have less than 10 employees. Alternatively, balance sheets of medium, small and micro enterprises should not exceed EUR 43 million, EUR 10 million and EUR 2 million. For the financial analysis, the data from the financial statements of companies was used. For my comparative study, there was used publicly available data of companies' financial statements from www.justice.cz and also information which was obtained during the discussions with representatives of companies. The financial analysis of the selected companies had been processed according to standard methods for technical financial analysis. The cash flow statements had been prepared using the indirect accounting method, allowing expressing the change in cash by changes in balance sheet items interpreted according to their nature either as a source or as a use of funds. The calculations of all financial indicators are performed according to the description given in the theoretical part. In the Concluding Remarks and in the Conclusion, there is the summary of the performed study's results and suggested recommendations useful for enterprises or agencies engaged in the support of the company research.

4 Results and Discussion

4.1 Research, Development and Innovations from EU to National Level

Research and development plays a key role in the creation of new knowledge, which is a prerequisite for stable and sustainable development of the regions and nations. Research, development and innovations contribute to the EU to be a better place for life by increasing its competitiveness and support of growth. The position of the EU is in many technologies relatively high; however, classical rivals such as the US, Japan or South Korea invest much larger sums to support science, research and innovation. Besides low investment, a problem is the inability to transform research results into practice, especially responsiveness to the needs of high-tech industry. This innovation gap EU tries to bridge through an integrated approach to European research in individual member states. EU policy remembers to support research and development in its main strategic documents and the Czech Republic is not an exception in EU countries. Research policy is one of the basic elements of the Lisbon Strategy. Member States should invest till 2020 3% of GDP to research and development (1% from public funds and 2% from the private sector). This would create 3.7 million of new jobs and contribute to an increase in the annual GDP of the European Union by almost 800 billion Euros. (European Commission, 2014)

The Czech Republic is aware of the development of regions inherently belongs to the creation and diffusion of innovation as well as support R&D at the state level. These are evidences of increasing investments from the Czech state budget and efforts to increase the efficiency of the entire system. While in 2001, total spending on research and development in the Czech Republic was 28.3 billion CZK and represented by 1.16% of GDP, in 2012 this figure has already reached 72.4 billion CZK, which corresponded to 1.89% of GDP in the Czech Republic. (Ministry of Foreign Affairs of the Czech Republic, 2013) The Czech Republic, according to the economic level, ranks among the countries where the ability of firms to in-

novate is a major factor for competitive advantage. The approximation to the support of R&D and innovations in the Czech Republic is provided in this chapter. How it was with specific amounts in the uniform monitoring period, which accompanies the whole thesis, will be indicated in the following figures.

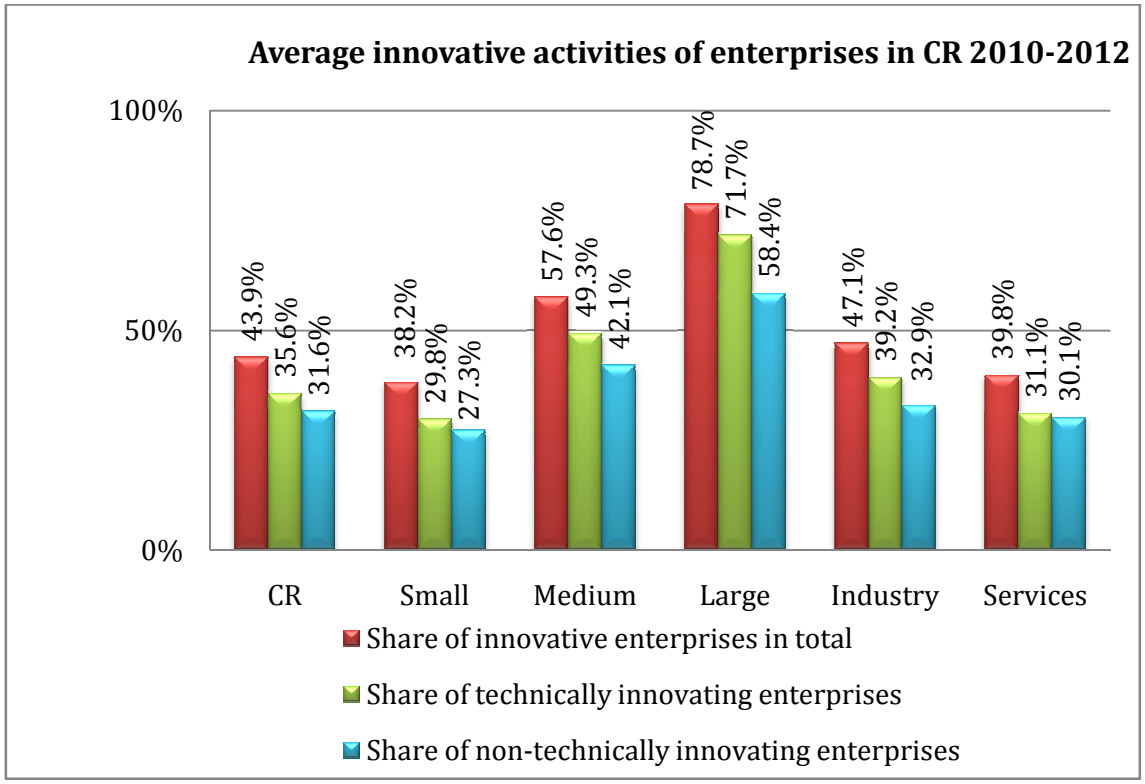


Figure 1: Average innovative activities of enterprises in the CR in the period 2010-2012
Source: Own work based on the data from Czech Statistical Office for the year 2013, 2014, Statistics of innovation and R&D indicators

The Czech Republic has a relatively high number of innovative small and medium-sized enterprises, however traditionally the most innovating are large enterprises. In the territory of the CR in selected sectors of the economy, there were engaged in innovative activities 43.9% of enterprises of the total number economically active enterprises in the period 2010-2012. Technical innovations introduced 35.6% enterprises and non-technical innovations introduced 31.6% as seen in Figure 1. (Czech Statistical Office, Innovative activities in the Czech Republic in 2010-2012) Within the observed size groups of enterprises, large enterprises with more than 250 employees (78.7% share) the most innovated followed by medium-sized enterprises 57.6% and small businesses 38.2%.

Compared the intensity of innovation activities, the Czech Republic belongs among the states, where innovative activity shows almost half of the companies and thus belongs to the middle of ordered states. At the first position is Germany, where almost 80% of all the enterprises embody the innovative activity. In the CR, the polarization on organizational and marketing innovation prevailed, at the expense of product and process innovations.

Czech small and medium enterprises are intensively involved in international projects of R&D&I. Just in the 7th framework programme EU for research, development and innovations reached the share of small and medium enterprises over 21% of the total number of Czech participation and also the total amount of funds acquired, while the aim of the European Commission is to achieve a 15% share of the private sector. This program has been replaced since 2014 by the new framework programme for research and innovation Horizon 2020.

From the sectors point of view, businesses were involved in projects in the field of nanotechnologies and ICT services. International comparison of the Czech Republic proves that despite the positive annual change, innovation performance of the economic environment was still below the average of the EU 27 and thus ranks the Czech Republic among the group of average innovators. (Council for development and innovations, 2013) The most important factors that limit innovation activities are mainly the lack of financial resources.

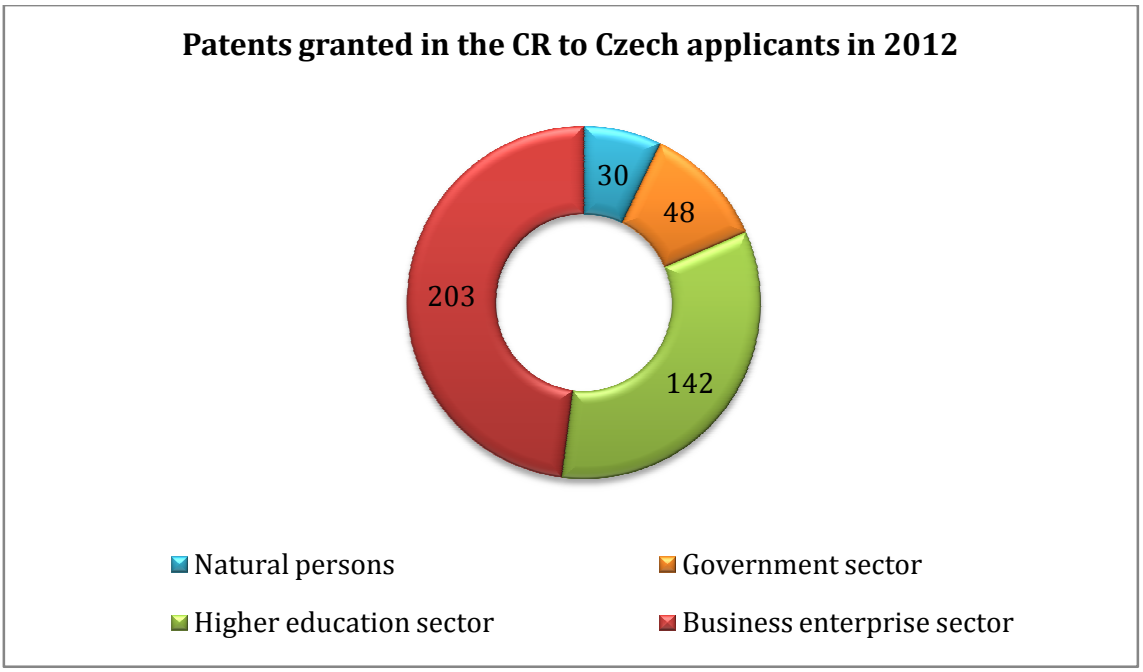
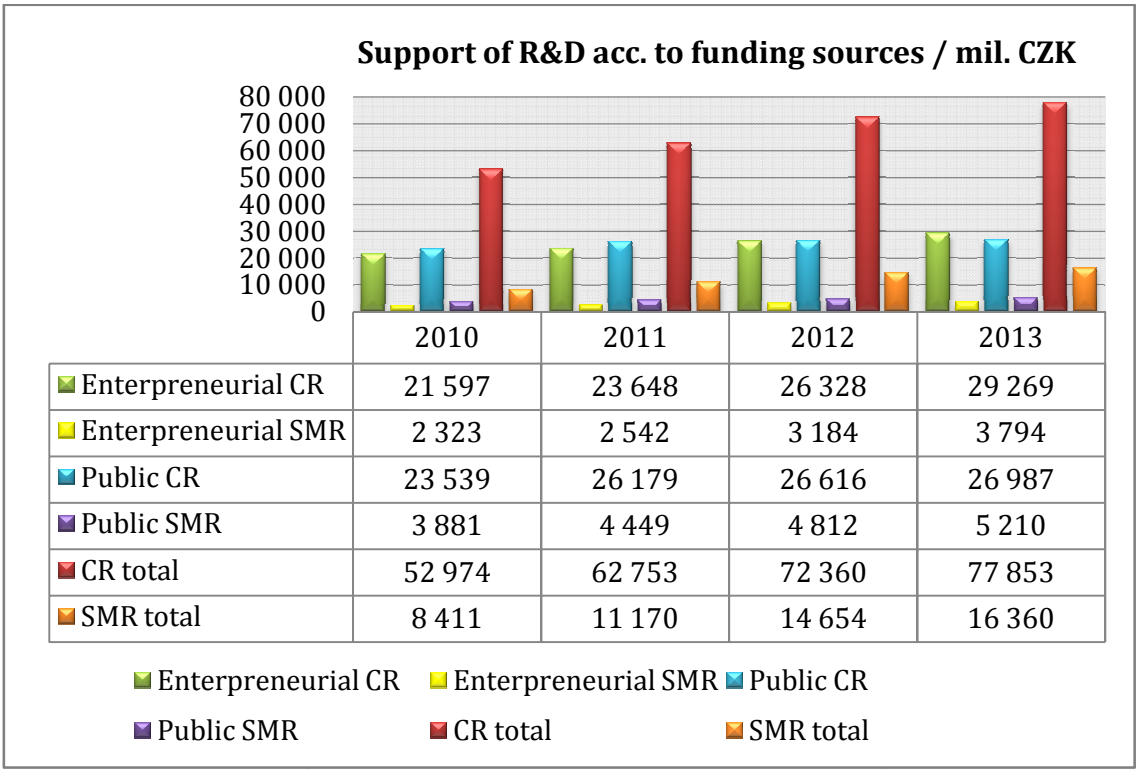


Figure 2: Patents granted in the Czech Republic to Czech applicants in the year 2012
Source: Own work based on data from Czech Statistical Office, Patents granted in the CR

Research outputs in the form of patents granted recorded recently a rapid growth. In the figure 2, it can be seen the structure of patents granted to Czech applicants in the year 2012. While in 2008, there were only 47 patents granted to universities and public research institutions, in 2011 it was already 144 patents granted and in the year 2012 even 190, the summation of 142 and 48. The patents granted to Czech universities increased enormously rapidly, specifically from 19 in 2008 to 142 in 2012. The most active university is the Czech Technical University in Prague. From the business enterprise sector the prevailing branches were engineering, automotive and pharmaceutical. Most patent applications are submitted by the company Zentiva Group, a.s. and Škoda Auto, a.s.. From a regional perspective, the most patents were granted in Prague.

