The internal and external factors influencing the cost of equity capital

Vliv externích a interních faktorů na náklady vlastního kapitálu

DOKTORSKÁ PRÁCE
DOCTORAL THESIS

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DEDICATION

To my parents
for their unconditional love and belief

Statement of original authorship

I declare that this thesis is my own and has been generated by me as the result of my own original research.

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Abstract

The cost of equity capital is essential and significant element in the corporate decision making process, which is exposed to the influence of internal and external factors. The aim of the doctoral thesis is based on the comprehensive review of the theoretical literature on the internal and external factors influencing the cost of equity capital and a subsequent primary empirical research towards testing the identified theoretical approaches on a sample of Czech companies to transform the gained knowledge into a methodology supporting CFO's decision-making process on corporate financing with regard to the cost of equity capital reduction. The thesis contributes to the explanation of the corporate financing decision-making by combining different theories, surveyed gained data in Czech business environment and statistical methods. The combination of primary and secondary research enhances deeper understanding of relationship between CEC and its determinants revealing a gap between theory and practice in a particular area of expertise. As an outcome of the research, the designed methodology incorporates the worldwide knowledge of scientific community and practical experience of Czech companies and is intended for application among corporate managers and academics.

Keywords

Cost of equity capital, internal factors, disclosure, corporate governance, external factors, monetary policy, fiscal policy, financial stability, corporate financing, decision-making process, methodology.

Abstrakt

Náklady vlastního kapitálu, jež jsou ovlivňovány řadou interních a externích činitelů, významným faktorem ovlivňujícím rozhodovací procesy v podnikové sféře. Cílem této disertační práce je na základě primárních a sekundárních dat formulovat původní metodiku řízení nákladů vlastního kapitálu. Zdrojem sekundárních dat je rozsáhlá literární rešerše zahrnující zahraniční a tuzemské vědecké studie a databáze. Primární data, na základě nichž byl zkoumán vztah mezi teoretickými přístupy řízení nákladů vlastního kapitálu a podnikovou praxí, byla získána formou dotazníkového šetření od finančních manažerů působících v podnicích se sídlem na území ČR. Data byla zpracována s využitím statistických metod. Výsledky disertační práce přispívají k hlubšímu porozumění vztahu mezi náklady vlastního kapitálu a jejich determinantů a odhalují rozdíly mezi teorií a manažerskou praxí. Navrhovaná metodika řízení nákladů vlastního kapitálu je určená k použití v podnikové praxi a lze předpokládat její další rozvíjení v rámci navazujících výzkumných aktivit.

Klíčová slova

Náklady vlastního kapitálů, interní faktory, corporate governance, externí faktory, měnová politika, fiskální politika, finanční stabilita, financování podniku, rozhodovací proces, metodika.

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Abbreviations:

CEC – the Cost of Equity Capital

GDP – Gross Domestic Product

IPO – Initial Public Offering

FSI – Financial Stability Indicators

Index ICEC – Index of Internal factors influencing the cost of equity capital

Chapter 1 Introduction

1.1.   Rationale and problem statement

The cost of equity capital (CEC here and after) is an essential and significant element of decision making process of a company. Specifically during the financial instability, it is very critical to manage capital and its cost effectively towards sustained development of a company. There are various internal and external factors influencing the cost of equity capital and other corporate financial performance. One the one hand a company can manipulate the cost of equity capital by adjusting the internal factors as the strength of corporate governance, financial disclosure, social responsibility and etc. On the other hand, a company cannot manage external factors as inflation, interest rate, rate of taxes or financial stability in order to adapt the capital cost to the company's needs.

The knowledge on the theme of cost of equity capital and its determinants is very spread in the recent academic theory. There are plenty of studies connected to influence of only one factor or related group of factors. However in reality all internal and external factors influence together. For companies it is difficult to collect all spread information regarding the influence of internal factors and effectively integrate into their decision making process. The availability of applicable tool designed for the final users of CEC that translate the worldwide knowledge into specific and straightforward recommendations will benefit in corporate management.

Although the influence of several internal factors on the cost of equity capital has been extensively studied in the past few decades, the knowledge is spread and is not translated into applicable tool for final users of cost of equity capital.

The primary research is based on the evidence from the Czech Republic. Previous researches provide evidence mostly from the USA, the UK, less in developed European countries and Asian ones. Unfortunately, the evidence showing the situation in the countries with transmission economy concerning the cost of capital and its adjustment is not given in full measure. The survey carried out among Czech companies provides essential information for practice and theory, which has not been mentioned before.

The essential background of this research is the comprehensive, in-depth and structural analysis of previous worldwide theoretical and empirical studies on the theme of the influence of internal and external factors on the cost of equity capital. The analysis attempt to establish the

The topic of research is critical due to several reasons:

- The cost of equity capital is a significant element of corporate finance and essential factor in the decision-making process of a company
- There are many factors that influence the cost of equity capital thus a company has opportunity to manage its internal environment or adjust its behaviour under certain external conditions
- The worldwide knowledge should be accumulated and transmitted to the final users of equity capital.

This research is directed to enlarge the current state of knowledge on the CEC in the Czech environment, compare the theoretical statements and corporate practice.

1.2. Aims and objectives of the Thesis

The name of the dissertation is "The influence of internal and external factors on the cost of equity capital". Hence the *main aim* of the doctoral thesis is

based on the comprehensive review of the theoretical literature on the internal and external factors influencing the cost of equity capital and a subsequent primary empirical research towards testing the identified theoretical approaches on a sample of Czech companies to transform the gained knowledge into a methodology supporting CFO's decision-making process on corporate financing with regard to the cost of equity capital reduction. The thesis contributes to the explanation of the corporate financing decision-making by combining different theories, surveyed gained data in Czech business environment and econometric methods. In order to achieve the main aim the following objectives are formulated:

1. To gather the current theoretical and empirical knowledge on the influence of external and internal factors on the cost of equity capital (theoretical background composition)

2. To investigate the level of agreement between theoretical approaches and corporate experience in respect of corporate financing assisted by evidence from a sample of Czech companies gathered by the means of a primary survey on internal and external determinants of CEC

3. To analyze the significance and influence of internal and external factors on the CEC from the perspective of CFO in Czech Republic

4. To propose a functional methodology supporting CFO's decision-making process in the context of corporate financing with regard to the cost of equity capital reduction

The doctoral thesis contributes to the explanation of the corporate financing decisions by combining different theories, surveyed gained data in Czech environment and econometric methods. The thesis is intended to accumulate the previous findings on subject of internal and external factors and their influence on the cost of equity capital and highlight the possible gap between theory and practice.

The main outcome of the research is the methodology designed to support decision making process of corporate managers in terms of corporate financing and capital management. The methodology incorporates the worldwide knowledge of scientific community and practical experience of Czech companies on the theme of external and internal determinants of the cost of equity capital.

The Figure 1 represents the framework of the research, which dedicated to create practical outcome based on the combination of secondary and primary research and the analysis of theoretical and empirical performance.
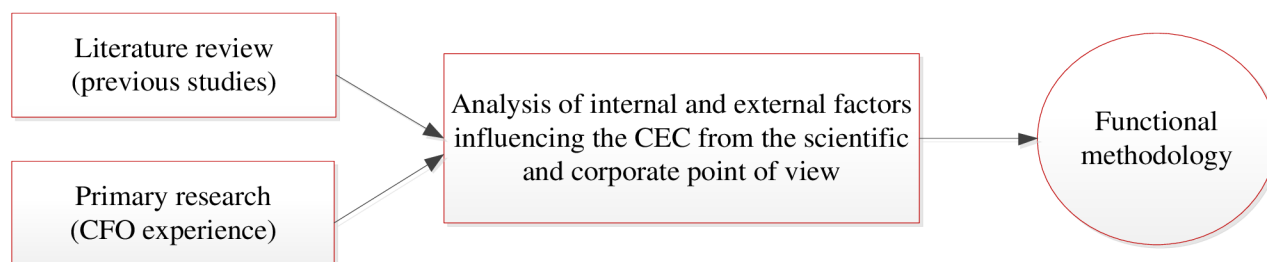
Figure 1: The framework of the research

1.3.   The thesis work structure

The current Chapter 1 has provided a general overview of the dissertation. In Chapter 2, 3 and 4 theoretical issues which are significant to the study are discussed. More specifically Chapter 2 is dedicated to theoretical background of capital as economical category. Chapter 3 is assigned to internal factors and their influence on the cost of equity capital. Chapter 4 provides theoretical background in external factors and financial stability of a country. Chapter 5 is devoted to the methodology of dissertation and research design. In Chapter 6 the findings of primary research is discussed. Chapter 7 includes the proposals of methodology designed to decrease the cost of equity capital based on the results of secondary and primary research. And finally Chapter 8 provides concluding remarks and contribution of the dissertation work.

Chapter 2 Theoretical background: cost of equity capital

2.1. Capital as economic category

Capital is a polysemantic term that is used to characterize certain resource: economic, political, financial and etc. Etymologically a word «capital» is rooted in VIII-VII centuries B.C. and derives from the Latin word «caput», which means head. Originally, it was referred to the chopped off head. In Rome the bulls were sacrificed at the Capitol Hill and their heads were dedicated to Jupiter (Roman God). In other words, the Capitol Hill means a place of bull sacrifice. It is know that originally the function of money was performed by cattle, fur etc. In Rome it was cattle thus the most precious possession was given to Jupiter. The temple of Jupiter was located in the centre of the city as people used to build their houses around the temple and over the course of time the word «capital» took a new meaning in point of geographical centre. Subsequently a country arose around this centre, which became a capital of the country. Given these points the term «capital» as economic and geographic categories has the same roots. (Balikoev, 2008)

In terms of evolution of capital as economic category Ushakova (2005) outlines the following stages of capital definition development through the time:
✓ Capital as wealth represented by gold and silver money
✓ Capital as the source of income obtained by agricultural activities
✓ Capital as means of production, i.e. embodied tangible wealth, which utilization enable to obtain income
✓ Capital as the process of savings that enable to obtain income by the means of entrepreneurial and management skills
✓ Capital as social economic relations between people in the process of material goods production
✓ Capital as saved labour, i.e. property rights for it and profit earning are conditioned by entrepreneurial skills
✓ Capital as discounted income, regardless a sphere of capital utilization and nature of performed activity
✓ Capital as a set of knowledge, skills and abilities, which enable to obtain income from realization of output.

Turning to corporate finance the treatment of the term capital as economic category is realized within the frame of two concepts:

✓ the physical nature of capital (where capital is a set of corporate resources)
✓ the financial nature of capital (where capital is a fund of owners or investors of a company).

In accordance to the physical concept capital is a set of resources, which are universal sources of income of society, and can be divided into personal, private and public. The last two types of capital can be taken as real and financial. The real capital is realized in material goods as production factors (buildings, equipment, transport and etc.). At the same time financial capital represents securities and cash resources (Kovalev and Kovalev, 2014).

The exponents of the physical concept (F. Quesnay (1694-1774); A. Turgot (1727-1781)) determine the main resources of society (i.e. capital) as constantly reproductive wealth, which is able to produce income (Chernikova, 2009). Together with physiocrats Adam Smith (1723-1790), the pioneer of classical economics, is committed to physical concept of capital and defines it as machines, instruments of labour, all buildings being instruments of income, land improvement and acquired useful abilities of members of society. At the same time D. Ricardo characterizes capital as the part of state wealth, which is utilized in production and consists of food, clothes, equipment, raw materials, machines and other resources that are necessary to put labour in motion. He believes that only labour could create a value and capital is devoid of production capability, but income of owner of capital and wages have inverse relationship. A. Smith and D. Ricardo give precedence to working capital that is marked by pre-industrial time (Komkova, 2011).

In the context of a company in line with physical concept capital represents a set of corporate production capacity that directed to produce specific goods and profit by their realization. In other words the term capital is considered as characteristics of corporate ability to generate profit. For example, P. V. Struve (1870-1944) defines capital as economic good that is assigned not to final consumption but to income generation and can be classified into two forms: natural and monetary. Also L. V. Khodsky (1845-1919) gives a definition to capital in terms of physical concepts, where capital is all values, except land, that are used for creation of new values in economic process (Kovalev and Kovalev, 2014).