Patent activity of Czech entities (research organizations and businesses) compared to other countries despite the steady increase in The Czech Republic lags far behind the advanced countries of the EU. While in the EU 27 was an average of 129 patent applications per one million of inhabitants in 2012, in the CR it was only 13 applications. (Council for development and innovations, 2013) We can only believe

that the situation will improve in the future and the Czech Republic approaches to the European average.



	2010	2011	2012	2013
Enterpreneurial CR	21 597	23 648	26 328	29 269
Enterpreneurial SMR	2 323	2 542	3 184	3 794
Public CR	23 539	26 179	26 616	26 987
Public SMR	3 881	4 449	4 812	5 210
CR total	52 974	62 753	72 360	77 853
SMR total	8 411	11 170	14 654	16 360

Figure 3: Support of R&D according to funding sources in the whole Czech Republic and in the South Moravian Region (abbreviated as SMR)
Source: Own work based on the data from Czech Statistical Office, Research and Development Indicators for the Czech Republic in total, 2014

Total subsidies are composed of two mentioned subsidies in the figure 3, the entrepreneurial subsidies for R&D and public subsidies from the state budget for R&D, the entrepreneurial subsidies from abroad, public subsidies from abroad and other subsidies from other national sources counted as well.

Based on the figure 3, it can be said that in the field of science and research the positive development was recorded in the Czech Republic in the recent years. The year 2012 was similarly significant to the previous year 2011 in terms of the enormous increase in the total expenditure for research and development. For the years 2011 and 2012, the total expenditure on R&D had increased in absolute terms by 19.4 billion CZK and while in 2010 they reached 53 billion CZK,

in 2012 it was already 72.4 billion. In relative terms, the share of expenditure on R&D in gross domestic product rose from 1.4% in 2010 to almost 1.9% in 2012 and the Czech Republic got closer in this key indicator to the European average. In terms of the conditions for long-term economic development, it is positive that those expenditures on R&D increased in recent years despite the unfavourable development of the Czech economy. The most significant source of funding the public research remains of course the state budget, from which is financed almost 64% of expenditures for R&D in the public sector. The financing method of public research from the state budget had changed considerably in recent years, when increasing the share of targeted support at the expense of institutional financing. An important role in funding research activities had the means of Structure funds, whose more intensive drawing for research and development activity started just in 2011. It was also important, that between 2011 and 2012 the firm's financial resources invested in R&D both sources of domestic and foreign enterprises increased. The Czech Republic has a relatively high level of business investment in science and research. In the significance of the corporate sector expenses in the structure of R&D, the CR is comparable to other economically advanced countries of Europe. The increase in expenditure on R&D in the business sector had been accompanied by an increase in the number of employees in R&D. In 2012, there worked in the corporate research, more than 32 thousand people, which was about 5 000 more than in 2010. The negative aspect of employment in corporate research is a relatively low proportion of women, which is in the long term around 20%. In 2012, there were only 19% of women among the employees of R&D in the business sector (Council for development and innovations, 2013) which ranks the Czech Republic in international comparison for last places among the European countries.

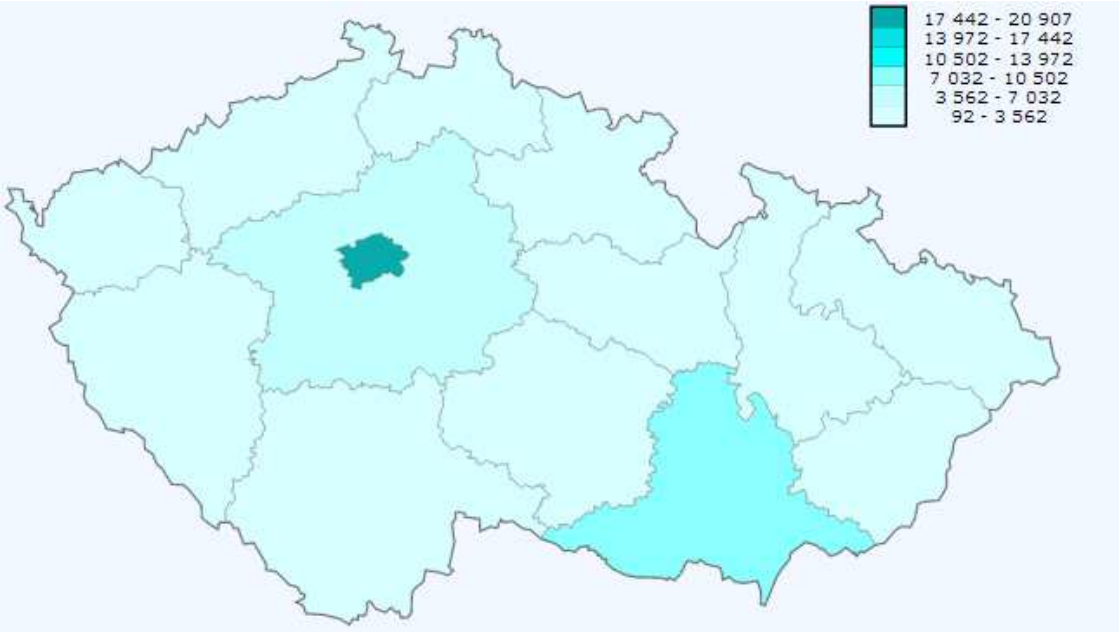


Figure 4: Expenditures for R&D in Czech regions from state budget in 2005-2012/ million of CZK
Source: Czech Statistical Office, Research and development indicators according to regions of the Czech Republic, 2014

As it is shown in the figure 4, the distribution of subsidies for R&D from the state budget was valid in the Czech Republic from the year 2005 to the year 2012 because of the fact, that in all of these years were the highest expenditures for R&D in Prague followed by the South Moravian region. The other regions of the state disposed with the allocated funds about more similar level. The South Moravian region, as a region of second highest support of R&D in the Czech Republic, will be the subject of interest of the next chapter.

4.2 Research, Development and Innovations on Regional Level

The theme of science and research is often discussed in the Czech Republic, but unfortunately especially in the national context. From a regional perspective, to this issue it is not devoted excessive attention. However, it is in the interest of the regions, to seek development of their own economic performance and economic competitiveness based on knowledge. It is important to link scientific research organizations, supported by the public sector with innovative companies and support the transfer of research results into practice. Each region should

be able to identify its needs and determine its own priorities in the field of research and development, and try to exploit the possibility of financial support. Brno is a centre of the South Moravian Region, this city is considered to be a similar place to American Silicon valley due to high concentration of universities, sites of Academy of sciences and new research and development infrastructure supported from Operational programme Research and development for innovation. There are several innovative research and development companies in Brno city, selected from them will be the subject of interest of the following section.

4.2.1 Introduction of Monitored Companies and their R&D Activities

In this section, the brief identifications of the companies are listed. The general information is mentioned to give a rough idea about the background of the companies. The information comes from the annual reports of individual companies for the monitored period 2010-2013.

I. RAWAT consulting s.r.o.

Basic information about the company

The company RAWAT consulting s.r.o., (hereinafter abbreviated also as RAWAT) was registered in the commercial register 21st April 2010 with the fulfilling all the necessary conditions which the Czech commercial low requires. The seat of the company is situated in Brno-Chrlice, Kunešova 3, 643 00. Registered capital was 200 000 CZK invested by its executive manager of the company. Object of the business is research and development in the field of natural sciences. The company has in average five employees. Based on the parameters specified in the methodology the company is ranked among micro-sized enterprises.

Characteristics of the company

The company RAWAT provides services in the areas of water management and environmental protection in the spirit of its name „Research on Advanced Water Technologies“. The company was founded in 2010 and it associates number of top specialists with years of experience in the field, for example, environmental

protection or treatment of municipal and industrial wastewater. RAWAT offers services to clients from various fields in the private and public sector, mostly industrial enterprises, investor groups, research organizations and government institutions. It also works closely with multinational consultancies. The company operates in the Czech Republic, but it is also focused on scientific research projects and their implementation in the European Union, Africa or South America. RAWAT as the only on private organization in the Czech Republic, owns and maintains a collection of technically recoverable strains of algae from around the world.

Services and products of the company

a) services

Company RAWAT helps its clients - individuals, businesses and municipalities solve problems of monitoring of water reservoirs, swimming biotopes, surface water, wastewater and technological water and offer a wide range of services in this area. It performs certified sampling and analysis of water quality, sediment of water reservoirs and tributaries including recommendations for corrective action. When analyzing - it determines hydrochemical parameters as e.g. forms of nitrogen and phosphorus, pH, dissolved oxygen, conductivity, transparency, chlorophyll concentration. It provides expert advice on remediation measures of bathing biotopes or technological wetland for wastewater treatment. It quantifies the inoculum of cyanobacteria in sediments, bacteria in surface, bathing, drinking and waste waters. It tests the efficacy and toxicity of preparations for the water purification and performs ecotoxicological biotests of these waters. The company also provides services such as custom development of products for water treatment according to customer requirements. It also provides seminars for training in the areas of environment and water management.

b) products

The company produces highly efficient bacterial mixtures to maintain and establish the biological balance in garden ponds and reduces the amount of nutrients that cause the development of undesirable algae and cyanobacteria. It also deals

with the production of living organisms (Asellus aquaticus, Cladophora glomerata, Daphnia magna) for the garden ponds, preparations for removing the turbidity, brightening of waters and increases the efficiency of water filters. It produces algicidal preparations for the liquidation of filamentous algae and biofilms in industrial plants. It also produces beneficial bacterial mixtures on a completely natural basis, which improve the resistance of plants to frost and drought.

Research and development projects

The company received 3 projects of research, experimental development and innovations supported by public funds of the CR in the monitoring period 2010-2013 and in all the projects was as an another participant in the project. It is necessary to take into account the fact, that the company was only formed in 2010. Acquired projects were financed as follows: Technology Agency of the CR funded one project and Ministry of Industry and Trade funded two projects. More detailed information about funding sources is provided in the figure 5.

Technology Agency of the Czech Republic, abbreviated to TACR, was the dominant provider of the support within the monitored period, based on the figure above. Ministry of Industry and Trade of the Czech Republic, abbreviated to MIT, as well as TACR funded mainly the research, development and innovative projects from the public budget of the Czech Republic. In the year 2010 the company had not drawn any subsidies because it was just established in that year. The year 2010 is mentioned because of the uniformity and comparability of provided data. According to the latest data, the support from the public budget in the year 2014 reached the highest number in the amount of 1 964 TCZK. From this it can infer that the company tried to acquire innovative projects, important for its future stability as well as cash flow and the received amounts for this type of the projects had a growing trend.

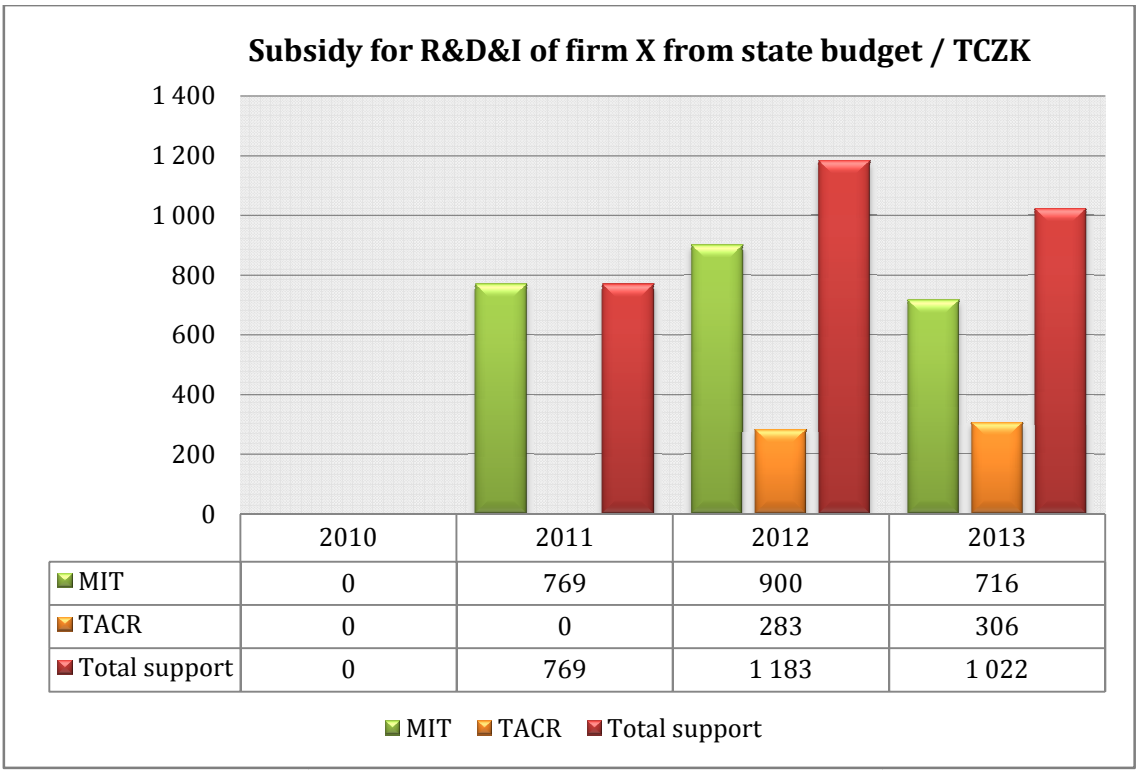


Figure 5: Amount of support for R&D&I of firm RAWAT from the state budged[1]
Source: Information system of research, experimental development and innovations, 2014

Technology Agency of the Czech Republic, abbreviated to TACR, was the dominant provider of the support within the monitored period, based on the figure above. Ministry of Industry and Trade of the Czech Republic, abbreviated to MIT, as well as TACR funded mainly the research, development and innovative projects from the public budget of the Czech Republic. In the year 2010, the company had not drawn any subsidies because it was just established in that year. The year 2010 is mentioned because of the uniformity and comparability of provided data. According to the latest data, the support from the public budget in the year 2014 reached the highest number in the amount of 1 964 TCZK. From this it can infer that the company tried to acquire innovative projects, important for its future sta-

[1] R&D&I – Research, Development and Innovations
MIT - Ministry of Industry and Trade of the Czech Republic
TACR - Technology Agency of the Czech Republic

bility as well as cash flow and the received amounts for this type of the projects had a growing trend.

II. ASIO, spol. s.r.o.

Basic information about the company

ASIO, spol. s.r.o. (hereinafter abbreviated also as ASIO) was registered in the commercial register 18th June 1993 fulfilling all the necessary conditions which Czech commercial low requires. The seat of the company is situated in Brno, Kšírova 552/45, 619 00. Registered capital was 500 000 CZK invested by its two executive managers of the company. Object of the business is production of equipment for water purification and treatment, trading and brokerage activities. The company has in average less than fifty employees. Based on the parameters specified in the methodology the company is ranked among small-sized enterprises.

Characteristics of the company

ASIO is engineering-delivering company operating mainly in the field of wastewater treatment (municipal, industrial, precipitation and other waters), water treatment and air purification. The company is also focused on recycling of water and heat in buildings and industry and even for this area it has its own newly developed technology. A substantial part of their activities is the development of technologies in the field electrochemistry, of nanotechnologies and energy recovery from waste water. The company has built an international network of customers and ensured quality manufacturing base – specialized supply companies, equipped with advanced technologies for plastics processing. Firm collaborates with other developmental and commercial companies throughout the EU.

In 2013, the company took place in the 9th year of the competition TOP SME of the best small and medium business of Brno city. Competition is designed specifically for small and medium businesses that in other competitions hardly succeed in competing with large companies. ASIO was placed in the top ten. The com-

pany won the Gold @ TZB-info for the best website of 2013. The company has obtained certification of quality system according to CSN EN ISO 9001:2009 and CSN EN ISO 14001:2005. The company ASIO, spol. s r.o. is a member of the Association for Water CR (CzWA), Chamber of Commerce Brno and Brno-Country, Manufacturers Association of thermoplastic structures, Czech Water Alliance (CWA). Employees of the company operate and are especially active in CzWA, which is an organization of leading experts in the field of water purification and treatment.

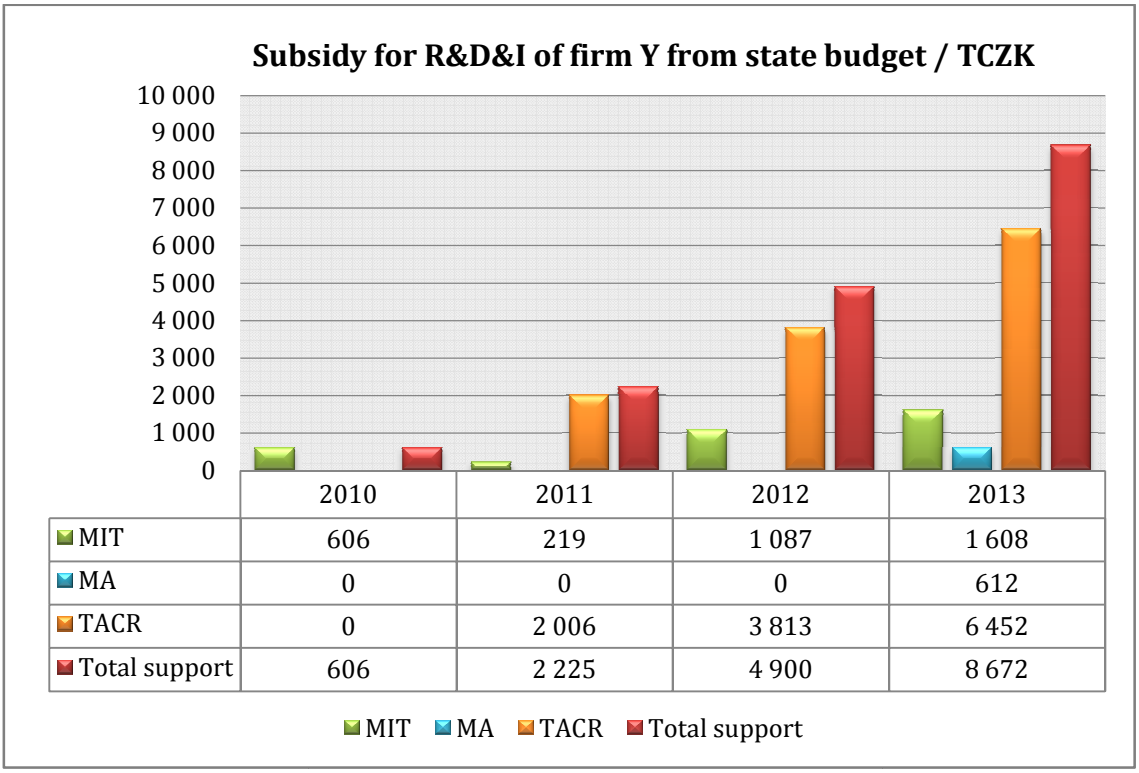
Services and products of the company

Company ASIO offers deliveries of technological units or even entire structures, in the field of municipal and industrial wastewater, water treatment and air purification. Traditional production of water products, such as house biological sewage treatment plant, wastewater treatment using membrane technology, equipment for air purification, odour removal, separators of light liquids - remove free oil substances from the water, detectors of light liquids outflow, fat and starch traps, pumping plastic shafts - for pumping rainwater and wastewater, insulated hydrometric and armature shafts for water networks, watershed protection, plastic tanks from polypropylene and polyethylene - tanks for storing rainwater and drinking water, waste water, liquids, granules and chemicals, recycling facilities of water and heat from houses and public.

Research and development projects

Total expenditures on own company research and development incurred in the year 2013 were 533 TCZK, in the year 2012 expenditures reached the amount of 77 TCZK, in 2011 it was the maximum amount of 1 283 TCZK and in 2010 it was 123 TCZK. The company received in total 13 projects of research, experimental development and innovations supported by public funds of the CR in the monitoring period 2010-2013. In six of them, the company was the main coordinator. From the total amount of gained projects, TACR was a provider to 8 of them, Ministry of Industry and Trade funded 4 of them and Ministry

of Agriculture funded one of the total numbers of received projects. More detailed information about funding sources is provided in the figure 6.



	2010	2011	2012	2013
MIT	606	219	1 087	1 608
MA	0	0	0	612
TACR	0	2 006	3 813	6 452
Total support	606	2 225	4 900	8 672

Figure 6: Amount of support for R&D&I of firm ASIO from the state budged[2]
Source: Information system of research, experimental development and innovations, 2014

From the figure above, it can be inferred that the support from the state budget had also the growing trend, in terms of the amounts granted. The main provider of public support was, except MIT and TACR, also Ministry of Agriculture of the Czech Republic, abbreviated to MA. The dominant provider was TACR with the total subsidy of 12 271 TCZK, during the monitored period. The funds were awarded mainly to R&D&I from the public budgets in the CR.

III. DEKONTA, a.s.

Basic information about the company

The company DEKONTA, a.s. (hereinafter abbreviated also as DEKONTA) was registered in the commercial register 8th July 1996 fulfilling all the necessary condi-

[2] MA - Ministry of Agriculture of the Czech Republic

tions, which the Czech commercial law requires. The seat of the company is situated in Dřetovice 109, Stehelčeves, 273 42 with a branch also in Brno, Tuřanka 107/1148, 627 00. Registered capital was 29.5 mil. CZK invested by the executive manager of the company. Object of the business is research and development in the field of natural and technical sciences, expert services in the field of chemistry, business in the field of waste management and hazardous waste. The company has in average one hundred and five employees. Based on the parameters specified in the methodology the company is ranked among medium-sized enterprises.

Characteristics of the company

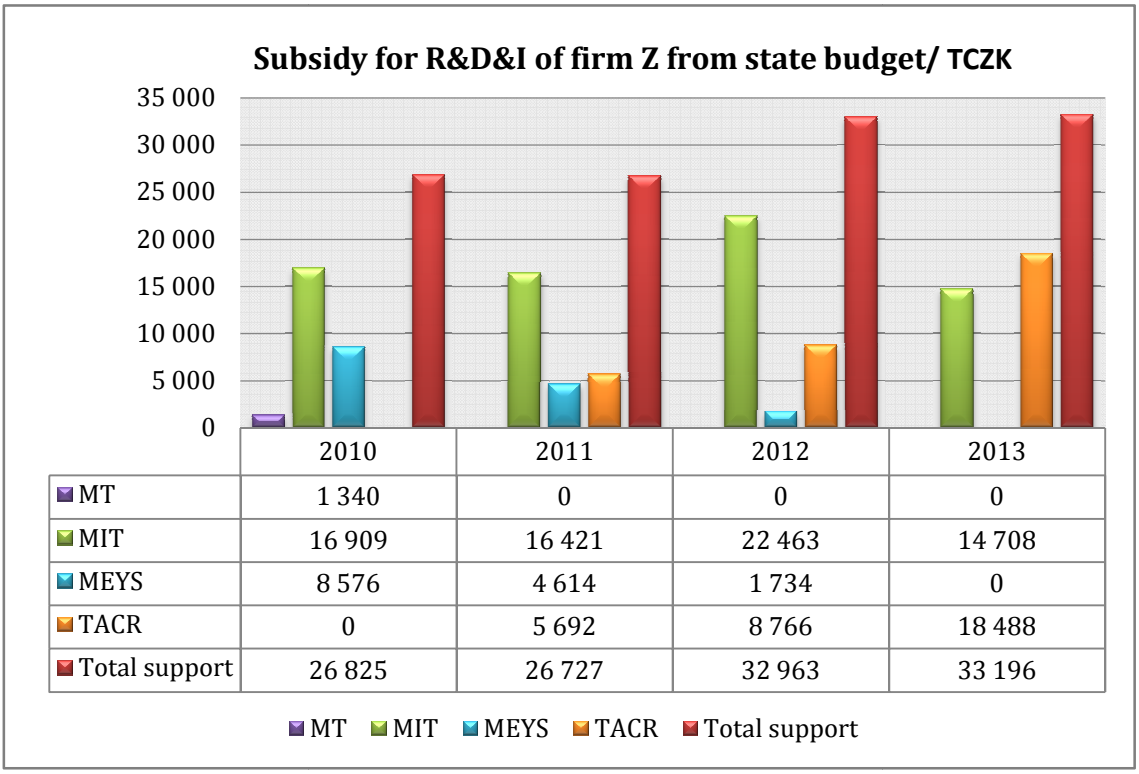
DEKONTA specializes in the area of biological treatment of contaminated soil. It provides services for the protection and decontamination of the environment. Annually it handles hazardous waste in quantities of hundreds of thousands of tons and solve hundreds of environmental projects. It achieves turnover of around 500 million CZK annually. It has a certified quality management system and environmental constructed in accordance with standards ISO 9001:2001, ISO 14001:1997 and OHSAS 18001. In 2007, the company joined the program RESPONSIBLE CARE – responsible business in chemistry and has a right to use the prestigious logo of Responsible care. Foreign activities ensure DEKONTA through its subsidiaries and partner companies.

Services and products of the company

DEKONTA offers a comprehensive package of environmental services, including hazardous waste treatment and disposal, remediation of contaminated sites, nation-wide 24-hour environmental emergency response service, environmental consulting or laboratory services and many more services. The company provides full range of products, for example the creation of appropriate biofilters and catalytic-oxidation incinerators according to clients wishes.

Research and development projects

DEKONTA solved several large research projects with the support of TACR, MIT and the EU, it solved commercial development tasks specific focus and carries out other research work based on customer requirements, within its own R&D department and in cooperation with its partners from the business and academic sectors. Current projects are focused on innovations of environmental technologies for remediation of groundwater or wastewater and air, bio stabilization of soils and sledges. In the monitoring period 2010-2013 the company was the recipient of 29 research and developed projects. Acquired projects were financed as follows: TACR funded 10 projects, Ministry of Industry and Trade funded 14 projects, Ministry of Education Youth and Sports funded 14 projects and Ministry of transport funded one project. More detailed information about funding sources is provided in the figure 7.