Neoclassical economics and I. Fisher consider capital as any goods that bring income to the owner. The value of capital can be estimated based on the income received by the means of capital. Fisher (1906) defines capital as "a stock of wealth existing at an instant of time". Thus according to Fisher capital is any asset that produces a flow of income over the time. At the same time a flow and a stock are distinct but linked by the interest rate.

Turning to *the financial concept* of capital in accounting the category capital is an essential element in the double-entry bookkeeping system that was used in Italian cities in XIII-XIV centuries. At the beginning the corresponding account and its balance were considered just technically as equalizer that counterweigh the cumulative amount of assets and liabilities, i.e. capital like surplice of assets over liabilities. Later capital was comprehended as category that represents a share of owners in company's assets. According to financial concept of capital in terms of a company capital is a financial resources that were invested directly or indirectly into corporate assets. In other words, capital can be characterized as the interest of owners of a company in its total assets. Thereby the interest of owners

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can spread from minimum, viz. savings their capital, to maximum, viz. capital expansion by means of retained earnings.

For instance K. Menger (1840-1921), the pioneer of Austrian school, understands capital as fund or set of assets that have monetary form or being evaluated in monetary forms, specifically productive property as complex of effectively utilized monetary funds. Besides H.R. Hatfield (1866-1945), one of the founders of US academic accounting, argues that the term capital was brought in by James Peele, who used the notion in his book on accounting "The pathway to perfectness " (1569) thus the accountants accepted the concept of capital before economists discovered it.

The significant contribution was brought by Karl Marx (1818-1883) who is generally considered to be the classic of the theory of capital and discloses its subject matter, the sources of origin, the laws of movement, and the forms of manifestation. He treats capital as self-expanding value, where the conditions are production factors as real labour and continuous movement. According to K. Marx (1975) capital is a specific, social, belonging to certain historical formation production relation that is presented as an object and assigns social nature to it. The first form of capital is generally thought to be merchant or usury capital, which is transformed into production capital as a result of savings. Moreover, production capital changes it form repeatedly in the process of circulation: monetary capital – production capital – commodity capital. At the same time another type of capital had been developed, namely the borrowed capital. Mainly it is characterized as transfer of funds for temporary and compensated use. The borrowed capital represents monetary capital that is loaned and generates for its owner returns in the form of interests. And opposed to the production capital the transformation of the borrowed capital is characterized by formula: monetary capital – monetary capital*, where the last is capital plus its self-expending value, i.e. interests. During economic development the aggregation of production and borrowed capital took place that in turn resulted in the formation of financial capital. Metamorphosis of capital in terms of its circulation and its transformation process in historical retrospective are results of capital movement and its evolution. Nowadays the aggregate capital of society consists of five main types of capital: natural capital, social capital, human capital, infrastructural or production capital and financial.

Nowadays these tow concepts, physical and financial, are tightly bound between each other as capital presents an asset, i.e. certain physical resource evaluated in monetary form. And in the process of operation and financial activities this asset transforms into other assets and physical concepts passes into financial (Kovalev and Kovalev, 2014).

Generally speaking according to Chernikova (2009) the treatments of capital theory can be classified as follows:
- the physical concept, namely the classical theory of capital or treatment of production factors (presented by classical school of political economics);
- the monetary concept, where capital covers by commodity-money flows (presented by Chicago economic school and its ideologue M. Freedman);

- the time concept, which is based on the theory of abstinence theory (Austrian economic school and W. Jevons; E. von Bawerk; L. Walras; N. Senior);
- the marginal concept or marginal productivity theory (neoclassical economic school and A. Cournot; J. Dupoit; J. von Thünen; H. Gossen; C. Menger; V. Pareto)
- the unity of physical and human capital in terms of theory of human capital (G. Becker; P.Gutmann; F. Machlup; T.; Shultz; J. Schumpeter).

However, the continuous intensive evolution of capital and modern theory and practice promote the formation of new specific types of capital: venture capital, brand equity, intellectual capital, goodwill, information capital, social capital and etc. These contemporary types are referred to capital based on the key features of capital as economic category: production factors, productive consumption, value generation and continuity of reproduction (Chernikova, 2009). Table 1 presents the definitions of different types of capital.

Table 1: Types of capital and its definitions

Type of capital	Definition
Natural capital	The economic category that represents mineral, plant and animal resources
Social capital	The resources that encourage the growth of social productivity of labour, where social relationships are primary
Human capital	The complex of knowledge, skills and know-how that are used for satisfaction of human needs and society
Infrastructural or production capital	Materialized values which are used as production factors
Financial capital	The resources in monetary terms that encourage the corporate activities (operational, financial and investment)
Venture capital	The resources in monetary terms that that encourage the corporate activities provided on the early stages of corporate life cycle
Brand equity	Intangible assets that was formed in the previous periods and represent the result of labour
Intellectual capital	Result of incorporation of intellectual property into economic turnover
Goodwill	The result of labour applied in the previous period and aimed to obtain strategic competitive advantages in business
Information capital	The increasing volume of information and new techniques of its collection, storage and analysis.

Author's composition

In theoretical terms considering capital as economic category there are three fundamental approaches for capital evaluation:

- ✓ Economic
- ✓ Accounting
- ✓ Accounting-analytical

The economic approach describes capital through its physical concept, where capital represents the set of resources being universal sources of income of society and which can be divided into several groups: (1) personal; (2) private; and (3) public. The last one can be split into real and financial capital. The real capital is realized in tangible goods as production factors (buildings, equipment, transport and etc.)

The accounting approach is considered on the corporate level, where capital is a subject of interest for owners in terms of assets. In other words under this approach the term capital is represented by the net wealth.

The accounting -analytical approach is a combination of economic and accounting approaches. A capital as a set of resources can be characterized by:

- the direction of its investing
- and the source of its origin.

In terms of accounting-analytical approach capital is considered as source of financing of corporate operations. In addition from tangible point of view capital is spread across all assets of a company (Shcherbakov and Prikhodko, 2007).

There are many classification of capital as economic category from the different perspectives. One of the basic classifications determines capital as active and passive in terms of balance sheet. The active capital represents production capacity of a company, which is formally presented in the assets side of a balance sheet in the form of fixed capital (fixed assets, long-term investments, construction in progress, intangible assets and etc.) and working capital (cash, inventory, accounts receivable, accounts payable and etc.). On the other side of balance sheet there is a passive capital comprised by long-term financing sources, which in turn form the assets of a company. Thereby passive capital is divided into equity and debt capital. Another classification divides capital based on the time response (Figure 1). The common equity capital includes common shares, retained earnings, additional capital fund (accumulated surplus), funds and reserves. The equity capital can be classified according to its origin source of formation and the purpose of utilization (Figure 2)
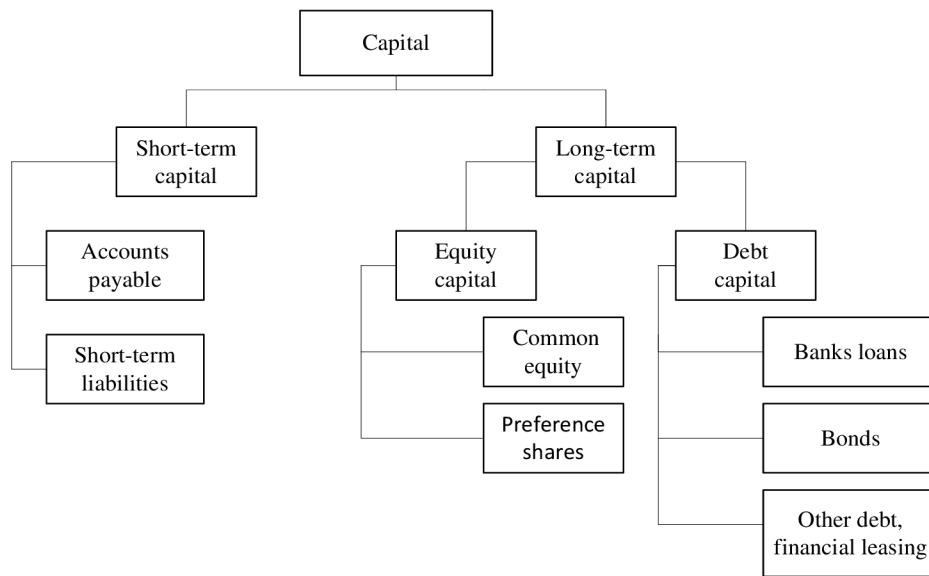
Figure 2: Capital classification in terms of time

Summing up the evolution of capital as economic category has been flown for a long time and today scientists still try to develop new forms and look at capital through the different angle. For the purpose of this work the financial concept of capital is taken into consideration along with accounting-analytical approach of capital evaluation. In addition the equity capital is considered in general terms without narrower specifications.
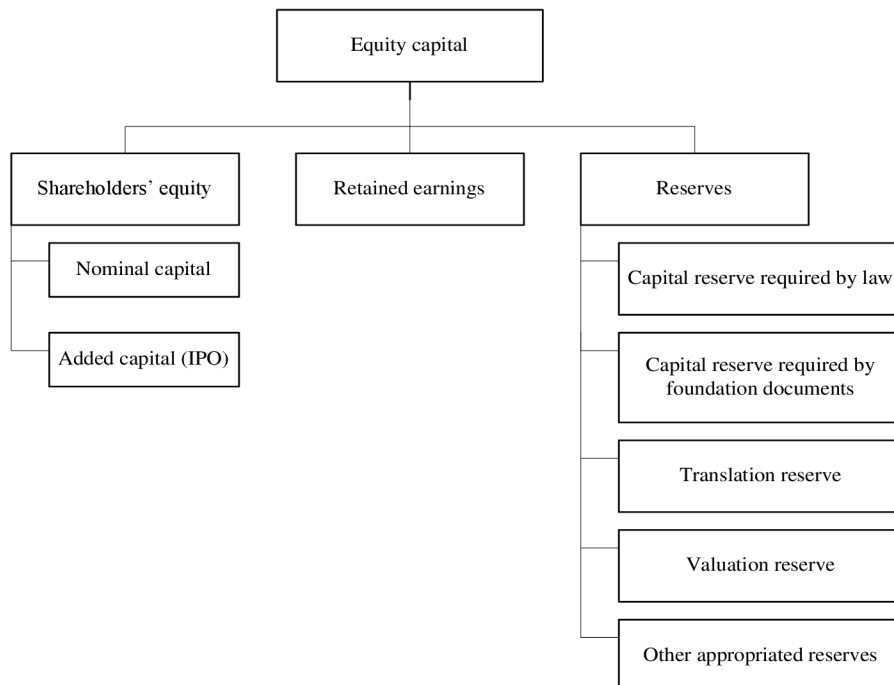
Figure 3: Equity capital classification

2.2. Cost of equity capital estimation

The cost of capital and its estimation are very essential elements in the financial decision making process due to following reasons:

•   The main corporate aim is to maximize its value that is why the sub-objective is to minimize costs including the cost of equity capital.

•   In order to make an effective investment decision a manager has to find the optimal source of financing with less costs.

•   The financing policy including dividend policy takes into account the cost of capital in order to make rational decision connecting with financial strategy and company's further development.