	2010	2011	2012	2013
MT	1 340	0	0	0
MIT	16 909	16 421	22 463	14 708
MEYS	8 576	4 614	1 734	0
TACR	0	5 692	8 766	18 488
Total support	26 825	26 727	32 963	33 196

Figure 7: Amount of support for R&D&I of firm DEKONTA from the state budged[3]
Source: Information system of research, experimental development and innovations, 2014

[3] MT - Ministry of Transport of the Czech Republic
MEYS - Ministry of Education, Youth and Sports of Czech Republic

The development of subsidies for R&D&I from the state budget was quite steady only with a slight increase, in the case of the largest monitored company which is perceptible from the figure above. Among the providers belonged also Ministry of Transport of the Czech Republic, abbreviated to MT, but only in the year 2010. The main provider was MIT, with the total amount of support 70 501 TCZK, in the monitored period. The largest company was in acquisition of projects for the support of R&D&I as the most active and disposed of the largest allocated financial resources.

4.3 Assessment of Financial Stability of Selected Companies

4.3.1 Balance Sheet Analysis

Horizontal Analysis of Balance Sheet

The following tables provide a conciser version of the calculations. More detailed version of financial statements analyses for all three firms is available in the appendixes. The most important items were selected in the tables to make the analysis more efficient.

Table 2: Horizontal analysis of RAWAT balance sheet

	Relative change			Absolute change / TCZK		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**
Fixed assets	46.8%	0.0%	0.0%	108	0	0
Current assets	182.2%	98.0%	-5.8%	379	575	-67
Accruals	0.0%	0.0%	0.0%	0	2	0
TOTAL ASSETS	110.9%	62.3%	-4.5%	487	577	-67
Owner's equity	57.9%	19.7%	-0.5%	231	124	-4
Liabilities	420.0%	249.0%	-5.8%	168	518	-42
Accruals	0.0%	-73.9%	-91.3%	88	-65	-21
TOTAL LIABILITIES	110.9%	62.3%	-4.5%	487	577	-67

Source: Author's calculations based on financial statement of the company

The total balance amount had increasing tendency in the first two monitored years, but in the last monitored year there was a visible decline by 4.5%, which was exactly 67 TCZK, based on the table 2. The total assets were the highest in the year 2011 and the lowest in 2013. The fixed assets increased by 46.8% from the year 2010 to 2011 and had the same amount for the next year. The cur-

rent assets had increasing tendency in the whole monitored period and were the highest in the year 2012 corresponding to the change by 575 TCZK. The accruals increased only in the year 2012 which was in absolute expression the change plus 2 TCZK. The tendency on the side of liabilities was parallel to the assets. The decline in total liabilities was apparent in last monitored year. The owner's equity and liabilities had increasing tendency analogously to total liabilities to the year 2013 the decline of 0.5% can be observed for owner's equity and of 5.8% or 42 TCZK in absolute change for liabilities.

Table 3: Horizontal analysis of ASIO balance sheet

	Relative change			Absolute change / TCZK		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**
Fixed Assets	-5.5%	163.1%	30.1%	-960	27095	13150
Current assets	25.2%	35.1%	-15.1%	24107	42037	-24411
Accruals	45.5%	-52.1%	88.1%	285	-475	384
TOTAL ASSETS	20.6%	50.1%	-5.3%	23432	68657	-10877
Owner's equity	10.3%	16.7%	9.1%	6471	11537	7342
Liabilities	32.8%	83.8%	-15.2%	16782	56888	-18936
Accruals	0.0%	129.6%	174.5%	179	232	717
TOTAL LIABILITIES	20.6%	50.1%	-5.3%	23432	68657	-10877

Source: Author's calculations based on financial statement of the company

The development of total assets had increasing tendency till the year 2013, based on table 3. The highest amount of the total assets was 205 802 TCZK in the year 2012, corresponding increase to the previous year was 50.1%. The lowest value of the total assets was 11 3713 TCZK in the year 2010. The average amount of fixed assets was 33 683 TCZK and the highest positive change was in the year 2012. Since the current assets are important part of total assets their tendency was very similar, the highest amount was 16 1663 TCZK in the year 2012. The owner's equity had clearly increasing trend, it's the highest amount was 87 951 TCZK and the average amount was 75 058 TCZK. The highest change in liabilities was 83.8%, 56 888 TCZK in the absolute expression. The accruals were on the highest amount in 2013 (1 128 TCZK), which was a change by 717 TCZK from previous year 2012.

Table 4: Horizontal analysis of DEKONTA balance sheet

	Relative change			Absolute change / TCZK		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**
Fixed assets	-13.1%	-26.6%	12.5%	-16446	-29060	10042
Current assets	38.1%	47.5%	1.2%	50492	87006	3128
Accruals	-16.4%	-22.1%	3.7%	-431	-486	64
TOTAL ASSETS	12.9%	19.5%	3.8%	33615	57460	13234
Owner's equity	-15.4%	12.9%	1.1%	-31014	21924	2102
Liabilities	126.2%	5.3%	20.3%	67928	6431	26058
Accruals	-57.1%	1172.2%	-47.3%	-3299	29105	-14926
TOTAL LIABILITIES	12.9%	19.5%	3.8%	33615	57460	13234

Source: Author's calculations based on financial statement of the company

The total balance amount had increasing tendency in the whole monitored period, based on the table 4. Total assets (liabilities) were the highest in the year 2013 (36 5201 TCZK), and the lowest in the year 2010 (260 892 TCZK), their average value was 318 142 TCZK and the highest change in the year 2012 by 19.5% or 57 460 TCZK in absolute change. The fixed assets had decreasing tendency except the year 2013 with the growth of 12.5% (10 042 TCZK). The current assets as the most important part of total assets imitated the increasing tendency in the whole interval. The highest change was in the year 2012 by 47.5% due to intense increase of short-term liabilities (22 3870 TCZK). The average amount of current assets was 214 717 TCZK in the monitored interval. The fixed assets were decreasing till the 2013, the highest decrease was in the year 2012 due to the decrease of the long-term tangible property by 30.8%. The owner's equity had increasing trend in balance sheet except the year 2011 when the decline was caused by the lowest prior period retained earnings. The liabilities were the lowest in 2010 due to the decrease of short-term liabilities this was a reason of quite considerable change by 67 928 TCZK.

Vertical Analysis of Balance Sheet

The vertical analysis of balance sheet takes in account the individual parts of assets and liabilities in comparison with the amount of total liabilities and assets. The total assets are composed of fixed and current assets and accruals were also considered, which created the lowest share on total assets.

Table 5: Vertical analysis of RAWAT balance sheet

	2010	2011	2012	2013
Fixed assets	52.6%	36.6%	22.6%	23.6%
Current assets	47.4%	63.4%	77.3%	76.3%
Accruals	0.0%	0.0%	0.1%	0.1%
TOTAL ASSETS	100.0%	100.0%	100.0%	100.0%
Owner's equity	90.9%	68.0%	50.2%	52.2%
Liabilities	9.1%	22.5%	48.3%	47.6%
Accruals	0.0%	9.5%	1.5%	0.1%
TOTAL LIABILITIES	100.0%	100.0%	100.0%	100.0%

Source: Author's calculations based on financial statement of the company

It is interesting to see in the table 5, that the fixed assets created a higher share on the total assets than the current assets in the year 2010, in the following years, there was a higher share of the current assets on the total assets structure. They had increasing tendency from 47.4% in the year 2010 to 76.3% in 2013, on the contrary to the fixed assets, which were decreasing from 52.6% in 2010 to 23.6% in 2013. The average share of the current assets on the total assets was 66.1%. The most significant parts of the current assets were created by the short-term receivables and the short-term financial assets. The owner's equity had decreasing tendency with its minimum share of 50.2% in the year 2012 and its maximum in the year 2010 of 90.9%. This development can be seen as positive due to the fact that it can be too expensive to cover assets with more than 90% of the own capital.

Table 6: Vertical analysis of ASIO balance sheet

	2010	2011	2012	2013
Fixed assets	15.4%	12.1%	21.2%	29.2%
Current assets	84.0%	87.2%	78.6%	70.4%
Accruals	0.6%	0.7%	0.2%	0.4%
TOTAL ASSETS	100.0%	100.0%	100.0%	100.0%
Owner's equity	55.1%	50.4%	39.2%	45.1%
Liabilities	44.9%	49.5%	60.6%	54.3%
Accruals	0.0%	0.1%	0.2%	0.6%
TOTAL LIABILITIES	100.0%	100.0%	100.0%	100.0%

Source: Author's calculations based on financial statement of the company

On the contrary to previous case in the table 6, there was a visible dominance of the current assets on the total assets structure. The highest amount on the current assets was created by the short term receivables and the short-term financial assets. The fixed assets are the minority share, which follows from the production focus of the company. The owner's equity and the liabilities are in quite well-balanced proportion. The accruals remained under 1 % share on the total assets and the liabilities. The structure of assets and liabilities has not changed significantly over the period.

Table 7: Vertical analysis of DEKONTA balance sheet

	2010	2011	2012	2013
Fixed assets	48.2%	37.1%	22.8%	24.7%
Current assets	50.8%	62.2%	76.7%	74.8%
Accruals	1.0%	0.7%	0.5%	0.5%
TOTAL ASSETS	100.0%	100.0%	100.0%	100.0%
Owner's equity	77.1%	57.8%	54.6%	53.2%
Liabilities	20.6%	41.3%	36.4%	42.2%
Accruals	2.2%	0.8%	9.0%	4.6%
TOTAL LIABILITIES	100.0%	100.0%	100.0%	100.0%

Source: Author's calculations based on financial statement of the company

In the last case of the shortened version (detailed version is available in the appendixes) of vertical analysis of balance sheet, it can be observed in table 7 a similar dominant share of the current assets on the total assets as in the previous case, but with their increasing tendency through the observed period. The highest share of the current assets on the total ones had occurred in the year 2012. The average share of the fixed assets on the total ones was 33.2% in the studied period. The owner's equity denoted decreasing tendency with the maximum share on the total liabilities in the year 2010 by 77.1% and minimum share in the year 2013 by 53.2%. The liabilities oscillated during the four years period around their average 35.2%. The remaining share corresponded to the accruals, which were in this case the highest (in the contrary of two previous firms) and their average share on the total liabilities was about 4.1%. Fixed assets and equity had a downward trend. Development of liabilities (the decrease in equity) corresponded with the changing structure of assets, where was a decrease of fixed assets

while increasing current assets, allowing increased coverage with the riskier but cheaper foreign capital.

4.3.2 Profit and Loss Statement Analysis

Horizontal Analysis of Profit and Loss Statement

In the following tables is provided a conciser version of the calculations. More detailed version of financial statements analyses for all three firms is available in the appendixes. The most important items were selected in the tables to make the analysis more efficient.

Table 8: Horizontal analysis of RAWAT profit and loss statement

	Relative change			Absolute change / TCZK		
	2011	2012	2013	2011	2012	2013
Revenues from sales of own products and services	112.2%	-42.0%	-56.5%	1578	-1255	-978
Revenues from sales of fixed assets and material	0.0%	468.6%	115.1%	35	164	229
Operating profit	19.8%	-41.2%	-89.7%	49	-122	-156
Profit for accounting period	16.1%	-44.2%	-103.1%	32	-102	-133

Source: Author's calculations based on financial statement of the company

The development of revenues items had a variable trend, the maximum amount in the revenues from sales of fixed assets and material had occurred in the year 2013, it was 428 TCZK, which was the change by 229 TCZK from previous year 2012, based on table 8. The minimum amount was observed in 2010 and 2011, between these two years there was an increase from 0 to 35 TCZK. The revenues from sales of own products and services were created mostly by the item revenues from production. The highest amount were observed in the year 2011 (2 985 TCZK) and the lowest one in the year 2013 (752 TCZK) this corresponded to the negative change by 56.5% between the years 2012 and 2013, the average amount for observed period was 1 719 TCZK. The negative tendency of development of the revenues from production had also negative impact on the profitability of the firm, as proved in chapter 4.3.3. The operating profit had the highest share on the profit of current accounting period. The maximum of the operating profit

had occurred in the year 2011 (296 TCZK) and minimum in 2013 (18 TCZK) which related with lower revenues from production than the costs of sales and therefore with the negative added value. Also the profit for accounting period had similar tendency with maximum in the year 2011 and minimum in 2013.

Table 9: Horizontal analysis of ASIO profit and loss statement

	Relative change			Absolute change / TCZK		
	2011	2012	2013	2011	2012	2013
Revenues from sales of own products and services	205.0%	-8.7%	-3.3%	171011	-22187	-7596
Revenues from sales of fixed assets and material	13.3%	1664.7%	24.0%	2	283	72
Operating profit	24.4%	-44.1%	55.7%	1965	-4408	3117
Profit for accounting period	46.1%	-65.9%	211.6%	2042	-4265	4678

Source: Author's calculations based on financial statement of the company

The revenues from sales of own products and services increased in 2011, but from 2012 their development has decreasing tendency, see table 9. This turn could be caused by the negative change in the item called change in inventory of own production, where was a visible decline. There was a rapid growth in the revenues from sales of fixed assets and material in the year 2012, when their value had increased from 17 TCZK to 300 TCZK. This change could be dedicated purely to the revenues from the sales of fixed assets. The operating profit, with high share on the profit of current accounting period, had a variable tendency with its maximum in the year 2011 and minimum in 2012, when was apparent decrease by 44.1%.