There are a few surveys on the theme of capital, capital cost and different approaches for it measurement and adjustment. Gitman and Mercurio (1982) survey 177 Fortune 1000 firms regarding "cost of capital measurement techniques, risk considerations, and cost of capital administration procedures". They noticed the gap between financial theory and practice. Moore and Reichert (1983) examine the application of financial analytical tools among the 74 companies from different industries and found that 86% of them use time-adjusted capital budgeting techniques. However in comparison with previous survey they highlight the high degree of compatibility between financial analytical techniques applied by practitioners and theoretical approaches recommended by academics. The survey by Beirman (1993) is focused on the utilization of capital budget techniques. Most of the companies use any form of discounting in their capital budgeting and 93% use a WACC and "72% used the rate applicable to the project based on the risk or the nature of the project…and 34% used the rate based on the division's risk". It is important to notice that mentioned above surveys are based on the evidence from U.S.A. Bruner et all. (1998) provide a cost of capital survey of several highly regarded corporations, leading financial advisors and some bestselling text-books with further comparison analysis in order to highlight the gap between theory and application. The findings show that (a) Discounted Cash Flow is the dominant investment-evaluation technique; (b) WACC is the dominant discount rate used in DCF analysis; (c) weights of capital structure based on the market values; (d) after tax cost of debt based on marginal pretax costs and marginal or statutory tax rates; (e) the CAPM is the dominant model to estimate cost of equity. The main difference between practitioners and theory concern the cost of equity elements: free-risk rate, stock's equity beta and market premium rate. The best practice consider that "betas are drawn substantially from published sources, preferring those betas using a long interval of equity"; risk free rate should regard to the tenor of the cash flows; companies use a market-risk premium of 6% or lower, while theory and advisors use higher (Bruner et all. 1998). As the cost of capital plays a great role in practice some analytic companies provide surveys on the theme of capital cost. The Morningstar Cost of Capital Survey from December 2010 is focused on the adjustment of industry risk within cost-of-equity models (Barad,

2011). The build-up Method and Capital Asset Pricing Model are heavily used in cost of capital estimation (74,9% and 62% respectively). One-stage DCF are applied by 17.1% of companies and 18.6% use a multi-stage DCF. The least applicable method is Fama-French Model (5,7%). The interesting fact that 43,7% of survey responders use published betas and only 15,6% estimate it on their own. The Association of Financial Professionals also made their own research *"Current Trends in Estimating and Applying the Cost of Capital"*. According to their findings, the profile of typical project valuation process is composed. The DCF analysis is used to evaluate the uses of capital to consider competing projects or long-term investments. The perpetuity growth model is used to determinate the terminal value to all cash flows and multiple cash flow scenarios for unpredictable cash flows. The WACC is applied as a rate to discount cash flows, but a company does not adjust it to reflect considerable factors of a project or investment. However, the companies believe that WACC method is not perfect. In order to determinate the weights of capital structure the current book debt-to-equity ratio is used. The cost of debt is based on the current interest rate on the firm's outstanding debt with after-tax cost of debt estimated by effective tax rate. The cost of equity is estimated by CAPM, where risk free rate based on the 10-years Treasure bills and beta taken from Bloomberg reports using the monthly returns over 5 years period. In addition, the risk-premium is about 5-6%.

2.2.1. Traditional approaches to estimate the cost of equity capital

The widely known approach to estimate the cost of equity capital is the Capital Asset Pricing Model (CAPM). Harry Markowitz, William Sharpe, Jorn Linter and Jack Treynor have developed the CAPM in the late 1950s and 1960s. Nowadays it is widely used model by analysts, investors and companies. The CAPM is development of portfolio theory and based on the rate of return and relevant level of risk. There a few assumptions: firstly, relevant information on the financial market; secondly, the investors act rationally; and thirdly, diversification helps in risk reduction.

In order to estimate the cost of equity capital using CAPM three elements have to be calculated: coefficient β of the firm, risk-free rate (r_F) and the risk-premium ($r_M - r_F$). The following formula (1) considers all of them:

$$r_a = r_F + \beta(r_M - r_F) \qquad (1)$$

Market beta (coefficient β) is the sensitivity to the returns of the market portfolio or in other words the relevant risk of an individual stock. The beta is defined as follows :

$$b_i = \frac{COV_{iM}}{\sigma_M^2} \qquad (2)$$

where COV_{iM} is the covariance between stock i and the market and determine as a multiplication of the multiplication of the correlation between the stock's return on the market, the standard deviation of the ith stock's return and the standard deviation of the market's return.

The risk-free rate associates with government bonds, as they might not have risk. Nevertheless, nowadays in many countries the economic situation is unstable due to the recent financial crisis and

default risk exists. As common stocks are usually long-term securities and many companies' projects have long-term period, the bonds for estimating risk-free rate have to be also long-term.

The risk premium is the difference between the return expected for the market as a whole and the risk free rate. We can estimate the equity market risk premium with two approaches:

- on the bases of forecast data (FFCF) and the current share price;

- on the bases of historical data relating to rates of returns received by investors over the long periods.

The historical risk premium is based on comparison of annual performance of equity markets (including dividends) and the long-term risk-free rate. Expected risk premium is calculated by estimating the future cash flows of all companies and the finding the discount rate that equates those cash flows with current share prices. In the efficient markets historical rates of return should be equal to future rate of return.

The approach based on the historical data has a big disadvantage: one of the most important goals of a company is development and growth. Moreover, for investors it is important to know what will be in the future not in the past, because they expect profit in the long-term period. The environment is always changing and forecast based on historical data can be not relevant to current and future conditions. Today world economy is unstable and volatility on the financial markets is high too. As a result of the external changes methods based on historical data is not highly reliable.

On the one hand, there are many advantages of the CAPM. Firstly, it is the most used model. It takes into account risk, one of the most important elements in estimating the cost of capital. Secondly, there is a direct link between the profitability and the risk of an asset. Finally, the connection with market activities gets the result more competitive and relative to the current conditions. In addition CAPM can be used as a benchmark for a larger peer group of companies due to absence of additional factors as firm-level data or leverage. For instance Barnes and Lopez (2005) argue that CAPM can be an appropriate estimate of CEC for the Federal Resever Bank's payment system.

On the other hand, the CAPM assumes that markets are efficient and it is the most widely used model, but there are some disadvantages of this model:

✓ the limits of diversification;

✓ difficulties in measuring the required return and general market index;

✓ risk free based on zero-coupon government bonds has default risk nowadays due to the last financial crisis and uncertainty in some countries;

✓ a different discount rate for each period of time have to be used in the CAPM model in order to be close to reality;

✓ the main disadvantage of beta is instability over the time. (a large amount of information turns into its weakness);

✓ as the CAPM is based on the current investors' expectations, there is a probability of too high or too low expectations that leads to the wrong expectations;

✓ stochastic nature;

✓ the CAPM is a function of only one variable, the systematic risk

✓ the CAPM does not take into consideration the retained earnings and provides the cost of capital of external equity.

Despite the merits, which CAMP has and the fact that it is one of the most used methods to estimate the cost of equity capital, we should emphasize that demerits in this approach definitely prevail. Thus, the economists try to modify this model in order to make it more effective and relevant. They search for a new correlations and add additional variables.

Besides required return can also be a function of liquidity. In the update model the liquidity premium might be added. Higher liquidity leads to lower cost of capital and lower risk encourages lower cost of capital. But it is easier to increase the liquidity of the company's stocks then to decrease its risk. In order to raise the liquidity and as a result decrease cost of capital a company can provide higher transparent disclosure or increase the quality of accounting information. There are several researchers working on this problem. Also Acharya and Pedersen (2004) modified CAPM as Liquidity Adjusted-capital Pricing Model. In this method a scurrility's required rate of return depends not only on its liquidity but also takes into account the covariance between its own and the market return and liquidity. Moreover, a stable positive shock on a security's liquidity can decrease current rate of return and increase future (Acharya and Pedersen, 2005). Also Hamon and Jacquillat (1999) add liquidity premium together with risk premium. Due to the liquidity crisis placed not long time ago the liquidity risk adjustment is very important element of financial policy. The modified CAPM model by liquidity coefficient can be effective tool for company's stable growth in the post-crisis period.

Another additional element that can be added to the model is a size premium. Size premium is the additional remuneration due to the higher risk, the higher cost of capital, according to the smaller size of a company. Moreover the small size companies' risk rises due to the less trading volume. However, the large companies are not so flexible and do not react fast on the changes of an environment as small size companies do. In the small companies with smaller board size, the cost of capital is lower than in large companies (Yermack, 1996). Thus there are several advantages for small size companies and it is not necessary to add the size premium to the model.

There are some others multifactor models that are used on practice. The first one is the arbitrage pricing theory (APT) created by economist Stephen Ross in 1976 (Ross, 1976). The CAPM assumes

that the return on a security is a function of its market risk and therefore depends on single factor: market prices. The APT assumes that the risk premium is a function of several variables, not just one, i.e. macroeconomic variables. There is formula of estimating the cost of capital using APT:

$$r_i = \mu_i + \sum_{k=1}^{k} \beta_{ik} f_k + \varepsilon_i \tag{3}$$

where μ_i is the mean return on asset i, f_k is a random mean-zero factor payoff, and β_{ik} is a constant giving the loading of asset i on factor k, and ε_i is a mean-zero error term uncorrelated across assets.

There is an advantage of arbitrage pricing model compare to CAPM. The market portfolio that plays significant role in CAPM does not influence in the arbitrage pricing model. In other words, there is no need to measure the market portfolio thus the sample of analysed assets can be limited. However, APT cannot evaluate the underlying factors as macroeconomic risks. There are several factors based on quantitative analyses:

✓ Non-anticipated variations in inflation

✓ Non-anticipated variations in manufacturing output

✓ Non-anticipated variations in the risk premium

✓ Changes in the yield curve

These days it is important to take into account external factors, influencing the cost of equity capital, as macroeconomic variables. The supplement of those variables to the model enables to give a appropriate and fair result according to the current economic environment.

Another proposed modification of CAPM is the three-factor Fama-French model (Fama and French, 1993). The content of this model is isolated of three factors: market return, price/book value and the gap in returns between large caps and small caps. Also there can be and another factors as P/E, market capitalization, yield, past performance and many others.

Also there can be methods to estimate the cost of equity based on historical returns. Their advantage is the simplicity in estimating. This method is based on the assumption that future return will cycle past returns. There are two types of historical returns: (a) market rate of returns and (b) accounting rate of returns. Market rate of returns have two components: periodical dividends and price appreciation over the single period. However, the main disadvantage is inability to be calculated for unlisted companies. The accounting data can be manipulated and it does not include market influence. Nevertheless, external factors as market volatility have a great impact on the cost of equity capital.

The cost of equity can be estimated with current market prices. There are two models to estimate expected returns according to this approach: (a) the Dividend Discount Model (DDM) and (b) the P/E

model. The first one is based on the stream of the dividends. There are two assumptions: (a) the growth rate of dividends and the cost of equity are constant from 0 to ∞ and (b) the growth rate of dividends cannot exceed the cost of equity. But according to the research (Fama and French, 1999) only 20,8% in 1999 of companies pay dividends. In ten years this index grew to 40% but still very low (Hoberg and Prabhala, 2009).

2.2.2. Modifications and improvements: academics' perception

As was mentioned before there is no unique and optimal model to estimate the cost of equity capital. Thus, authors try to modify models, add different variables and combine approaches. The studies according the influence of different studies on the cost of equity capital also face the problem to estimate the cost of equity capital.

Never the less, equity valuation models use the discount rate, in order to estimate the present value of expected dividends. They are based on the CAPM, so the discount rate is always represented by the sum of the equity risk premium and the risk-free rate (Gode and Mohanram, 2003). There are two ways to estimate risk premium: ex-post and ex-ante. Most of studies are based on the ex-ante approach of equity capital estimation (Botason, 1997; Gebhardt et al., 2001; Botason and Plumlee, 2002; Hail, 2002; Armstrong et al., 2010). This method implies the current price and future expected dividends for the risk premium.

Many researchers adopt several models and compute the estimates of the cost of equity capital. There are several most used models that can be divided into two groups: residual income valuation models (by Claus and Thomas, 2001; by Gebhardt, Lee and Swaminathan, 2001) and abnormal earnings growth valuation models (by Ohlson and Juettner-Nauroth, 2005; by Easton, 2004).

The model by Claus and Thomas (2001) (CT model) is a special case of the residual income valuation model. In order to obtain the expected future residual income series, they use the actual book values per share and forecasted earnings per share up to five years ahead. This model is closed to the dividend discount model, but the main difference is the utilization of the future earnings per share with short-term and long-term growth rates. The following equation represents the model:

$$P_0 = bv_o + \ ae_1/(1+k) + ae_2/(1+k)^2 + ae_3/(1+k)^3 + ae_4/(1+k)^4 + ae_4/(1+k)^5 + \qquad (4)$$

$$+ [ae_5(1+g_{ae})/(k-g_{ae})(a+k)^5]$$

where Po_t is a price at the end of year 0; bv_0 is an expected book value of equity at the end of year $_{0;}$ k is expected rate of return on the market, g is an expected dividend growth rate; $ae_t = e_t - k(bv_{t-1})$ is an expected abnormal earnings fro year t.

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The model by <u>Gebhardt, Lee and Swaminathan (2001)</u> (GLS model) is also residual income valuation model, which uses actual book values per share and forecasted earnings per share up to three years ahead to impute future expected residual income for initial three-year period.

The <u>Ohlson and Juettner-Nauroth (2005)</u> model (the OJ model) represents the abnormal earnings growth valuation model, where one-year ahead forecasted earnings and dividends per share as well as forecasts of short-term and long-term abnormal earnings growth are used.

In the model, the current price relates to forthcoming earnings per share, forthcoming dividends per share, two-year-ahead earnings per share, and an assumed perpetual growth rate gamma. The OJ model uses earnings instead of dividends and does not require forecast of book values or return on equity. Another important feature is that the assumed perpetual growth rate gamma determines not only the perpetual growth rate, but also the decay rate of short-term growth (Gode and Mohanram, 2003). One of the disadvantages of this model is that it does not deal with inflation. However, as it is mainly based on accounting variables, the sample can be significantly increased (Lopes and de Alencar, 2010). The OJ model is estimated by following formula:

$$r_{OJ} = A + \sqrt{A^2 + \frac{eps_1}{P_0}\big(g_s - (\gamma - 1)\big)} \qquad (5)$$

where A =; $g_s = \frac{(eps_2 - eps_2)}{eps_1}$; is the cost of equity capital; $\gamma = r_f - g_1 + 1$; γ is the long-term earnings growth rate +1; is the short-term earnings growth rate; g_1 is the long-term economic growth rate; r_f is the yield on 3 –year treasury bond; eps_t is the analysts' forecast of earnings per share at time t; dps_t are the expected dividends per share at time t.

Gode and Mohanram (2003) also adopt the OJ model of the cost of equity capital estimation and connect in the model current price with one-year-ahead forecasts, forthcoming dividends per share, two-year-ahead forecasts, and an assumed perpetual growth rate, which reflect in the inflation rate and dividends per share as the average for the past three years.

In addition, there are two modifications of residual income model (RIV) developed by Gebhardt et al. (2001) and Liu et al. (2002), which are differ from the OJ model in their assumption about long-term industry profitability. The OJ model as most used was adopted as one of the several proxies for capital cost measure by Espinosa and Trombeta (2007); Daske et al. (2008); Shah and Butt (2009); Pae and Choi (2010); Chen et al. (2011) and many others researchers.

<u>Price-earnings growth (PEG) ratio model by Easton (2004)</u> represents the modified model by Ohlson and Juettner-Nauroth (2005), which use one-year-ahead and two-year-ahead earnings per share forecasts as well as expected dividends per share in period t+1 to measure the abnormal earnings growth. He develops "…a procedure for simultaneously estimating the implied market expectation of the rate of return and the implied market expectation of the long-run change in abnormal growth in earnings (beyond a short earnings forecast horizon) for a portfolio of stocks." (Easton, 2005) There is

an assumption under this model that the growth in abnormal earnings persists in perpetuity after the initial period. The main advantage is its practicability. The formula for estimating the cost of equity capital by the modified PEG ratio can be applied as follows:

$$r_{PEG} = \sqrt{\frac{eps_2 - eps_1}{P_0}} \qquad (6)$$

where eps_t is the analysts' forecast of earnings per share at time t; P_0 is the current price per share.

The modified PEG ratio by Easton (2004) is also the most used in the examined studies, for example, this approach was implied by Ashbaugh et al. (2004); Byun et al. (2008); Daske et al. (2008); Shah and Butt (2009); Pae and Choi (2010); Li (2010); Chen et al. (2011). The accounting-based valuation models benefit as they are "…forward-looking and directly reflects the market perception of a company's risk." (Lopes and de Alencar, 2010)

The previous studies according the cost of equity capital imply several models for more precise results. For example, Daske et al. (2008); Chen et al. (2011) follow by Hail and Leuz (2006) use the average of four models that are consistent with discounted dividend valuation but rely on different earning-based representations: CT model (2001), GLS model (2001), OJ model (2005), and modified price-earnings growth (PEG) ratio model by Easton (2004).

Espinosa and Trombeta (2007) use an average of the four estimates in order to obtain the cost of equity capital. The first measure is calculated by using the residual income valuation model proposed by Gebhardt et al. (2001), where the stock price is expressed as the reported book value, plus an infinite sum of discount residual incomes. The other three measures are based on the OJ model: price to forward earnings model, price to earnings growth model, and modified price to earnings growth model.

Byun et al. (2008) adopt three measures of equity capital estimated by a mean or median analysts' earnings forecast: the implied cost of equity capital estimated by Gode and Mohanaram (2003), by the price-earnings growth model (PEG) and by the modified PEG ratio. The models use price and analysts' earnings forecasts, but the differences are in their assumptions about long-term growth rates and dividends. Li (2010) also use a mean measure based on four estimation models: the industry ROE model by Gebhardt et al. (2001), the economy-wide growth model by Claus and Thomas (2001), the unrestricted abnormal earnings growth model by Gode and Mohanram (2003), and the restricted abnormal earnings growth model by Easton (2004).

Many authors applied the average of these four models, in order to mitigate the effect of estimation errors associated with one single model (Daske, 2008; Hail and Leuz, 2009; Li, 2010; Chen et al. , 2010; Core et al, 2015 and etc.). The models vary in the use of analyst' forecasts and the assumptions of short-term and long-term growth.

Chapter 3 Internal factors influencing the cost of equity capital: literature review

The internal environment factors facilitate the strengths and weakness of a company that in turn affect its development and all company's activities. A company is able to manage the internal factors influencing the business processes in order to achieve its targets. The capital management is one of the most significant elements of decision-making process. And the effective financial decisions supported by the information regarding the relation between internal factors, the capital and its cost result as a clue to the stable successful development of a company.

There are many research papers dedicated to different distinct internal factors that influencing the cost of equity capital. As a rule the internal factors and their impacts that are analyzed by international scientists can be divided into several groups as corporate disclosure, corporate governance, social performance and other financial related performance. The information and its asymmetry are an important link between the cost of equity capital and other factors.

3.1. Information asymmetry as a core of relation between internal factors and the cost of equity capital

The availability of information is an essential factor in the decision-making process regarding the efficiency of resource allocation on micro and macro levels. The inequality of available information between corporate insiders and stakeholders as investors is thought of as information asymmetry.

Back to Myers (1984) and Myers and Majluf (1984) who argue that information asymmetry drives financial decisions, the situation, when the private information exceed the publicly available information about future corporate performance, leads to higher cost of equity capital required by less informed investors.

Barron et al. (2012) show that information leads to higher cost of equity capital. In addition, they find that average precision and precision of public information are negatively associated with cost of equity capital. At the same time the precision of private information positively influences the CEC, however the coefficient is relatively small. Besides, with lower public information the precision of private information reduces the cost of capital. Lately He et al. (2013) investigate the relation between information asymmetry and cost of equity capital of companies listed on the Australian Securities Exchange. They find the significant positive relation between two variables. Authors also try to analyse information asymmetry and its impact on CEC through different angles. For example, Armstrong et al. (2010) examine the influence of information asymmetry on the cost of capital according the market competition. If market is imperfect, the information asymmetry has a significant effect on the cost of capital; and there is no impact, if there is a perfect market competition. Thus, the

studies investigating relation between information asymmetry and the cost of capital, should take into account the level of market competition.

As the information asymmetry is very wide term, the researchers apply different types of proxies to estimate the information asymmetry component in the cost of equity capital. The most popular measure among researchers is bid-ask spread (Leuz and Verrecchia, 2000; Armstrong et al., 2010; He et al., 2013), which represents the difference between the ask price and the bid price of a share. The bid-ask spread refers to the adverse selection problem that emerges in shares transactions with asymmetrically informed investors. Thus less information asymmetry is associated with less adverse selection that in turn leads to smaller bid-ask spread. The alternative measure of asymmetric information is trading volume, which refers to liquidity. It represents the willingness of investors to sell the shares or to buy them that in turn is related to the existence of information asymmetry. Another measure as share price volatility also is used as a proxy of information asymmetry (Lang and Lundholm, 1993; Leuz and Verrecchia, 2000). The smooth transitions in share prices stand for the absence of information asymmetry; the higher level of volatility indicates the increasing information asymmetry between a company and shareholders or even between investors. However, the alternative proxies as trading volume or price volatility might be affected also by other factors than information asymmetry (Leuz and Verrecchia, 2000). Consequently, there can be the combination of several proxies to measure information asymmetry. For example, Armstrong et al (2010) use five measures to estimate information asymmetry: two market-based measures as (1) the adverse selection component of the bid-ask spread (ASC spread) and (2) the bid-ask spread; two accounting-based measures as (3) the ratio of annual research and development expense to sales and (4) scaled accruals quality; (5) analyst coverage. The last one represents "the number of sell-side analysts issuing one-year-ahead earnings-per-share forecasts for the firm during the year". The greater analyst coverage might improve the information environment that in turn leads to lower information asymmetry. As was mentioned before the market-based proxies are widely used among researchers. According to authors the advantage of ASC spread and spread itself is the precisely measurement of the information asymmetry outcome. The existence of information asymmetry results in ASC spread increase. In terms of accounting-based measures the R&D expense represents the intangible assets, which in turn might be associated with information asymmetry. At the same time the higher variance of scaled is associated with lower earnings quality that in turn leads to higher information asymmetry. Barron et al. (2012) also use analyst coverage to measure information environment characteristics, including the information asymmetry. Their approach takes into consideration the expected dispersion of analyst forecast, as well as squared errors in the mean forecasts based on historical data and the number of analyst following. The study of He et al. (2013) also shows that analyst coverage negatively influence the CEC and earnings forecast dispersion leads to higher cost of equity capital.

The information asymmetry can be treated as idiosyncratic volatility. Therefore, in order to reduce idiosyncratic component of cost of equity capital, the level of disclosure can used as influential tool to decrease information asymmetry between managers and investors (Lopes and de Alencar, 2010).

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3.2. Financial disclosure, accounting information and audit quality

Corporate disclosure is an important part of corporate governance (Ashbaugh et al., 2004; Byun et al., 2008; Pae and Choi, 2011). The quality of accounting information and its transparency decrease the information and agency risks. There is no doubt to say that disclosure reduce information asymmetry and as a result decrease the cost of capital. The information asymmetry represents the adverse selection into transactions between buyers and sellers, and therefore reduces liquidity in company's shares (Copeland and Galai, 1983; Kyle, 1985; Glosten and Miligrom, 1985). This effect occurs in three ways. Firstly, investors demand a risk premium for bearing information risk. In turn, disclosure reduces it, consequently risk premium decreases and as a result cost of equity capital. Secondly, higher disclosure decreases estimation risk and thirdly it enhances stock market liquidity and as a result reduce transaction cost that leads to lower cost of equity capital.

3.2.1. Accounting information

Accounting information plays a great role in the decision making process and other firm's activities. Moreover, its quality and quantity might decrease or increase the information asymmetry and as a result have an impact on the cost of capital. Many researches examine the different aspects of accounting information and their influence on the capital costs.

Firstly, Easley and O'Hara (2004) investigate the influence of private and public information on the cost of capital with further development of asset-pricing model, where both types of information affect asset returns. Investors demand higher return to the companies with greater private information and correspondingly less public. Private information causes additional systematic risk and thus an investor requires compensation for that kind of risk. According to their equilibrium a company with information that is more private and less public faces a higher cost of equity capital.

Lately Li (2005) finds that low precision of noisy information about the expected aggregate dividend growth rate increases the risk premium and stock return volatility and in turn the precise information decreases the risk premium and as a result the cost of capital.

Apergis et al. (2011) provide theoretical model, which shows that "an increase in expected cash flows, coming from improvements in the quality of accounting information, leads to a reduction in the firm's cost of capital". From the model the authors point out several factors leading to the cost of capital reduction: (1) "the decline of the variance in the idiosyncratic variation in firm's cash flows"; (2) "the decline of the variance in the common variation in firm's cash flows with the market"; (3) "the increase in the shareholder's base of the economy or alternatively the increase in the number of investors who participate in the market"; (4) "the increase in the risk tolerance of the market"; and (5) the increase in the firm's expected cash flows".

The corporate earnings as a significant element of accounting information are a widespread subject of research. The earnings are the significant part of accounting information, which can be disclosed, in order to reduce the risk of information asymmetry. Consequently, the earnings characteristics are examined as factors influencing the cost of equity capital. One of the most indicative attributes of earnings is earnings smoothness. It is generally thought among executives that earning smoothness might lead to lower cost of capital. However, McInnis (2010) finds that there is no relation between earnings smoothness and average stock returns over 30 years period. At the same time there is evidence that inverse association between cost of capital and earnings smoothness is driven by optimism in analysts' long-term earnings forecasts. Consequently, companies with volatile earnings do not experience high returns.