Table 10: Horizontal analysis of DEKONTA profit and loss statement

	Relative change			Absolute change / TCZK		
	2011	2012	2013	2011	2012	2013
Revenues from sales of own products and services	29.1%	34.7%	10.4%	68660	105672	42530
Revenues from sales of fixed assets and material	-19.2%	-65.1%	406.8%	-369	-1013	2213
Operating profit	-42.0%	83.4%	93.9%	-7883	9074	18739
Profit for accounting period	242.0%	-30.0%	-2.5%	33241	-14071	-821

Source: Author's calculations based on financial statement of the company

The revenues from sales of own products and services embodied a positive increasing tendency in the whole monitored period, see table 10. The highest change was observed between the years 2011 and 2012, change of 34.7%, although top amount had occurred in the year 2013, concretely 452 648 TCZK, their average amount for the observed period was 350 750 TCZK. The revenues from sales of fixed assets and material are varying, in particular years, and there is no significant tendency in their development. The operating profit underwent a drop in the beginning of monitored term, but after the year 2011 kept increasing tendency to its maximum in 2013, corresponding amount was 38 693 TCZK, that was change by 93.9% (from the amount 19 954 TCZK in 2012). On the other hand, the profit for accounting period reached its maximum in the year 2011 and minimum in 2010, its average value was 31 427 TCZK. Increasing trend of added value is positive signal from efficiency point of view.

4.3.3 Ratio Analysis

The ratio analysis of the selected indicators for all three monitored companies will be provided in the following section in summarizing tables. The selected indicators can be found in these tables. These characteristics were chosen on the basis of thematic matter of the thesis. The first analyzing firm will be the smallest again.

Table 11: Ratio analysis of RAWAT

Group of indicators		**2010**	**2011**	**2012**	**2013**
	Net working capital (TCZK)	168	379	436	411
Debt ratios	Total debt ratio (%)	9.1	22.5	48.3	47.6
	Equity multiplier (%)	110.0	147.0	199.3	191.5
	Debt-equity ratio	0.1	0.3	1.0	0.9
	Times interest earned	-	-	-	-
Liquidity ratios	Current ratio	5.2	2.8	1.6	1.6
	Quick ratio	5.2	2.8	1.5	1.6
	Cash ratio	0.4	2.4	1.4	0.8
Activity ratios	Total asset turnover ratio	3.2	4.1	2.2	2.3
	Fixed asset turnover ratio	6.1	11.2	9.9	9.5
	Inventory turnover ratio	0.0	0.0	21.6	0.0
Profitability ratios	ROA (before tax) (%)	55.8	30.9	10.7	-0.3
	ROE (%)	49.9	36.7	17.1	-0.5
	ROCE (%)	61.4	45.4	21.4	-0.5

Source: Author's calculations based on financial statements of the company

In the table 11, *net working capital* was monitored firstly; it is an important measure of corporation's stability and overall health. The indicator had increasing tendency with positive numbers during the monitored period until the year 2013 when only slightly dropped against the year 2012. The positive numbers are required from stability point of view which indicates that the company was able to pay off its short-term liabilities almost immediately.

The results of *total debt ratio* reflected increasing trend in the development of debt. The highest value was measured in the 2012 as 48.3% of the capital, while its average value went around 35.2% in the period under consideration. All the numbers were under 50%, firm used more equity to finance its assets than the debt. The average amount of *equity multiplier* was 162%, it had a prevailing increasing tendency of using foreign capital for self financing with common negative deviation in the year 2013. *Debt-equity ratio* had an increasing tendency, so the company was financed by the creditors a little bit more at the end of the monitored period against the beginning, than from its own financial sources, which may be potentially dangerous trend. The company was still in good conditions because the optimal value of debt-equity ratio is considered to be about 1. The debt ratio called *times interest earned* could not be measured, because the firm had no interest expense (the denominator of the formula) for the whole time of its history. Due to nonexistent bank loans, there were no interest expenses and neither interest coverage ratio.

Next financial indicators were liquidity ratios. The first of them is *current ratio*. The indicator of current liquidity expresses how many times is company able to satisfy its creditors when it at once turns all its current assets in to cash. The indicator is significantly affected by short-term liabilities, including short-term liabilities and short-term bank loans. The increase in short-term liabilities was caused by a fall of current liquidity together with the increase of current assets. The maximum value of current ratio had peaked in the year 2010 by the value 5.2, which means that the company was able to satisfy its creditors by 5.2 times in the moment of conversion of current assets to cash. The values of *quick ratio* are

almost the same as values of current ratio with the only difference in the year 2012 when current ratio was 1.6 and quick ratio 1.5. The same values were caused by the fact that the firm did not dispose with any inventory (the only exception was in the year 2012) which are part of denominator of quick ratio formula. The last ratio from liquidity indicators was *the cash ratio*. The final values had a varied development. The maximum had occurred in the year 2011 (2.4) and minimum in the year 2010 (0.4). The recommended values is said to be within the interval form 0.2 to 0.7. The value of the year 2011 is even over the limit, which means that the firm was in very good state from liquidity point of view.

Another group of financial indicators are activity ratios. The first of them is *total asset turnover ratio,* which provides information about how many times the value of total assets will be turned up per one year. The values are varying between 2 and 4 in the analysed period, where there is rather a negative development, because from 2011 the total asset turnover ratio was declining. In the given period the maximum value of revenues from sales of own products and service was just in the year 2011 and that is why the value of this indicator is the highest one in this year. The maximum value of *fixed asset turnover ratio* was 11.2 in the year 2011, it means that the fixed assets of the company were 11.2 times turned up to revenues. This very high value, almost two times higher than the industry average 5.1, was due to the fact, that firm did not own a lot of long-lived tangible assets in buildings (the office is rented). Also, in the next years the values are quite high, over 9. *The inventory turnover ratio* could be measured only in the year 2012, when the value of inventory was 80 TCZK and value of the indicator was 21.6 which means that every item of inventory was turned up to the cash (sold) 21.6 times per the year and stored again. In the other years the value of inventory was zero and the indicator was therefore imponderable. The last group of indicators are profitability ratios. They reflect the efficiency of the company. In other words, how high profit can be generated from the enterprise assets. The first of the group is *return on assets* (ROA) calculated before a taxation. Its values were decreasing

in the studied period, during the first three years the values were higher than 8%, which is considered as a minimum for this indicator. The negative value was caused by the negative earnings (-4) in the year 2013. The maximum value peaked in the year 2010 when ROA claimed up to 55.8%, which means that from every 1 CZK of the total assets, the company obtained 0.558 CZK of revenues. *The return on equity* ratio is valuing the profitability of invested capital in the firm by its owners or shareholders. This indicator had decreasing results in the whole term, even when the owner's equity was decreasing during the analysed period. Its maximum had peaked in the year 2010 (49.9%). In this year, the profit for the owner from 1 CZK invested was 0.49 CZK. The minimum required value of this indicator is about 10%, which was not fulfilled, only in the last monitored year 2013, when the value was only -0.5 caused by the negative result of the operating income. In that year, invested money brought nothing back and even lost some equity. *Return on capital employed* characterises how effectively the firm had invested intoits activities from the long-term point of view. The results are similar as in the case of other profitability ratios, the values decreased from 2010 to 2013 significantly, even into the negative value (from 61.4% in to -0.5%) in 2013. The decreasing values were caused by the decreasing earnings before interest and taxes and equity had gradually increased from the first year (399 TCZK) to the last one (750 TCZK).

Table 12: Ratio analysis of ASIO

Group of indicators		**2010**	**2011**	**2012**	**2013**
	Net working capital (TCZK)	45040	52923	50229	55626
Debt ratios	Total debt ratio (%)	44.9	49.5	60.6	54.3
	Equity multiplier (%)	181.6	198.6	255.3	221.6
	Debt-equity ratio	0.8	1.0	1.5	1.2
	Times interest earned	20.1	29.8	8.3	10.6
Liquidity ratios	Current ratio	1.9	1.8	1.5	1.7
	Quick ratio	1.6	1.6	1.3	1.6
	Cash ratio	0.2	0.1	0.2	0.5
Activity ratios	Total asset turnover ratio	1.9	1.9	1.3	1.4
	Fixed asset turnover ratio	12.5	15.3	6.1	4.7
	Inventory turnover ratio	17.0	24.0	23.6	26.1
Profitability ratios	ROA (before tax) (%)	5.3	6.0	1.9	5.0
	ROE (%)	7.1	9.4	2.7	7.8
	ROCE (%)	9.5	11.7	4.3	8.7

Source: Author's calculations based on financial statements of the company

In the table 12, we can see positive values of n*et working capital* from which it could be read, that the firm was healthy from the financial point of view, because it was able to cover its current liabilities by the current assets.

The results of *total debt ratio* reflected an increasing trend in the development of the debt, only one exception was monitored in the last year 2013. The average amount of total debt ratio was around 52.3%, which means a balanced funding by own and foreign capital. The average amount of *equity multiplier* was 214.3%. Such high number meant that a larger portion of asset financing was being done through the debt, which is not necessarily a negative sign, because this kind of financing is often even cheaper. *Debt-equity ratio* had an increasing tendency except the last year 2013. The company had the highest value 1.5 in the year 2012, which was the highest value from all three companies. This value can be considered as potentially critical. In that year the firm could have problems with repaying its obligations. The lower values of debt-equity ratio are usually required by the creditors and lenders, because their interests are better protected in the case of a business decline. The last indicator from debt ratios group was *times interest earned*. Average value of this index was 17.2 and the best result 29.8 was measured in the year 2011, when the profit was 29.8 times higher than the interests paid. The higher values are better in this case, because it is a sign of an ability to pay costs associated with the using of foreign capital.

Considering *the current ratio*, it can be said that the values are ranging from 1.5 to 1.9, which means within acceptable limits, closest to its lower values. However, too high liquidity binds resources that could be used more effectively. In the observed period, all results were within the accepted limits, closer to its lower values. The values of *quick ratio* were 1.6 in all studied years, except the year 2012, when its value fell to 1.3. The value of quick ratio is generally recommended to be above 1.0 and this condition was satisfied in the all observed years. The final results of *cash ratio* satisfied the condition of requirement values more or less fully, since the values were mostly within the limit during the studied time, excluding the year 2011 when the value lied under the boundary number 0.2. That means

the company had more complicated payments of short-term payables from the short-term financial assets such as the most liquid assets in this year.

The first indicator of activity ratios group was *the total asset turnover ratio*. Its maximum 1.9 was in the year 2010 and 2011. That means, total assets were almost two times converted to the revenues in both of these two years. Next indicator, *the fixed asset turnover ratio* was in the first two monitored years 2010 and 2011 quite high, but on the other hand the value of the indicator was slightly below the industry average which is 5.1 in the year 2013. In the year 2012 and 2013, the firm bought piece of land with the buildings which had increased the denominator in the formula and caused the decline closer to the industry average. *Inventory turnover ratio* had maximum in the year 2013, its value was 26.1 which meant that inventory had been converted to the revenues 26.1 times in that year. Average value 22.7 is also high, which is also good for company high liquidity.

Resulted values of *return on assets* were all under the recommended minimum 8% in studied period. The enterprise probably was not able to use its property base effectively. The maximum value peaked in the year 2011 and minimum just after in 2012, this could be caused by the increase in the total assets by 68 657 TCZK from 2011 to 2012 and also by decrease of earnings by 4 393 TCZK. *Return on equity* had its maximum in the year 2011, when it reached 9.4%. When the value of equity was 69 072 TCZK, its return was 9.4% which was exactly 6 492.8 TCZK of return for a company owners or shareholders. The value of return on equity indicator is varying, but the relatively high value in the last observed year can be considered as positive tendency. *The return on capital employed* provides information about the profitability of investment capital, not only about equity but also about reserves, long-term liabilities and bank loans as well. The indicator had the maximum value in the year 2011, namely 11.7%. This value means that for every invested 1 CZK by creditors, the firm had reached valorisation of 11.7% of earnings before interest and taxes.

Table 13: Ratio analysis of DEKONTA

Group of indicators		2010	2011	2012	2013
	Net working capital (TCZK)	82707	64631	145767	135318
Debt ratios	Total debt ratio (%)	20.6	41.3	36.4	42.4
	Equity multiplier (%)	129.6	173.0	183.1	188.0
	Debt-equity ratio	0.3	0.7	0.7	0.8
	Times interest earned	150.3	2167.3	1400.9	247.2
Liquidity ratios	Current ratio	2.7	1.5	2.2	2.0
	Quick ratio	2.6	1.5	2.2	2.0
	Cash ratio	1.1	0.6	0.4	0.5
Activity ratios	Total asset turnover ratio	1.0	1.0	1.2	1.2
	Fixed asset turnover ratio	2.0	2.8	5.1	5.0
	Inventory turnover ratio	56.1	202.7	285.4	1312.0
Profitability ratios	ROA (before tax) (%)	7.4	16.2	10.3	11.0
	ROE (%)	6.8	27.6	17.1	16.5
	ROCE (%)	9.4	27.5	18.6	19.1

Source: Author's calculations based on financial statements of the company

In the table 13, *the net working capital* had a heterogeneous development with the highest increase by 81 136 TCZK in the year 2012 against the year 2011, while its overall average level was 107 105 TCZK in the monitored period. From the perspective of management the company was in the good conditions from liquidity, efficiency, and overall health point of view thanks to positive numbers of net working capital during the monitored period. However, in terms of ownership it is better to minimize net working capital, because owners prefer current assets to be financed by short-term funds and only fixed assets by long-term funds, which are generally more expensive.