Another significant earnings characteristic is their quality level. The researchers determine that low quality of earnings increase information asymmetry, which lead to higher cost of equity capital (Aboody et al., 2005; Lara et al., 2010). For instance, Apergis et al. (2012) empirically investigate the influence of accounting information and the earnings quality on the cost of capital. According to authors higher quality represents higher precession of public disclosure; when lower level of private information minimizes gains obtained by privately informed investors. The quality of earnings is defined by the absolute value of the abnormal component of accruals: the higher absolute value is associated with lower quality. The authors conclude that discretionary accruals as a measure of earnings quality are important proxy for corporate information environment. The abnormal component of accruals reduces the effectiveness of public earnings announcements that in turn increases the risk of information asymmetry.

Further, conservatism represents another attribute of earnings quality from the view were earnings are determined to evaluate economic income. In terms of transparency and information asymmetry the concept of accounting conservatism has been occurred. In 1980 the Financial Accounting Statements Board developed the Statement of Financial accounting Concepts, where conservatism was defined as "a prudent reaction to uncertainty to try to ensure that uncertainties and risks inherent in business situations are adequately considered". Givoly and Hayn (2000) define conservatism as "a selection criterion between accounting principles that leads to the minimization of cumulative reported earnings by slower revenue recognition, faster expense recognition, lower asset valuation, and higher liability valuation". They also determine two measures of conservatism: (1) the sign and magnitude of accumulated accruals over period of time; and (2) the excess of the relation between stock price movements and earnings signals in "bad news" periods of time over such relation in "good news" periods. Watts (2003) points out the alternative explanations of conservatism as contracting, shareholder litigation, taxation and accounting regulation. In general terms, the accounting conservatism can be classified as ex post (also named as conditional or news-dependent) and ex ante (also named as unconditional, news independent). Ex ante conservatism represents "aspect of the accounting process determined at the inception of assets and liabilities yield expected unrecorded

goodwill"[1]. Ex-post conservatism refers to situation when "book values are written down under sufficiently adverse circumstances but not written up under favourable circumstances, with the latter being the conservative behaviour"[2] (Beaver and Ryan, 2005).

As accounting conservatism incorporate transparency and timeliness of financial reporting, many researchers investigate its influence on the cost of equity capital as one of the information characteristics. Chan et al. (2009) find that ex ante conservatism leads to lower cost of equity capital. Ex ante and ex post conservatism provide different information about the quality of a firm's current and future earnings to equity investors. Ex ante conservatism leads to lower cost of equity capital because it provides more persistent and predictable current and future earnings streams and therefore ensures good quality earnings and accounting information to the market. In addition, companies, with higher level of ex ante accounting conservatism have lower cost of equity capital despite the level of leverage, the firm's size, earnings variability. Later Artiach and Clarkson (2010) also find negative relation between ex ante firm-level conservatism and cost of equity capital; however, the association becomes weaker with low information asymmetry.

Besides the conditional conservatisms is also significantly negatively related to cost of equity capital. Basu (1997) determines conditional conservatism as "more timely recognition in earnings of bad news regarding future cash flows than good news" that can be explained by hire sensitivity of earnings to negative unexpected returns rather that to positive. Later based on the empirical evidence Lara et al. (2011) argue that conditional conservatism leads to higher information precision, increased company value and lower cost of equity capital by the means of decreasing the uncertainty in amount and distribution of the future cash flows and volatility of future stock prices. In another words additional conservatism decreases information asymmetry problems, improves investment efficiency and results in stronger corporate governance. The research conducted by Mikhail et al. (2004) shows that companies with repeated surprising quarterly earnings announcement experience higher cost of capital. Moreover, the sign of earning surprise does not influence the outcome. In another words, the market take into consideration the smoothness of earnings to a greater extent rather than the pattern of news (i.e. bad or good news).

Summing up, there is no doubt that high quality accounting information reduces the information asymmetry that in turn alleviates the conflict between managers and investors and as result lead to lower cost of capital.

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[1] Examples of ex-ante conservatism are immediate expensing of the cost of most internally developed intangibles, depreciation of property, plants and equipment as accelerated depreciation, historical cost accounting for positive net present value projects (Beaver and Ryan, 2005)

[2] Examples of ex-post conservatism can be lower of cost or market accounting for inventory and impairment accounting for long-term tangible and intangible assets (Beaver and Ryan, 2005)

3.2.4. Accounting standards

The accounting standards are the basis of the company's accounting and disclosure policies. There are different type of accounting standards, as a rule there can be local standards (GAAP) and international accepted accounting standards (IFRS, US GAAP). The government is able to give companies opportunities to voluntary adopt international accounting standards (IAS) or mandatory force companies to use them. Some academics analyze the influence of such changes.

Ealier based on the German evidence Leuz and Verrecchia (2000) show that the adoption of IAS or U.S. GAAP accounting standards (i.e. international) instead of local ones increases the corporate disclosure that in turn results in economically benefits.

Daske (2006) fails to document the decrease in the implied cost of capital among German firms. He rather notices that cost of capital is rather higher under non-local accounting standards. However later Daske et al. (2008) represent a decrease in the cost of capital and an increase in equity valuations, as well as in market liquidity for the firms mandatory adopted IFRS. Thus the evidence suggests that there are economically significant capital-market benefits of mandatory IFRS adoption.

Karamanou and Nishiotis (2009) examine the valuation effects of the corporate decision to voluntary adopt IAS. They find the significantly positive abnormal return around the IAS adoption announcement and a significant reduction in long-run cumulative excess returns in two-year period after the event compared to the two-year period before it. Thus the voluntary IAS adoption increases firm's value and decrease the cost of capital. What is more their findings empirically support the theoretical model of Easley and O'Hara (2004). The study (Li, 2010) shows that mandatory adoption of IFRS significantly reduces the cost of equity capital. However, this effect depends on the strength of the country's legal enforcement: the stronger legal enforcement leads to the lower cost of equity.

The accounting standards with higher quality result in greater investors' confidence that in turn increase liquidity, reduces capital costs and makes fair market prices possible (Arthur Levitt, 1998)

3.2.3. Corporate disclosure policy

As was mentioned before the disclosure level is associated with information asymmetry; in another words higher disclosure represents more transparent and available information. The corporate disclosure or transparency can be defined as „the widespread availability of firm-specific information concerning publicly listed firms in the economy to those outside the firm" (Bushman et al., 2004).

First of all, disclosure can be divided into two ways: institutional (or mandatory) and voluntary. The first one is required by laws and regulations and widely is used among companies. The voluntary disclosure depends on the company's incentives to inform investors better. The institutional and voluntary disclosure can be complements or substitutes. The country's accounting laws provide a

minimum standard for its listed companies, indicated what kind of information has to be disclosed. However the managers have discretion to voluntary provide additional information above requirements.

Bushman et al. (2004) divide corporate transparency into two dimensions: (1) financial transparency and (2) governance transparency. They argue that the financial transparency is related to political regime and governance transparency is associated with legal regime. Under their framework the corporate information mechanism can be classified into three categories: corporate reporting, private information acquisition, and information dissemination (Figure 3). Following Bushman et al. (2004) DeBoskey and Gilett (2013) conduct factor analysis of ten corporate transparency variables used by other researchers and identify four independent dimensions of corporate disclosure: public disclosure information, intermediary information, earnings quality information and insider information. They also investigate the influence of these variables on the cost of equity capital and other corporate performance. Their findings show that intermediary information transparency and insider information transparency are significantly associated with cost of equity capital.

One of the most difficult challenges in corporate disclosure research is the choice of appropriate proxy for disclosure. The key problems of disclosure measurement are difficulty in the identification of the full population of disclosures and difficulty to consistently classify the form and type of disclosure. As a rule researchers might use two alternative approaches to measure disclosure: own created disclosure indices or ratings produced by external parties. The advantage of the researchers constructed disclosure indices is ability to be applied a widely range of companies, compare to external agency' indices which are limited to companies covered by these external parties. On the other hand, researcher-constructed index contains subjective opinion and explanation. Also the external indices have several disadvantages. Firstly, they might be a time limitation. Secondly, the external scores represent analysts' understanding of disclosure quality rather than disclosure quality of a company. On the contrary the advantage of this approach is the fact that it is constructed by primary users of the disclosure information, moreover, they are experts in the investigated industry and familiar with a company. In another words there is higher adequacy of external indices in terms of specific companies or industries (Artiach and Clarkson, 2011). For example, Lopes and de Alencar (2010) develop Brazilian Corporate Disclosure Index, which measure disclosure across several dimensions: "... (1) general information about the firm; its market, and major events over the last year; (2) relations to employees and managers regarding compensation and policies; (3) non-financial information about markets, sales, and products; (4) information about forecasts of sales, cash flows, and earnings; (5) discussion and analysis of financial data, including tie series information about performance and explanations of past behaviour; and (6) other information". In total there are 47 attributes, which were collected from annual reports, websites and other public sources. Earlier Richardson and Welker (2001) also use disclosure rating as proxy for disclosure, which includes 20 categories from corporate annual reports. Baginski and Rakow (2012) use three dimensions to determine the quality of voluntary disclosure represented by management earnings forecast: (1)

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whether a company is "a supplier of at least one quarterly management earnings forecast over 16 quarters"; (2) forecast frequency of private information revelation; and (3) the precision of forecast.

The Table 2 summarizes implied measures of corporate disclosure in the selected studies on the relation between corporate disclosure and CEC.

Components of corporate transparency by Bushman et al. (2004)

I. Corporate Reporting	II. Private Information Acquisition & Communication	III. Information Dissemination
• Disclosure intensity • Financial disclosures (Segments, R&D, Capital Expenditures, Accounting Policies, Subsidiaries • Governance disclosures (Major Shareholders, Management, Board, Director& officer remuneration, Director and officer shareholding) • Accounting principles (Consolidation, Dictionary Reserves) • Timeliness of disclosure (Frequency of reporting, Consolidation of interim reports, number of disclosed items) • Credibility of disclosures (% of audited by Big5)	Communication channels: 1. Direct (reports): Financial analysts 2. Indirect (trading): Institutional investors Inside trading	Media channels: Penetration

Figure 4: Corporate transparency classification by Bushman et al. 2004

In the same way many studies have shown that both mandatory and voluntary disclosure decrease the cost of equity capital by the means of information asymmetry reduction. Chen et al. (2010) investigate the influence of mandatory disclosure on the cost of capital at the US market. In 2000 the Securities and Exchange Commission's Regulation Fair Disclosure (RFD) has become effective, which "prohibits selective disclose of material information to a subset of market participants, such as analysts and institutional investors, without simultaneously disclosing the same information to the investing public". The purpose of such mandatory disclosure is to increase investors' confidence and provide equal access to information. The findings show that there is a significant decline in the cost of capital for medium and large companies in the post-RFD period; i.e. mandatory disclosure leads to lower cost of equity capital. The latest research also indicates the negative relation between mandatory

disclosure and cost of equity capital. Based on the international evidence for the period between 1990 and 2004 Core et al. (2015) find that mandatory disclosure quality significantly decreases the cost of equity capital. In addition they incorporate into model the inside ownership, which strengthens the direct influence of disclosure.

Furthermore many studies are focused on the relation between voluntary disclosure policy and cost of capital. Firstly, Botosan (1997) documents the negative association between the cost of equity capital and voluntary disclosure level for firms with low analyst following, however finds no association for firms with high analyst following. Later extended the previous study Botosan and Plumlee (2002) examine influence of two types of disclosure: timely disclosure (including press releases and newsletters) and annual report disclosure. They find that firm's cost of equity capital increases with timely disclosure and decreases at the annual report disclosure level. After Hail (2002) also documents the negative and significant relation between voluntary disclosure and the ex-ante cost of equity capital. In order to measure the voluntary disclosure level the author creates the disclosure score DISC (the index based on the companies' annual reports). The choice of criteria included in the scorecard was based on financial analysts' and investors' requirements and needs.