The average amount of *total debt ratio* was moving around 35.2% of total assets, which indicated using foreign capital in minor scale against usage of equity. *Equity multiplier* had conspicuously increasing tendency during the monitored interval. This tendency had shown that a larger portion of asset financing was being done through the debt. This is kind of company's ability to use its debt for financing its assets. The third firm under consideration is the biggest one and its values of *Debt-equity ratio* are below one, which is a good signal. Based on the increasing tendency of the ratio, it can be said that the company increased financing by creditors rather than from its own financial sources in the last years. The values

for the last monitored index, *times interest earned*, were the highest ones from all monitored companies. The best result was watched in the year 2011. The value 2 167 TCZK tells that the profit in that year was 2 167 times higher than the interest paid which is very positive sign and follows from the low indebtedness.

The current ratio had a varied development over the reported period. Since the optimal values can be found within the limits 1.5 – 2.5, the firm's results oscillated around the whole scale. The results of *quick ratio* are very similar to results of the current ratio with the slight difference in the year 2010, when the current ratios exceeded the value of the quick ratio by 0.1 which is almost negligible. It is positive, that all values are above 1.0 which is considered to be a lower limit of the indicator. The results are quite high again, the creditors were satisfied in the whole followed period, but high liquidity binds funds which may be inefficient. The last ratio from liquidity indicators is *the cash ratio*. The final values had a varied development. Since the recommended values are said to be within the interval from 0.2 to 0.7, the values had satisfied the condition and even exceeded the limit with the maximum value 1.1 which is a positive for the corporation from the liquidity point of view, because the firm had no problems with the ability to pay short-term payables from short-term financial assets, but it can be seen inefficient from the viewpoint of profitability, as said above.

Total assets turnover had an average value of 1.1 (1.0 and 1.2) which is a good sign, but could be better since the minimum value of this indicator is recommended to be 1. This value indicates that the firm could be able to turn up its total assets to the revenues but only one time per year. Another indicator was *the fixed asset turnover ratio*. The development of this ratio is positive, because in the last monitored years the values are high (5.1 in 2012 and 5.0 in 2013), just as an industry average. E.g. the value 5.1 means fixed assets were 5.1 times converted to revenues. These results were caused by the sale of piece of land and buildings, which brought an approximation to the recommended industry value. The last indicator from activity ratios group - *inventory turnover ratio* increased significantly during the observed period. This increase in the values of the indicator was caused

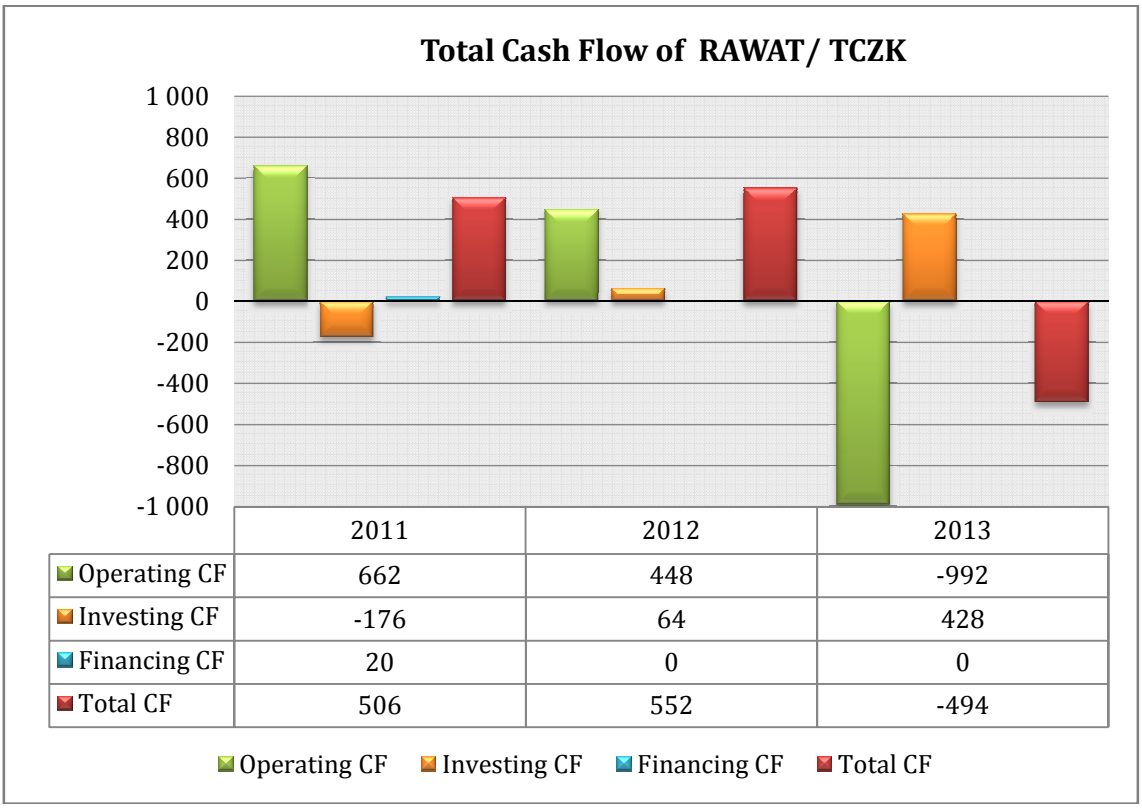
by the decrease of the inventory. Thanks to a very high result in the last monitored year, the firm had high level of liquidity.

Values of *return on total assets* are varying with positive development during the monitored period, except of the first year, they are over the recommended value 8%. The highest profitability of capital invested in the company by its owners or shareholders (*return on equity*) was in the year 2011 (27.6%), which means that from every invested CZK came back 0.27 CZK. The firm had valorised its resources effectively in the whole monitored period. Only in the first year 2010, the value had reached 9.4%, which is under the recommended average 10%. *The return on capital employed* had its maximum in the year 2011 (27.5%) this value means that for every invested 1 CZK by creditors, the firm had reached valorisation of 27.5% of earnings before interest and taxes. In 2012 and 2013, the value decreased, however it was still satisfactory. Considering the fact, the earnings after interest and taxes had increased just from the year 2010 to the year 2011 by 28 543 TCZK, the return on capital employed had to also increase, namely by 18.1%.

4.4 Cash Flow Analysis of Selected Companies

Cash flow analysis monitors the changes in the structure of cash flows and their level of stability. From the structure of cash flow is mainly possible to find out the complex form of tied capital in the individual components of a property and forms of corporate financing. From a financial perspective, the most important area is considered to be the normal business activity. Therefore, cash flow generated from this activity, viewed in relation to cash flow related to investment activities of the company and the use of internal sources of funding, is considered to express the intrinsic financial strength of the company. From these relations can be deduced how is the company able to pay its debts from own financial strength, perform, restore and develop investments, strengthen the liquidity and to distribute the profit.

4.4.1 Total Cash Flow

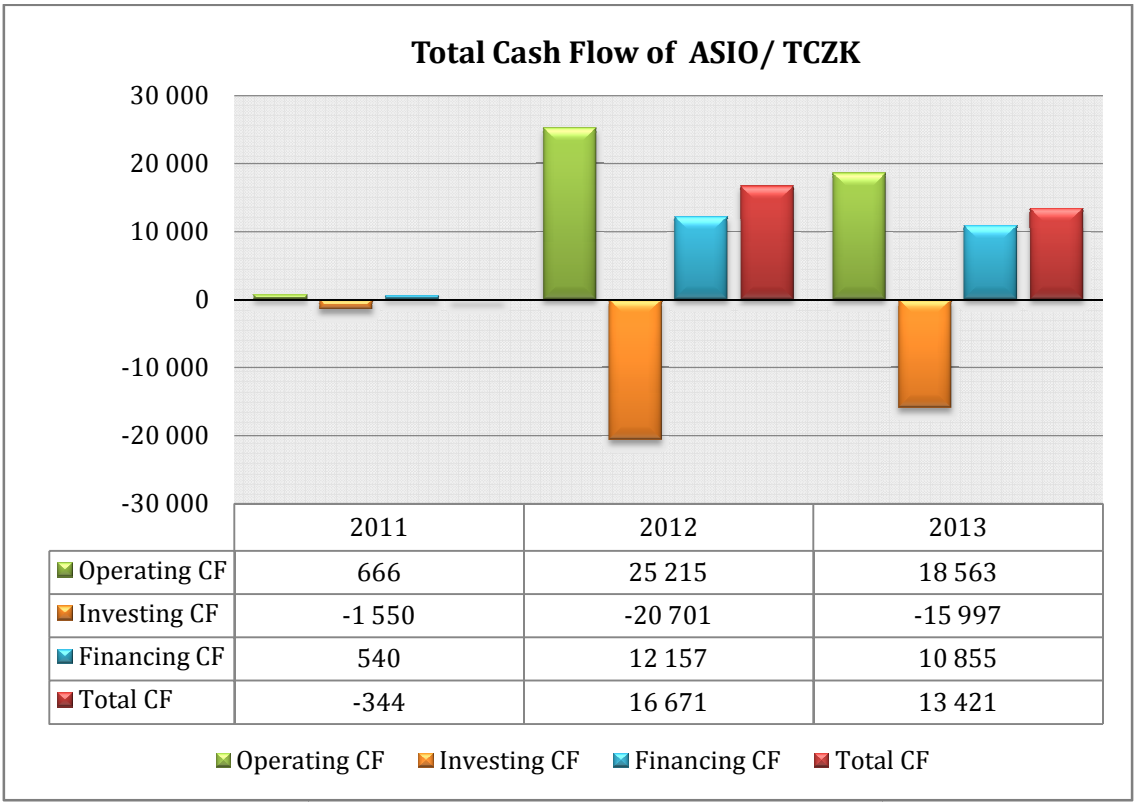


	2011	2012	2013
Operating CF	662	448	-992
Investing CF	-176	64	428
Financing CF	20	0	0
Total CF	506	552	-494

Figure 8: Total cash flow of RAWAT
Source: Own work based on figured cash flow statement of the company

Total net cash flow is created by net cash flows from individual activity areas of the enterprise. The development of the net cash flow can be characterized as increasing during the first two monitored years, however it backslid to the negative value 922 TCZK in the year 2013, see figure 8. In all the years, the CF from operating activities had contributed by the greatest extent to the total CF. The maximal value 552 TCZK of total cash flow had occurred in the year 2012 due to the increase in net cash flow from investing activities by 240 TCZK and its part which relates to income from fixed assets sales. The minimum value of the year 2013 was connected with the unfavourable influence of net cash flow from operating activities which had decreased the amount of total cash flow by 922 TCZK. In that year, the firm was not able to create enough finances to cover expenses. Low value of cash flow from operating activities was negatively affected also

by the item profit from sales of fixed assets and by decline of short-term liabilities. Net cash flow from investing activities relates to fixed assets, the negative value of the year 2011 indicates that the company invested in fixed assets, particularly of an intangible character. The positive value, on the contrary, indicated that the long-term assets were earning.

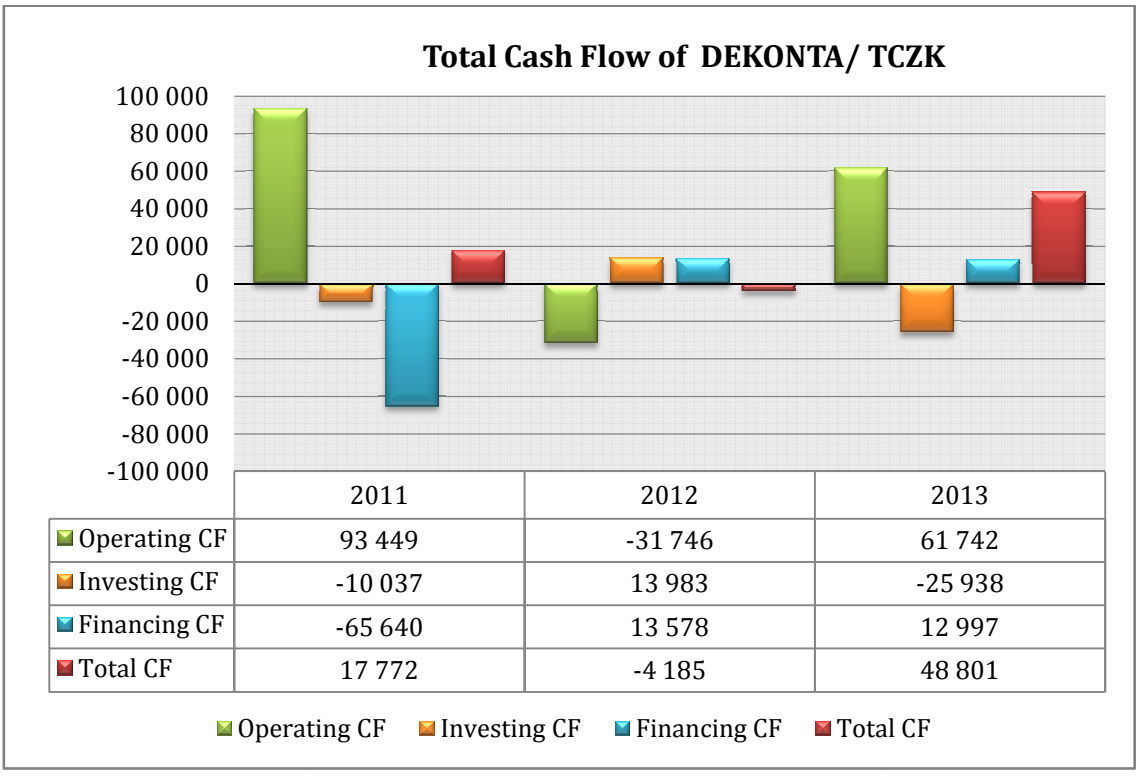


	2011	2012	2013
Operating CF	666	25 215	18 563
Investing CF	-1 550	-20 701	-15 997
Financing CF	540	12 157	10 855
Total CF	-344	16 671	13 421

Figure 9: Total cash flow of ASIO
Source: Own work based on figured cash flow statement of the company

According to the figure 9, total cash flow was firstly in negative numbers. On the contrary, total cash flow was much better in the following two years. The high value of the net cash flow from operating activities contributed to the positive results even if the total value was reduced by the investment in to constructions and equipments. The value of cash flow from operating activities was negatively affected also by the item profit from sales of fixed assets and by decline in short-term liabilities. The positive effect was not even caused by the decrease in net cash flow from financing activities. Its lower value could be explained by the change in liabilities including higher need of bank credits.