Geitzmann and Trombetta (2003) investigate the influence of two communication channels (accounting policy and voluntary disclosure strategy) on the cost of raising outside capital. Firms with good prospects can adopt conservative accounting policy without voluntary disclosure. At the same time firms adopted aggressive accounting policy even with voluntary disclosure may face higher cost of capital then the first one. The influence of voluntary disclosure on the cost of capital depends on the choice of accounting policy. Later Espinosa and Trombetta (2007) empirically prove the previous theoretical suggestion of Geitzmann and Trombetta (2003) that companies may reduce the cost of equity capital through two communication channels: the choice of a specific accounting policy and the choice of the level of voluntary disclosure.

Another research (Geitzmann and Ireland, 2005) also shows the negative relation between the cost of equity capital and the timely strategic disclosure (i.e. disclosure of strategic events). However the significant influence of disclosure on the cost of capital is only for firms with aggressive accounting choices. The listed companies have opportunity to disclose their information by the means of a newswire service, which is a primary source of timely disclosure. Another study regarding the type of information been disclosure is conducted by Kim and Shi (2011), who investigate the relation between voluntary disclosure represented by management earnings forecasts and the cost of equity capital. They find that disclosure forecasts with bad news significantly increase the costs of equity capital. At the same time good news do not have influence on CEC, which can be explained by the fact that investors might take good news as not credible information. Another study that analyzed earnings forecast characteristics and their influence on the cost of equity by Rakow (2010) shows that pessimistic forecasts, less specific forecasts or forecasts with loss lead to higher costs of capital. At the same time forecasts with more information content or more timely forecasts are associated with lower cost of equity capital. Later Baginski and Rakow (2012) find negative relation between the

quality of management earnings forecast policy (that represent the specific type of voluntary disclosure) and CEC. Moreover, the association is stronger for companies with higher disclosure costs and companies with more relevant quarterly management earnings forecasts.

In the same way Eaton et al. (2007) investigate the relations between the quality of disclosure and the cost of equity capital for the international firms cross-listing on the New York Stock Exchange. The companies from countries with low levels of accounting disclosure or relatively low levels of exchange/regulatory disclosure, as well as companies with low analyst following, benefit from the cross-listing. Thus the cross-listing increases the quality of disclosure and that in turn decrease the cost of equity capital.

The same year Li and Hui (2007) examine the government interactions in corporate disclosure policy. They show that the increase of the proportion public information may not definitely lead lower cost of capital under specific condition. They argue that Regulation Fair Disclosure effects negatively the cost of capital, because companies are not permitted to selectively disclose information to some market participants. Previously Leuz and Verrecchia (2000) investigate the influence of commitments of disclosure on the information asymmetry component of the cost of capital and on the cost of capital itself. The commitment to increase disclosure is represented by the decisions of the companies to reverse from German Generally Accepted Accounting Principles (German GAAP) to International Accounting standards (IAS) or US Generally Accepted Accounting Principles (US GAAP) as under these regulations the disclosure environment is already rich. The switch to the accounting standards, where the level of disclosure is higher, represents the increased level of firm's disclosure.

Later Lambert, Leuz and Verrecchia (2007) (LLV) continue their research connecting with the cost of capital and accounting information. They theoretically show that accounting information influence directly and indirectly the cost of capital. The direct impact consists in the affecting market participants' perceptions about the distribution of future cash flows, while indirect effect associates with real decisions that alter distribution of future cash flow. The mandatory disclosure impacts the covariance of all companies on the market with each other; however, the increase of its quality has an ambiguous reduction impact on the cost of capital for each company in the economy. However, the LLV model faces criticism. Indjejikian (2007) notices that "…the link between accounting information and the cost of equity capital is far more complex then LLV's model allows" and the CAPM is too simple to represents substantive theoretical insights. Nevertheless, the model is a useful starting point for future models concerning more complex features of capital and public information.

Most of empirical studies represent evidence from the USA or UK, and there are few researches based on the evidence from the emerging markets. Lopes and de Alencar (2010) investigate the relation between the cost of equity capital and disclosure at the emerging market, in particular Brasil. The result shows the significant negative relation between disclosure and the cost of equity capital. Moreover, the impact is more pronounced for firms with lower analyst following and dispersed ownership structure. The firms with higher growth opportunities will adopt better voluntary disclosure

even if they have weak governance and accounting regimes that in turn leads to lower cost of equity capital.

Besides, some researches investigate disclosure more specifically. For instance, Barth et al. (2013) analyze the relation between transparent earnings and lower cost of capital; they find that more transparent earnings lead to lower cost of capital. The low transparency might push some investors to private information acquisition. As a rule, such information about company's economic value is costly and investors would cover expenses by the means of higher required premium.

To conlcude the higher disclosure leads to more liquid markets that in turn reduces risks and decreases the cost of equity capital.

Table 2: The corporate disclosure measurement in research

Authors	Measure of disclosure	Relation with CEC	Region
Richardson and Welker, 2001	Financial disclosure rating based on annual reports	Negative relation between foinancal disclosure and CEC for companies with low analyst following	Canada
Lopes and de Alencar, 2010	BCDI (Brasialian Corporate Disclosure Index)	Negative relation between disclosure index and CEC	Brasil
Kim and Shi, 2011	Managements earnings forecasts (bad/*good news)	Negative relation with band news forecast disclosure and CEC No chnages for good news forecasts discloures	USA
Baginski and Rakow, 2012	Management earnings forecast disclosure policy (three dimention measure)	Negative realtion between the quality of managemnt earnings foreact policy and CEC	USA
Barth et al. 2013	Transparent earnings	Transparent earnings and cost of capital have significant negative relation	USA
DeBoskey and Gillett, 2013	Multi-dimensional corporate transparency: public disclosure information, intermediary information, earnings quality information, insider information	Cost of equity, credit rating and beta are significantly related with intermediary information transparency Cost of equity and beta are significantly related with insider information transparency	USA

Source: Author's composition

3.2.5. Financial disclosure, accounting information and cost of equity capital reduction

Based on the literature review regarding the influence of accounting information, accounting standards and corporate disclosure policy on the cost of equity capital (Appendix A), several recommendations to decrease the cost of equity capital are generated:

✓ Optimal information structure: the mix of private and public information with higher share of public information.

✓ The quantity of information: the quantity of information provided to the market has to be enough to increase the investors' confidence and decrease the information asymmetry.

✓ The voluntary disclosure implementation.

✓ The disclosure of strategic events implementation.

✓ Application of timely disclosure represented by annual (or quarterly) reports with announcement (news) reports by news services as Dow Jones News Retrieval Services or R.N.S. of L.S.E.

✓ Application of disclosure of forecast information and key non-financial statistics.

✓ Usage of conservative accounting policy rather than aggressive.

✓ Usage of ex ante accounting conservatism.

✓ Usage of the high duality reporting system.

✓ The switch to the International Accounting Standards.

Summing up, the companies can adjust the cost of equity capital by the means of influence of the internal factors as the quality and quantity of accounting information, the accounting systems and standards, the type of disclosure. The information environment influences the companies' decision-making process and has a direct influence on the cost of equity capital and its management by the estimation risk and information asymmetry reduction. However, there are continuous debates between proponents and opponents of greater discloser, because it is difficult to quantify and establish the benefits of discloser.

3.3. Corporate governance and its elements

The relevant important factors influencing the cost of equity capital are corporate governance and its elements. There are many components in corporate governance and all of them have different influence on the cost of equity capital and consequently on the financial decisions. The analysis of previous studies gives required knowledge about the influence of corporate governance on the cost of capital for further research (Appendix A).

According to Morck and Steier (2005) the corporate governance framework can be classified into four types in terms of so called capitalism, which represents "an economic system organized around the production and allocation of capital". The ways in which economies accumulate and allocate capital vary in different countries and reflect in corporate governance types:

1. Shareholder capitalism. The individuals use to invest their savings directly in corporate stock and bonds. The key condition is the investors' confidence and trust. Thus the high quality of corporate governance is critical in this type of framework. Hence the system is costly due to regular monitoring the quality of corporate governance. In order to shift additional costs from investors, regulators mandate the companies to disclose the corporate information as financial reports, insider share

holdings, management pay, and any other information that can cause the conflict of interest. The examples of shareholder capitalism are USA and Great Britain.

2. Family capitalism. The wealthiest families control the largest companies in a country. Investors prefer to entrust their saving to people with good reputation. Such situation occurs in economy with weak investors' legal rights. The main problem of such system is concentration of corporate governance in the hands of a few families, which management can be excessively conservative or protective of the status quo, which might lead to retention of week shareholders' rights. The examples of family capitalism are Argentina, Mexico, and Greece.

3. Bank capitalism. Alternatively investors might save by the means of banking system. In turn banks and financial institutions lend the money to companies or directly invest in stocks and bonds. In this case banks monitor the corporate governance of companies and intervene if any mistakes take place. As long as banking system is competent the allocation of capital goes on effectively; however, if banks are misgoverned then the financial problems will arise in the whole system, which might lead to financial instability. The main examples of bank capitalism are Germany, Japan and Korea.

4. State capitalism. On the contrary investors can save by the means of paying taxes to the government. In this case a state provides capital to companies. The public officials supervise corporate managers and correct the governance mistakes. The problems can emerge if officials behave inefficient or in a favour of some individuals or groups of people. Historically such system was applied by Fascist governments as Germany, Italy and Japan or Canada, Japan and India to support industrial growth.

The Organisation for Economic Co-operation and Development (OECD) in its Principles of Corporate Governance Report to G20 finance ministers and central bank governors (OECD, 2015) determines the key principles of corporate governance framework, namely as (1) promotion of transparency and fair markets, and efficient resources allocation; (2) consistency with the rule of law; (3) promotion of effective supervision and enforcement.

However, there is no unique precise definition of corporate governance. According to Claessens and Yortoglu (2013) the conception of corporate governance can be divided into two types. The first type of definition uncovers the behavioral patterns of this term: behavior of a company in terms of efficiency, performance, financial structure, growth, treatment of shareholders and stakeholders. From this perspective corporate governance can be define as "the complex set of constrains that determine the quasi-rents (profits) generated by the firm in the course of relationship with stakeholders and shape the ex post bargaining over them". The second type unfolds the normative framework of the term: legal and judicial system, financial and labor markets regulations. On this view the corporate governance can be defined based on the functional approach. The corporate governance can be characterized as the selection of institutions and policies that are involved in the following functions related to companies: (1) pooling resources and subdividing sharers; (2) transferring resources across time and space; (3) risk management; (4) generating and providing information; (5) dealing with stimulating problems; and (6) resolving competing claims on the funds generated by the companies.

As Ashbaugh et al. (2004) notice "…corporate governance encompasses a broad spectrum of mechanism intended to mitigate agency risk by increasing the monitoring of management's actions, limiting managers' opportunistic behavior, and improving the quality of firm's information flows".

Many researchers create their own indexes of corporate governance measurement. As a rule, they divided it into several categories (Table 3). The most used attributes of the corporate governance among researchers are board structure, ownership structure, shareholder rights, information quality and disclosure, and audit committee independence.

Table 3: The categories of corporate governance

Authors / Categories	Ashbaugh et al., 2004	Byun et al., 2008	Shah & Butt, 2009	Piot & Missioner-Piera, 2009	Pae & Choi, 2011	Ramly, 2012	Mazzotta & Veltri, 2014	Tran, 2014	Feng, 2015
Information quality and disclosure	+	+		+		+		+	
Ownership structure	+		+		+			+	
Shareholder rights	+	+		+		+			+
Board characteristics	+	+	+	+		+	+		+
Board independence					+		+		
Board remuneration						+		+	
Audit						+			
Audit committee independence		+	+	+					
Distribution of the proceeds of operation				+					
Dividend policy		+							
Compensation committee and/or policy					+				+
Existence and Independence of internal committees							+	+	
Ethical and social activities							+		
Vision and strategy									+

Sour: Author's composition

Ashbaugh et al. (2004) find that corporate governance has a significant influence on the cost of equity capital. In particular, the companies reporting larger abnormal accruals have a higher cost of equity, at the same time the companies with more transparent earnings and more independent audit committees face lower cost of equity capital. The concentrated ownership represented by the number of blockholders also has a positive relation, i.e. blockholders increase the agency problems, thereby rise cost of equity capital. Likewise Byun et al. (2008) find that corporate governance reduces the cost of equity capital as the result of agency problems and information asymmetry reduction. They argue that shareholder rights protection has the most significant influence on the cost of equity capital. At the same time the board of directors and disclosure also reduce CEC.

The quality of corporate governance plays significant role in degree of the effect on the cost of equity capital. Shah and Butt (2009) investigate the influence of the quality of corporate governance on the expected cost of equity capital. They use the Corporate Governance Score as a measure for the corporate governance quality. The research based on the Pakistan listed non-financial companies shows that board size is negatively related to the cost of equity capital, i.e. the larger board lead to lower cost of equity. In addition, managerial ownership has negative influence on the cost of equity, i.e. a higher number of shares held by board members leads to the higher cost of equity capital. What is more, the board independence and audit committee independence have a positive and insignificant influence on the cost of equity capital. Thus, the companies with stronger corporate governance face lower cost of equity capital. Similarly Ramly (2012) indicates the quality of corporate governance based on the six categories as board structure and procedures, board compensation practices, shareholder rights and relations, accountability and audit, transparency and social and environment (139 items in total). The higher quality of corporate governance leads to lower cost of equity capital for Malaysian listed companies. However, the significance of separate categories impact varies. The board structure and procedure, shareholder rights and relations, and accountability and audit characteristics are significant in explaining the level of CEC. At the same time the influence of board compensation practices, transparency and ethic and social activities is not significant. Later Mazzotta and Veltri (2014) apply more specific corporate governance index to indicate the influence of corporate governance on the cost of equity capital for companies listed on the Italian stock exchange. This index includes four dimensions of board characteristics: board independence, board size, existence of internal board committees and independence of board committees. Pae and Choi (2011) investigate the influence of comprehensive corporate governance on a value premium. They find that the stronger corporate governance leads to the lower cost of equity capital. What is more, the lower capital is for companies with stronger commitment to business ethics. However, the beneficial effect of corporate governance on the cost of equity capital is stronger for companies with weaker commitment to business ethics. In the case of local evidence Tran (2014) analyzes the relation between cost of equity capital of German listed companies and corporate governance represented by financial information quality, ownership structure and board remuneration. The findings show that higher financial transparency and bonus compensations lead to lower cost of capital. Moreover, block ownership is negatively associated with CEC, when block holders are other companies, managers or founding-family members.

As was mentioned before the elements of corporate governance in themselves influence the cost of equity capital. And one of the most fundamental components of corporate governance is shareholder rights.

3.3.1. Shareholder rights

The corporate governance framework facilitates and protects the shareholder rights and ensures the equality of all shareholders. According to OECF Principles of corporate governance (OECD, 2015) the basic shareholder rights should include:

- ✓ rights to secure methods of ownership registration;
- ✓ rights to convey or transfer of shares;
- ✓ rights to obtain relevant and material information on a company on a timely and regular basis;
- ✓ rights to participate and vote in general shareholder meetings;
- ✓ rights to elect and remove members of the board;
- ✓ rights to share in the profits of a company.

Many researchers find that stronger shareholder rights decrease the cost of equity capital (Gompers et al, 2003; as Cheng and Collins, 2006; Huang and Zhang, 2009; Chen et al., 2011(a)). Earlier Gompers et al. (2003) investigate the relationship between shareholder rights and corporate performance in the 1990s. They find that companies with stronger shareholder rights have higher firm value, higher profits, higher sales growth, lower capital expenditures, and make fewer corporate acquisitions. Accordingly to Gompers et al. (2003) the shareholder rights can be divided into five sub-indices: (1) tactics for delaying hostile bidders; (2) voting rights; (3) director/officer protection; (4) other takeover defenses; and (5) state law. Huang and Wu (2010) analyze 24 shareholder rights provisions (identified by Gompers et al., 2003) and their influence on the cost of equity capital. They argue that shareholder rights provisions have different weights in influencing the cost of equity capital and company's value. More specifically the poison pill[3] and golden parachute provisions[4] significantly increase the CEC. At the same time some restrictions on shareholder rights as the presence of fair price provision decrease the cost of equity capital. Chen et al (2011(a)) also adopt Gompers' Governance Index to estimate the relation between shareholder rights and the ex-ante cost of equity capital. They find that antitakeover provisions are significantly positively related to the cost of equity capital. The results show that the stronger shareholder rights lead to lower cost of equity capital. Besides, the influence is more significant for companies with more severe agency problems from Financial Cash Flows. Along with shareholder rights the investors' relation is a significant part of corporate governance. There is empirical evidence that stronger investors' relation leads to lower cost of capital. Based on Japanese companies Ly (2010) finds negative link between two variables via information asymmetry component of cost of capital.

On the contrary to the strong shareholder rights there is management entrenchment that can be a result of restrictions on shareholder rights adopted by companies. Collins and Huang (2011) analyze

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[3] the defensive strategy designed to resist a hostile takeover
[4] contractual benefits for the high-level employees that guarantee payment in the case of company's take over and following dismissal

the influence of management entrenchment on the cost of equity capital and find significant positive relation between two variables. In order to measure the degree of entrenchment the authors apply six factor index constructed by Bebchuk et al. (2009), which includes staggered boards, supermajority requirements for mergers, limits on amending bylaws, limits on amending charters, poison pills, and golden parachute. The first four provisions limit shareholders' voting power that consequently results in more intense management entrenchment.

Firstly, strong shareholder regimes reduce agency risks. Ability of investors to monitor and discipline managers decreases potential agency costs that in turn decrease the cost of equity capital. So stronger shareholder rights lead to lower estimation risk and lower agency risk and consequently to lower cost of equity capital. However a company with weaker shareholder rights but higher transparent disclosure policy has the similar cost of equity capital as a company with stronger shareholder rights but lower disclosure. These factors have so strong relation because they are part of corporate governance.

3.3.2. Board characteristics and ownership structure

Board effectiveness and its characteristics play a great role in the conflict of interests between managers and investors and other stakeholders that in turn influence the information asymmetry, agency and information risks and at least the cost of financing.

The previous studies suggest that board size has a significant impact on the ability of directors to monitor and control managers, thus influence the information asymmetry. Several researches show that board size influences the cost of debt financing. Anderson et al. (2004) argue that additional member is associated with lower cost of debt. At the same time Lorca et al. (2010) also finds the relation between cost of debt financing and board size. However, Piot and Missioner-Piera (2007) fail to document the influence of board size on borrowing costs. The difference in results can be explained by diversity of the external environment of the investigated companies, for example in Spain companies rely mostly on bank loans, while in the USA companies raise their funds heavily through public capital and debt markets (Lorca et al., 2010). In addition, some researches (Yermack, 1996; Vafeas, 2000) show that small boards are more effective. Large boards have less effective coordination, higher information costs and disorderly decision-making. What is more, companies with small board size have higher market values and greater return-earnings relations. Mazzotta and Veltri (2014) also argue that larger board is less efficient; moreover, there is a negative relation between board size and the quality of corporate governance that in turn has influence on the cost of equity capital.

Many economists (Weisbach, 1998; MacAvoy and Millstein, 1999) examine board independence. They found that outside board increases corporate governance, leads to higher returns and better market reaction and decreases the likelihood of fraudulent financial reporting, that in turn increases

quality of information. Moreover, the creditors consider board independence as one of the significant factors that influence the company's management and decrease their risks that in turn leads to lower cost of capital. Anderson et al. (2004), Piot and Missioner–Piera (2007) and Lorca et al. (2010) empirically present that board independence decrease cost of debt financing. Bhojraj and Sengupta (2003) investigate the proportion of outsiders in the board and find the significant negative relation with bond yields and ratings. Moreover, the board independence is analyzed by Mazzotta and Veltri (2014) as a part of corporate governance. They use two proxies to measure independence: (1) the number of non-executive and independent directors in the board; and (2) their proportion in the board. The increased board independence leads to higher quality of corporate governance that in turn reduces the cost of equity capital.

Despite the fact that in some countries there are regulations forcing companies to include financial experts to the board of director. Some authors argue that there is no association between board expertise and the cost of debt financing (Lorca et al. 2010). However Ashbaugh-Skaife et al. (2006) find the positive relation between credit ratings and board expertise that in turn can lead to lower cost of capital.

There is another board characteristic as board activity or the directors' monitoring effort represented by the number of board meetings (Adams, 2003; Lara et al, 2009) , which can decrease the agency and information risks. However, Lorca et al. (2010) fail to document the relation between board activity and cost of debt.

On the other hand ownership structure as one of the main attributes of corporate governance also has a significant influence on the cost of capital (Ashbaugh et al., 2004; Shah and Butt, 2009; Pae and Choi, 2011). Previously Bhojraj and Sengupta (2003) find the negative association between bond yields and institutional ownership. Guedhami and Mishra (2009) investigate the influence of the separation between ownership and control rights on the cost of equity capital. The ultimate ownership structures (in another words excess control) "induce significant agency problems between controlling owners and minority shareholders". Their findings show that there is a positive significant relation between excess control and cost of equity capital in nine East Asian and thirteen Western European countries.

3.3.3. Audit committee and audit quality

The existence of internal committees also can increase the quality of corporate governance and result in lower cost of equity capital. There can be several committees as the auditing committee, the remuneration committee and the nomination committee (Mazzotta and Veltri, 2014). The board of directors might delegate some functions to these committees. The nomination committee should identify the optimal board composition and recommend the potential members, who can increase the functionality and effectiveness of the board. The remuneration committee set the remuneration for all

top management, including pension rights and compensation payments; such setting should support the strategic goals of a company. However the adequate performance of the internal committees depends on their independence. In other words, the greater committee independence leads to better corporate governance and that in turn influence the cost of equity capital.

Audit committee plays a big role in effectiveness of corporate governance because it provides relevant and credible information to the investors. The existence of audit increases the quality of information that in turn leads to the lower cost of equity capital. However, for better effectiveness board committees should be independent. The audit committee provides the confidence of stakeholders in the credibility of a company's financial statements. Many researchers as Anderson et al. (2004); Ashbaugh et al. (2004); Byun et al. (2008); Shah and Butt (2009) find the significant influence of audit committee independence on the cost of capital. In terms of audit committee effectiveness Hope et al. (2008) investigate the influence of excess auditor remuneration on the cost of equity capital represented by the implied required rate of return (IRR). The excess auditor remuneration positively influences IRR through the information risk effect. They argue that auditors with high remuneration may have tight relations with a company that in turn decreases independence of perception, investors' confidence, increases information risk, and as a result raises the cost of equity capital. What is more, they find that the relation is more significant for countries with stronger investor protection environment.

As the audit improves information about the corporate performance thus it reduces the information asymmetry between a company and investors, which in turn decreases the information risk and as a result leads to lower cost of equity capital. In other words higher audit quality has greater effect on the information risk. For example, in China Chen et al. (2011b) find that high-quality auditors lead to significantly reduction in the cost of equity capital among non-state-owned enterprises. Another research also shows the pronounced influence of audit quality on the cost of equity. Fernando et al. (2010) find the negative relation between auditor size, auditor industry specialization and auditor tenure with cost of equity capital. However the evidence indicates that the impact is referred to small companies due to the low level of information environment.

3.3.4. The corporate governance and cost of equity capital minimization

Summing up the strong corporate governance and its attributes reduce the cost of equity capital by decreasing the agency problems and information asymmetry. The conducted analysis of previous studies contributes towards the following recommendations for the cost of capital minimization, which companies may adopt in their financial strategies:

✓ board independence improvement, i.e. increase the number of independent directors with optimal level more than 50%;
✓ board size adjustment;
✓ fully independent audit committee;

✓ the size of audit committee has to be about 4 – 5 members on average;
✓ auditors' compensation adjustment;
✓ increase of investors' protection;
✓ shareholder rights improvement

Strong corporate governance provides effective financial decisions connecting with the cost of capital and solves information asymmetry problems reducing moral hazard at the same time. Those problems can be arisen because of low quality of management and imperfection of information on the market about the real company's value. In addition, strong corporate governance includes positive abnormal returns, higher firms value, higher profits, higher sales growth, fewer corporate acquisitions and lower capital expenditures.

3.4. Social factors as non-financial determinants

The social factors represent a new direction in evaluation of the cost of equity capital. At the present time the sociology and psychology have become more integrated into economics as a science. Scientists start to investigate the influence of social factors on the corporate performance as well as cost of equity capital. One of these factors is social disclosure or social responsibility, which closely interconnect with corporate disclosure in general. Richardson and Welker (2001) find that social disclosure positively and significantly influence the costs of equity capital. The social disclosure is measure by rating that includes 10 categories of information from corporate annual reports: human resources; products; services, and consumers; community; environment; energy resources; governments; suppliers; shareholders; competitors; miscellaneous.