Overall, it can be said, that the company was not threatened by the potential insolvency of some of its clients as its revenue from trade overrode the costs associated with the payment of suppliers.



	2011	2012	2013
Operating CF	93 449	-31 746	61 742
Investing CF	-10 037	13 983	-25 938
Financing CF	-65 640	13 578	12 997
Total CF	17 772	-4 185	48 801

Figure 10: Total cash flow of DEKONTA
Source: Own work based on figured cash flow statement of the company

When analyzing cash flow, we deal with the overall increasing or decreasing of available funds. The main source of income flows from operating activities, it may be noted that cash flow from operating activities, was except the year 2012, positive, the largest increase was recorded in the year 2013, see figure 10. The highest value was reached in the year 2011, when the company was able to create net cash flow from operating activities of the amount 93 449 TCZK. In the year 2011 and 2013, it can be noticed a negative cash flow from investing activities. The company had invested more in the purchase of fixed assets within those years. In the year 2012, the cash flow from investing activities was positive due to the sale of some fixed assets. The largest investment the enterprise

carried out in fixed assets, according to the balance sheet, in the year 2011 and 2013. At the end of the monitoring period, the company had invested into acquisition of fixed assets almost 26 million CZK. Cash flow from investing activities recorded the largest change from the year 2011 to 2012, reason for the accruement was the increase in short-term and long-term liabilities. The maximum amount of total net cash flow (48 801 TCZK) had occurred in the last observed year 2013.

4.4.2 Cash Flow from Operating Activities

Table 14: Cash flow from operating activities of RAWAT/ TCZK

Cash flow from operating activities	2011	2012	2013
Net cash flow from operating activities	662	488	-922
Accounting profit/loss from operating activities before taxation	286	161	-4
Adjustments by non-cash operations	68	-64	-428
Change in non-cash items of working capital	363	423	-490

Source: Own work based on figured cash flow statement of the company

In the table 14, there is presented more detailed sight of the structure of cash flow from operating activities. Its declining results are connected with the gradual decline of accounting results from operating activities before taxation and also with the changes in the short-term liabilities and short-term receivables.

The positive results of the net cash flow from operating activities and the highest accounting profit from operating activities before taxation were noticed in the years 2011 and 2012. The positive cash flow was caused especially due to the increase of short-term liabilities from operating activities, which meant inflow of financial funds for the firm. On the contrary, the short-term liabilities were repaid in the last observed year 2013 and at the same time the short-term receivables increased significantly which had negative impact on cash flow. The negative outcome was also deepened by subtraction of profit form fixed assets sold in 2013, which is taken into consideration in the part of CF from investing activities. Due to this fact and also due to the significant accounting loss the company

met with the least favourable outcome, when the decrease over the previous year reached the change of 1410 TCZK.

Table 15: Cash flow from operating activities of ASIO / TCZK

Cash flow from operating activities	2011	2012	2013
Net cash flow from operating activities	666	25215	18563
Accounting profit/loss from operating activities before taxation	7913	3520	8874
Adjustments by non-cash operations	1938	7281	8152
Change in non-cash items of working capital	-6106	16290	3421

Source: Own work based on figured cash flow statement of the company

The development of net cash flow from operating activities, in the table 15, can be characterized as fluctuating. In the year 2011, cash flow was influenced by the change in non-cash items of working capital which had decreased accounting profit before taxation by 6 106 TCZK. In this year, the amount of receivables increased significantly together with increase of repaid liabilities, which meant the loss of cash. The year 2012 had brought more favourable results to the company, despite the fact, that accounting profit had declined by 4 393 TCZK. The net cash flow in the year 2012 had recorded an increase of 24 549 TCZK over the previous year 2011. In the year 2012, there had also been a positive development of change in non-cash items of working capital especially due to the significant increase of short-term liabilities which mean financial fund available for operating activities. The fact that the company had reached each year a positive economic result can be considered as positive.

Table 16: Cash flow from operating activities of DEKONTA / TCZK

Cash flow from operating activities	2011	2012	2013
Net cash flow from operating activities	93449	-31746	61742
Accounting profit/loss from operating activities before taxation	47659	36398	40126
Adjustments by non-cash operations	12275	14143	14837
Change in non-cash items of working capital	33728	-79580	13760

Source: Own work based on figured cash flow statement of the company

As the table 16 depicts, net cash flow from operating activities in the case of the biggest company had a varied development. After the highest value 93 449 TCZK measured in the year 2011 was followed by the lowest value of net cash flow, the decline was by 125 195 TCZK, namely to the value -31 746 TCZK. Last investigated year had showed, unlike the previous one, again a positive value in the amount of 61 742 TCZK. The negative outcome, in 2012, was caused by the increase in the amount of short-term receivables, which is positive from the accounting profit point of view, because it means the firm is selling well its products and services, but it has a negative impact on cash flow in this year, because these receivables has not been repaid yet. In the year 2013, cash flow from operating activities had reached a positive value, because the high amount of receivables created in 2012 were converted into cash in 2013.

4.4.3 Cash Flow from Investing Activities

Table 17: Cash flow from investing activities of RAWAT/ TCZK

Cash flow from investing activities	2011	2012	2013
Net cash flow from investing activities	-176	64	428
Expense on fixed assets acquisition	-211	-135	0
Income from fixed assets sales	35	199	428
Loans to related parties	0	0	0

Source: Own work based on figured cash flow statement of the company

Cash flow from investing activities is mainly affected by the expenditure produced in connection with the acquisition of long-term assets, especially tangible fixed assets.

When looking to the balance sheet, it can be find out that the company owns fixed assets on average for 125 TCZK. The highest value of the net cash flow from investing activities had occurred in the year 2013 when it reached 428 TCZK, because there were no expenses on fixed assets acquisition and moreover, some fixed assets were sold. The minimal value of net cash flow was observed in the first monitored year 2011, namely -176 TCZK due to assets acquisition of 211 TCZK in the year 2011, see table 17. Another item which affects cash flow from investing

activities is income from fixed assets with increasing development from the value of 35 TCZK in the year 2011 through the value of 199 TCZK in the year 2012 to the final observed value of 428 TCZK. In the reporting period, there were no loans to related parties, that is why there are zeros in the corresponding row.

Table 18: Cash flow from investing activities of ASIO / TCZK

Cash flow from investing activities	**2011**	**2012**	**2013**
Net cash flow from investing activities	-1550	-20701	-15997
Expense on fixed assets acquisition	-1567	-21001	-16369
Income from fixed assets sales	17	300	372
Loans to related parties	0	0	0

Source: Own work based on figured cash flow statement of the company

From the table 18, it can be found, that the firm invested a lot to the fixed assets, which means negative values of cash flow from investing activities, but positive development of activities of the firm. In all the observed years there were significant expenses on fixed assets acquisition, which refers to the fact, the firm is expanding, which is positive. From the Cash Flow statement it can be see, that the firm is able to produce enough cash flow from operating activities to cover its investments. Maximal value of net cash flow from investing activities had occurred in the first monitored year 2011, namely -1 550 TCZK. In the following year, there were higher investing activities by the 19 151 TCZK against the year 2011 and in the year 2013, there was a decline in investing activities by the 4 704 TCZK against the year 2012. In the year 2011, the assets were acquired in the amount of 1 567 TCZK. The year 2012 had exhibited the highest investment, the assets were bought for 21 001 TCZK and in the year 2013, the investment had reached a value of 16 369 TCZK. In the observed period, there were again no loans to related parties.

Table 19: Cash flow from investing activities of DEKONTA / TCZK

Cash flow from investing activities	2011	2012	2013
Net cash flow from investing activities	-10037	13983	-25938
Expense on fixed assets acquisition	-10454	14229	-26151
Income from fixed assets sales	417	-246	213
Loans to related parties	0	0	0

Source: Own work based on figured cash flow statement of the company

The net cash flow from investing activities had unequal development, as it is apparent from the table 19. For the determination of cash flow from investing activities of the year 2011, it was emanated from final accounts of the previous year that means financial accounts from the year 2010. The maximum value 13 983 TCZK of the net cash flow from investing activities had occurred in the year 2012, the minimal value -25 938 TCZK was measured in the year 2013. This development is consistent with the acquisition of fixed assets, which had the highest value in the year 2013 and on the contrary, it was invested in fixed assets, at least in the year 2012. The largest investment was reflected on cash flow from investing activities by the decrease of the cash from the cash account, because these fixed assets were acquired by the purchase from suppliers. The fixed assets were created mainly from the items such as constructions and equipment. Income from fixed assets sales was the highest in the year 2011 and the lowest in the following year 2012, but these values are significantly lower in all observed years in comparison with the values of expenses. Loans or credits to related parties have not been made during the reporting period.

4.4.4 Cash Flow from Financing Activities

Table 20: Cash flow from financing activities of RAWAT / TCZK

Cash flow from financing activities	2011	2012	2013
Net cash flow from financing activities	20	0	0
Change in balance of L-T/S-T payables	0	0	0
Impact of changes in equity on cash on hand and financial equivalents	20	0	0
Dividends paid or shares in profit	0	0	0

Source: Own work based on figured cash flow statement of the company

The results, which are presented in the table 20, are rather compendious compared with the data in the following two tables. From the above values, it is evident that the only change in net cash flow from financing activities of the firm was caused by the direct payment debited to the funds. The narrow range of assembled data was also caused by zero passive items in the balance sheet as long-term liabilities or long-term bank loans. There were no dividends paid or shares in profit during the reporting period.

Table 21: Cash flow from financing activities of ASIO / TCZK

Cash flow from financing activities	2011	2012	2013
Net cash flow from financing activities	540	12157	10855
Change in balance of L-T/S-T payables	558	12157	10872
Impact of changes in equity on cash on hand and financial equivalents	-18	0	-17
Dividends paid or shares in profit	0	0	0

Source: Own work based on figured cash flow statement of the company

The development of the net cash flow from financing activities can be considered as an increasing. Among the major items that affect net cash flow from financing activities in the company belong the changes of long- term or short-term liabilities. The item effects changes of long-term or short-term liabilities and includes also the changes in bank credits. This item was during the entire period positive and growing, which means an increase in bank loans to finance its short-term and long-term capital needs. At the item impacts of changes in equity, there are two negative numbers of changes that occurred in 2011 and 2013. The amount of 17 TCZK can be interpreted as the payment of loss by the company, see table 21.

Table 22: Cash flow from financing activities of DEKONTA / TCZK

Cash flow from financing activities	2011	2012	2013
Net cash flow from financing activities	-65640	13578	12997
Change in balance of L-T/S-T payables	-640	561	12981
Impact of changes in equity on cash on hand and financial equivalents	-65000	13017	16
Dividends paid or shares in profit	0	0	0

Source: Own work based on figured cash flow statement of the company

At the first glance at the table 22 it is predictable that on the structure of net cash flow from financing activities the changes in equity on cash on hand and financial equivalents had the principal impact. The item change in balance of long-term or short-term liabilities includes changes of bank credits state. This item is negative in 2011, which means a decrease of bank loans. Conversely, in 2012 and especially in 2013, there can be recorded a growth of bank credits in the amount of 12 981 TCZK. In the year 2011, the company paid off a profit from the previous period to partners in the amount of 65 000 TCZK. In the year 2012, the loss at the value 13 017 TCZK was defrayed by the co-partners. In 2013, the partners paid the sum of 16 TCZK. During the monitoring period the firm had no dividends paid or shares in profit. This item stayed unchanged at zero value.

4.4.5 Computation of Selected Cash Flow Indicators

The task of cash flow analysis is to record the warning signals of possible payment difficulties and assess the internal financial potential of the company. Indicators are usually based on other ratios, in which there is usually replaced accounting profit with cash flow. There are measures as the financial flows from operating activities with some components of the income statement or balance sheet.

Table 23: Cash flow indicators of RAWAT

Indicator	2011	2012	2013
Return on equity	105.1%	64.7%	-122.9%
Return on paid-in capital	71.5%	32.5%	-64.2%
Turnover profitability	22.2%	28.2%	-122.6%
Liquidity from cash flow	318.3%	67.2%	-134.8%
Discharge from debts degree	318.3%	67.2%	-134.8%

Source: Author's calculations based on financial statements of the company

The return on equity, in the table 23, expresses how much of cash flow falls on the one CZK of invested capital. The company had the highest value 105.1% in the year 2011. During the monitored period, the values had declined intensely, firstly by 40.4% and then by 187.6% even to the negative amount in the year 2013.

The return on paid-in capital predicates how much of the capital would be covered with the cash flow in the monitored year. The development of the indicator was similar as in the case of the return on equity. The highest value 71.5% had occurred in the first monitored year 2011 followed by the decline by 39% to the value 32.5% in the year 2012. The lowest measured value had occurred in the year 2013 and flopped even to the negative number.

Turnover profitability determines a financial effectiveness of the company management otherwise the ability of the firm to create financial surplus, which is necessary for the farther boosting of the company position for the maintenance of financial independence and servicing of the capital. The maximum measured value 28.2% in the year 2012, indicates how much percent had left in the firm for the next investment from the earnings from the operations.

The indicator *liquidity from cash flow* considers the possibility of usage of all resources of cash flow from operating activities for the reimbursement of short-term liabilities. The maximum value of the indicator 318.3% had occurred in the first observed year 2011. Such high value means the firm was able to pay off entire short-term liabilities just from the created cash flow from operating activities in the year 2011.

The last cash flow indicator was *discharge from debts degree* and in the case of this firm, it had the same values as the previous indicator liquidity from cash flow. This was caused by the fact that the liabilities were created only by the short-term liabilities in all the observed years. It means that the denominators in both formulas had the same numbers. Because of the decreasing trend of the index, it could be warned against the increasing financial stress of financial situation of the company.

Table 24: Cash flow indicators of ASIO

Indicator	2011	2012	2013
Return on equity	1.0%	31.3%	21.1%
Return on paid-in capital	0.5%	12.3%	9.5%
Turnover profitability	0.3%	9.5%	7.0%
Liquidity from cash flow	1.0%	22.6%	22.7%
Discharge from debts degree	1.0%	20.2%	17.5%

Source: Author's calculations based on financial statements of the company

From the first calculated indicator, in the table 24, *return on equity* of ASIO can be read, that cash flow in the year 2011 created only 1% of the equity, nonetheless in the following years the results were much better

The next indicator, *the return on paid-in capital,* had peaked in the year 2012 by the value 12.3% which means that cash flow from the year 2012 had created 12.3% of the capital. Since the maximum measured value in the table above was higher than bank's interest rate, it can be said that for the firm was profitable to accept new credits, because the company was able to produced more than it was necessary for the repayment of the interests.

Turnover profitability is higher in the last two years than at the beginning of the observed period, which could mean that the internal financial possibilities of the firm had increased. The maximum value of the indicator during the followed period, was observed in the year 2012, namely 9.5% which means that for the next investment had left in this year 9.5% from the earnings from the operations.

The values of the *liquidity from cash flow* show better liquidity evaluated on the basis of cash flow in the last observed years. The liquidity had peaked in the year 2013 by the value 22.7%. This merit can be depicted subsequently, from the cash flow from operating activities produced in the year 2013, which could remunerate only 22.7% from short-term liabilities. The minimum value was noticed in the year 2011, it was namely 1%, this low value is a sign that the firm had problems to reimburse its short-term liabilities only with the cash flow generated in the year 2011.

The last indicator, *discharge from debts degree*, had similar tendency as the liquidity from cash flow, which was caused by the fact that short-term liabilities created the substantial part of the liabilities, however the interpretation of the indicators is different. The maximum had peaked in the year 2012 by the value of 20.2%, which can be described as follows - the enterprise was able to cover 20.2% of liabilities by own generated profit.

Table 25: Cash flow indicators of DEKONTA

Indicator	2011	2012	2013
Return on equity	54.9%	-16.5%	31.8%
Return on paid-in capital	31.7%	-9.0%	16.9%
Turnover profitability	30.7%	-7.7%	13.6%
Liquidity from cash flow	78.9%	-25.5%	44.8%
Discharge from debts degree	76.7%	-24.8%	40.0%

Source: Author's calculations based on financial statements of the company

In the table 25, *the return on equity* calculates the percentage part of the equity which was created by the firm within the monitored period with the usage of cash flow from operations. The company was profitable in the year 2011 and 2013, but there was a decline in the direction of the negative numbers in the year 2012. The highest value 54.9% had occurred in the year 2011 and can be interpreted as following: the 54.9% of the cash flow fell on the one CZK of invested capital.

The maximum value 31.7% of *the return on paid-in capital* had peaked in the year 2011, which means that cash flow of the year 2011 had created 31.7% of the capital. Since the bank's interest rate was lower than the measured maximum value in the year 2011, for the firm it was profitable to accepted new credits, because it was able to create more than was necessary for paying of interests. However the next year the value of the indicator had fell to the negative numbers, which could be the result of the bad credit management.

Financial effectiveness of the business management measured by the indicator *turnover profitability* had the best value in the year 2011 namely 30.7%, which means that this percentage amount had left for the company's next investment

possibilities from the earnings from the operations. Between the first two observed years was apparent a decline by 38.4% which could be caused by the decrease of internal financial possibilities of the firm.

Liquidity from cash flow is an indicator that denotes the firm's ability to repay its maturing debt obligations from the created cash funds. DEKONTA had good ability to repay its short-term liabilities in 2011 and 2013, on the contrary the firm was not able to repay its debt obligations from the created cash flow in 2012. E.g. the value 78.9% in 2011 means that 78.9% of short-term liabilities could be paid from the cash flow from operating activities, which was created in the year 2011.

The recommended value of *the discharge from debts degree* is between 20% and 30% and higher number means better ability to equalize the generated liabilities, this condition was fulfilled in the first and last observed year due to the negative CF from operating activities in 2012. The maximum value 76.7% had occurred in the year 2011, it means that in the year 2011 the company was able to pay off 76.7% of its liabilities by the generated cash flow from the operating activities. The decreasing tendency of the indicator during the first two observed years signed the ascending financial tenseness of the company.

4.5 Concluding Remarks

The world of universities and the academies of sciences is rather separated from the needs and way of thinking of companies. As universities and academies are evaluated according to the number and level of impact factor papers, number of citations, H-index etc. or number of utility patterns, patents and other endpoints registered in Register of information about the results (RIR), companies are looking for innovative results, which will be robust, really working with minimum so called „children diseases“. As resulted from several of my discussion in companies, university-academy world and companies' needs are kind of skew-lined,

where they do not need each other, with the exception, that universities need a company for the financing or as the official project partner. The polarity of academic sphere on scientometrics and RIR points do not reach the company's hopes and that is why many of the innovative companies establish own R&D division, where research should be oriented on company's needs. Actually, this is not true in the case of middle-sized company, selected in this comparative study, where more than half R&D projects do not reflect company's needs and are realised as the good source of money, stabilizing the company's cash flow.

RAWAT (as an example of a micro enterprise) acquired a utility pattern from the project NANORADI, based on which are manufactured goods. The project must bring back co-financing, money that has been put into the project by the company throughout its lifetime, in this case, for a period of 4 years. RAWAT obtained the project from Technology Agency of the CR (TACR) for the preparation of biological products on the release of nutrients from the soil and improving plant growth. The product was developed just in the first year of the project and just in the second year of the project brought the company 250 TCZK which improved cash flow and the stability of the company. Micro firms are very predisposed to maintain their stability. RAWAT was a solver of a successful project without the state subsidies and result of research was a special composition of bacteria for water treatment.

Micro firms have lower stability, everything depends on people, the need for co-financing of projects is choking for them and from the social perspective they are choking by the frequent controls by provider of the project. For micro firms, the project money is as poisonous money due to strict controls. The innovative potential of the company is based mainly on the creative thinking of the people. Frequent controls related to the project are lethal for innovative flow of ideas of these creative people. An angry person due to controls is not creative.

Support for science and research is ideal for small-sized and medium-sized companies. The medium-sized companies have a higher stability and unlike the large

firms they have a higher degree of freedom in decision making than for example a joint stock company. Science must be innovative, and associated with the products of the company, to help the company. Projects that do not meet these parameters are at the end of project considered as a net loss - not only temporal, but also financial due to co-financing. From this perspective, it appears that R&D department has to be managed resolutely, it means not to take all the projects that are offered.

ASIO (as an example of a small enterprise) accepts all offered projects. Two-thirds of these projects are not innovative, they will not bring innovative results to the company, and they will not increase the company's competitiveness. The projects were accepted by the company mainly due to the payment of wages to employees. These projects, which are not innovative, are net loss from the long-term point of view.

The bigger companies than previously mentioned (i.e. DEKONTA as an example of a middle-sized enterprise), do not need subsidized projects. They are able to discover what they need for their own money. Grants on local, regional and national level are questionable for them. These are often multinational companies and finances thus get into other regions where the company has its branches.

Quite a new trend was detected during the evaluation of R&D project support systems, the companies - micro and especially middle ones stated, that they will do R&D in the future without EU subsidies, because it is quicker, cheaper and especially without complicated and frequent controls which are not consistent and do change the parameters and statements within one project, what makes such kind of support demotivating.

In a joint project from the EU subsidies, there were showed as common problems, the unclear relationship with the Intellectual Properties (subjects steal patents to each other). Current practice showed that in the case of micro companies' subsidized money seem to be poisonous thanks to frequent controls and regulations.

The phenomenon of SMEs in Europe is to invest their money together to the original research and development. The results are clearly shared and all companies have own profit, because firms do not compete at the regional level with each other.

The South Moravian Region has an extremely high concentration of universities, research and thanks to workplaces of Czech Academy of Science also scientific network. There are also quite a lot of agencies that support the R&D, which is below the European parameters. There are many companies which could transfer research results into practice, but this is not happening. Firms prefer to establish their own R&D departments, they are themselves asking for projects, they want to control and manage what is investigated, how much to fathom and whose the result will be.

The problem in the university sphere is that there are projects with topics rather different, than the companies really need in practice. The situation is like skew lines, where partners do not need each other. Therefore, the companies are establishing their own R&D departments.

In the EU, the programme HORIZON 2020 was created, which already responds to this problem. The coordinators of the projects are dominantly the companies which can transform the results into practice. Universities serve as equipped subcontractor (they are not stated for large objectives or money, for example they remeasure some results of research performed by companies by the expensive, new and better equipments).

In the case of centres that were supported within the programme Science and Research for Innovation, evaluation is done on the basis of written publications and not on the basis of the results for the company. What is missing is just the connection with practice, with the current needs of companies. The most of the issued publications are unusable in practice by the companies.

5 Conclusion

All four aims of the thesis were achieved. Three companies different in the size, which do own research and technological development in the Czech Republic were selected. Cash-flow and economical parameters were evaluated for every particular company, what makes the thesis more complicated when usually analysis of one company was realised. The highest added value of this thesis has probably the collected notes and discussions realised with the company leaders and heads of the research and development (R&D) divisions in all investigated companies. The most important notes and points are concentrated in the chapter Concluding Remarks, which would be interesting for all other companies doing own R&D but definitely also for agencies providing subsidies and any kind of R&D support.

My analysis proved that research and development projects are able to stimulate the innovative potential of the enterprises, but for micro firms there are too many administrative duties (some projects require special bank account etc.) including frequent control system especially special way of financial reporting. In contrast to previous, small and middle enterprises need own research which makes them different, more advanced and more able to compete in comparison with other competitive companies in the field. International research projects open new contacts, trade outlet and new business opportunities in other than home countries. This fact was proven in the case of two larger firms.

The assessment of the financial situation in the analyzed companies showed, that the best financial results were reached by the medium-sized company, especially in terms of profitability. Also other ratio indicators of this company attested to the good economic performance. As the least stable company seemed to be the smallest one, there was apparent the worsening development of most calculated financial indicators. In all analyzed companies was found relatively low indebtedness and sufficient liquidity. The financial analysis results corresponded with the results that emerged from interviews in enterprises. For small companies, project support is important, it allows them to support the stability and intake

of finances, but in the case of larger enterprises it can be sometimes faster and therefore more profitable to fund research from its own funds because these companies have sufficient financial resources.

It appears as a new Europe-wide trend that small businesses began to cooperate together without subsidies from the EU and jointly produce a result, which each company can sell on its local market in its own region, thus they do not compete with each other. This can be considered as a model of twenty-first century.

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List of Abbreviations

CF	Cash Flow
CIP	Competitiveness and Innovation Framework Programme
CR	Czech Republic
EU	European Union
FP	Framework Programme
GACR	Grant Agency of the Czech Republic
GDP	Gross Domestic Product
ICT	Information and Communication Technology
MEYS	Ministry of Education, Youth and Sports of CR
MIT	Ministry of Industry and Trade of CR
MT	Ministry of Transport
OP	Operational Programme
R&D	Research and Development
R&D&I	Research, Development and Innovations
RIR	Register of Information about the Results
RP	Regional Policy
SME	Small and Medium Enterprises
SMR	South Moravian Region
TACR	Technology Agency of the Czech Republic
TCZK	Thousand of Czech Crowns

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Appendixes