In recent years interest to corporate social responsibility (CSR) has been increased: investors pay attention to social activities of the companies and economists and researchers support companies in social polices improvement. For instance, Ghoul et al. (2011) argue that corporate social responsibility represented by investment in improving responsible employee relations, environmental policies, and product strategies reduces cost of equity capital. In global terms the influence of social responsibility on the cost of equity capital is investigated by Dhaliwal et al. (2015). Their results show a negative relation between CSR disclosure and the cost of equity capital, moreover the association is stronger in stakeholder-oriented countries. In addition there is evidence that financial and CSR disclosures can be substitutes in reducing the CEC.

Later Feng et al. (2015) also analyze the relation between corporate social responsibility and cost of equity capital based on the international evidence. They find that CSR is significantly associated with lower cost of equity capital in North America and Europe. However in Asian countries the relation is positive. The Commission of the European Community defines CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis". The CSR index consists of four dimensions:

environment performance, social performance, economic performance and corporate governance performance. The findings show that in North America economic performance (that includes profitability, long-term growth and cost) has more significant impact on the CEC. At the same time in European countries greater environment protection, social performance or performance management will lead to lower cost of equity capital. On the other hand in Asia corporate governance, environment and social performance are significantly positively related to CEC, i.e. stronger social responsibility leads to higher cost of equity capital.

The social and environment responsibility can be referred to sustainability as a new popular concept. According to Feng et al. (2015) social performance consists of employment quality, health and safety, training and development, diversity, human rights, community, product responsibility. Ng and Rezaee (2015) investigate the relation between CEC and business sustainability, as well as environmental, social and governance performance. The findings prove that economic sustainability disclosure negatively influences the CEC; moreover, growth and research factors contribute in this relation. In addition, the non-financial dimensions of sustainability as environmental and governance performance reduce cost of equity capital. However social sustainability performance is not significantly related to CEC.

Environmental performance as a part of social responsibility might include resource reduction, emission reduction and product innovation (Feng et al., 2015). Sharfman and Fernando (2008) analyze the environmental performance and its influence on the cost of equity capital. The higher level of environmental risk management make a company more legitimate and increase investors' confidence that in turn leads to lower cost of equity capital. The environmental risk management is measured by quantitative measures as Toxic Release Inventory (TRI) data (data about the use, emission and disposal of ca. 600 toxic elements) and qualitative measures (based on the Kinder, Lydenberg, Domini & Co, Inc. or KLD social performance score). The findings show that stronger environmental risk management reduced cost of equity capital.

In the same way corporate ethic or ethical commitment has become one of the important non-financial factors influencing corporate performance, including cost of equity capital. The degree of corporate ethic can be measured by index. For example, Choi and Jung (2009) combines corporate ethical commitment index based on the self-administrated anonymous questionnaires, which includes implicit dimensions of ethical commitment (top management support, corporate culture, ethical leadership, open communication channels and ethical training) and explicit dimensions (codes of ethics, ethics hotlines, ethics officers and ethics committees). Later based on corporate ethical commitment index Choi (2012) investigates the influence of corporate ethics on the cost of equity capital and finds significantly negative relation between two variables for companies listed on the Korean stock market.

Extending the comprehension of non-financial performance the marketing and advertisement might influence the corporate financial performance through earnings growth and expected cash flow

increase. For instance Singh et al. (2005) analyze the influence of product market advertising on the cost of capital, including cost of equity capital. The study shows the negative relation between advertising expenses and CEC for U.S. companies. Marketing expenses (among them advertisement) are aimed to create customer loyalty, promote a brand, generate higher margins and increase revenue. Moreover, the advertisement might improve a shareholder value. The increased visibility among customers and investors will lead to higher liquidity and the spread of the stocks on the market. Another research on the relation between non-financial performance and the cost of capital is conducted by Himme and Fischer (2014). They investigate the influence of customer satisfaction, brand value and corporate performance on the cost of capital, including cost of equity capital. The findings show that only higher satisfaction ratings decrease cost of equity capital. Customer satisfaction plays a significant information role as it reflects customers' experience in the past and assumes customers' willing to come back or recommend a company that in turn might lead to earnings increase and the higher future cash flows. In another words the customer satisfaction provides information about customers' willingness to pay thus expected earnings. At the same time, authors do not find strong evidence on the relation between brand value and corporate reputation and the cost of equity capital.

Summing up, the non-financial performance as social factors significantly influences the cost of equity capital. Moreover, the improvement of such factors as social disclosure and social responsibility, employee relations, product strategies, environmental performance, environmental risk management will lead to lower cost of equity capital.

The overview of literature on the theme of internal factors and their influence on the cost of equity capital is represented in Appendix A.

Chapter 4 Financial stability of a country as a combination of external factors

The attention to the financial stability issue has increased because of several reasons. First of all, the last few decades were marked by series of financial stability episodes. Moreover, not only their frequency was notable, but also the speed of their expansion. The government and central banks focus on the increased potential costs of financial crises, as well as its prevention and resolution. Another reason of greater concern about financial stability is growth in the volume of financial transactions and extended complexity of new financial instruments.

Due to contagion effects and consequences of modified crises the costs of financial instability can be very high; it can lead to series of bankruptcy, lost output, misallocation of resources, high unemployment, and even decrease of living standards. Moreover, as a matter of fact the financial stability influences the cost of equity capital as a key element of financial decision process of a company.

4.1. Financial stability: the way to define

During the last few years the global financial crisis and debt crisis hit the financial stability of many countries and show its importance and influence on the different spheres. Governments, central banks and academics try to determine the notion of financial stability, its features and measures, in order to adjust it and predict future events of imbalance.

In spite of the fact that financial stability is one of the most significant elements of effective operation of a country as a system towards sustainable economic growth, there is no generally accepted definition of financial stability. Many authors try to define it through the opposite term as financial instability. For example, Mishkin (1991) argues that financial instability occurs when shocks affecting the financial system stop the information flow that in turn lead to the non-optimal allowance between savings and investment in economy. Crockett (1997) defines financial instability as a situation, when fluctuations in the financial assets prices influence the economics performance. Ferguson (2002) also tries to define instability as a situation, when negative external factors of the market negatively influence the real economy. According to the Ferguson (2002) financial instability is a situation, when some important set of financial asset prices seem to have diverged sharply from fundamentals; market functioning and credit availability, domestically and perhaps internationally, have been significantly distorted; and aggregate spending deviates significantly, either above or below, from the economy's ability to produce. Later Balakrishnan et al. (2009) describe financial distress, as "a period when the financial system is under strain and its ability to intermediate is impaired".

Thus, according to the literature research several features characterize financial instability of a country:

- ✓ systematic risk and system-wide consequences;

- ✓ Domino and Knock-on effects;

- ✓ lack of robustness to shocks;

- ✓ high volatility of main economic and financial indicators;

- ✓ high volatility of financial asset prices;

- ✓ lack of credit availability;

- ✓ increased aggregate spending deviation;

- ✓ non-optimal allocation of saving and investment

However, some authors determine the financial stability directly. For example, Udaibir et al. (2010) set financial stability as "a stability of financial markets, reflected in a low level of volatility of a number of economic and financial indicators". The financial stability of a country represents the efficient allocation of assets in real economy, the optimal price and risk management at the macro level, ability of a system to accommodate the lenders and borrows according their needs, and ability to predict or at least deal with economic imbalance and shocks (Shinasi, 2004; Houben et al., 2005; Acharya et al., 2012). Moreover, it should robust in the face of a reasonable wide range of adverse circumstances, i.e. efficiently provide sufficient financial services under significant stress (Freedman and Goodlet, 2007).

The studies on the theme of financial stability can be divided into two groups (Sipko, 2010). The first group is focused on the external shocks and their impact on the financial stability (for example, Allen and Wood, 2006). The second approach takes into consideration shocks caused by financial system (Schinashi, 2004). In other words, there are external and internal factors that shake the financial stability of a country.

Allen and Wood (2006) sort out following features that should be incorporated in a determination of financial stability: (1) substantial welfare costs; (2) observable state of affairs; (3) property of a clearly defined politically significant entity, i.e. the property of a nation state; (4) probability of collapse not only of financial institutions, but also non-financial companies and sovereign nations; (5) avoid so called rigor mortis[5].

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[5] The financial stability should not prevent any changes as evidence of instability: rigor is fine, but not rigor mortis (Allen and Wood, 2006).

The objective of financial stability is to achieve a level of stability in the provision of financial services over the entire business cycle that will support the economy in attaching maximum sustainable economic growth (Frait and Komarkova, 2011).

Therewith, the maintenance of financial stability at macro level is a function of national central banks. Concerning financial stability and probability of default their responsibilities are to investigate the current situation, analyse past event, forecast optional scenarios and take measures to preserve financial stability and prevent possible financial distress. For this purpose, central banks provide Financial Stability Reports (FSRs), in order to disclose required information. Based on the FSRs of several countries we provide definitions of financial stability according to central banks (Table 4).

Table 4: Definitions of financial stability in terms of the central banks

Central Bank	Definition of financial stability
Czech National Bank	" a situation, where the financial system operates with no serious failures or undesirable impacts on the present and future development of the economy as a whole, while showing a high degree of resilience to shocks"
Bank of Germany	" as the financial system's ability to smoothly perform key macroeconomic functions at all times, especially in periods of stress and upheaval"
Bank of Poland	"a situation when the system performs its functions in a continuous and efficient way, even when unexpected and adverse disturbances occur on a significant scale"
Bank of Slovakia	"the condition when the financial system and its various components - such as financial markets, financial institutions, payment systems, securities transfer systems, settlement systems, etc. - reliably and smoothly perform all of their basic functions and are sufficiently resistant to adverse financial and economic shocks"
Bank of Hungary	"a state in which the financial system, i.e. the key financial markets and the financial institutional system is resistant to economic shocks and is fit to smoothly fulfil its basic functions: the intermediation of financial funds, management of risks and the arrangement of payments"
Central Bank of Iceland	"the financial system is equipped to withstand shocks to the economy and financial markets, to mediate credit and payments, and to redistribute risks appropriately"
Bank of Japan	"a state in which the financial system functions properly, and participants, such as firms and individuals, have confidence in the system"
Bank of Canada	the resilience of the financial system to unanticipated adverse shocks, which enables the continued smooth functioning of the financial intermediation process"

Source: Financial stability reports of selected countries

Based on the literature review, we determine the financial stability as the situation, where the financial system efficiently fulfils its functions as financial resources allocation, economic external and internal shocks resistance, macroeconomic risks management, and providing confidence of investors, companies and individuals, sustainable economic growth and sound financial infrastructure.

In addition, several financial stability features can be emphasized:

- ✓ low level of volatility of asset prices, money supply, credit to private sector, exchange rate, equity prices, bond spreads, interest rates, cross-currency SWAP rates and other macroeconomic and financial indicators;
- ✓ efficient allocation of assets;
- ✓ optimal price level;
- ✓ low level of systematic and idiosyncratic risks;
- ✓ robustness to shocks both external and internal;
- ✓ risk diversification.

According to Frait and Komarkova (2011) there are four stability stages of financial system, namely financial stability, financial vulnerability, financial volatility, and financial instability or crisis (Figure 4). Thus, there are two key features of financial system that cause financial instability: vulnerability and occurrence of shocks. In addition, in turn, resilience and absence of shocks provide financial stability in a country. Therefore, financial stability policies focus on the maintenance of resilience of financial system, and economic shocks adjustment.

Sound financial system

	Yes: **resilience**	**No:** **vulnerability**
No	**Financial** **stability**	**Financial** **vulnerability**
Yes	**Financial** **volatility**	↓ → **Financial** **Instability** **(crisis)**

Shocks

Source: Czech National Bank/Financial Stability Report 2010/2011

Figure 5: Stability states of financial system

Therefore, the risks that are relevant to financial stability can be divided into several groups as macroeconomic risks, emerging market risks, credit risks, and markets risks. Moreover, these risks can be considered according to specified country as internal and external. Table 5 represents the assumed risks based on Financial Stability Reports of several countries.

Table 5: External and Internal risks of national financial instability

Internal	External
✓ high indebtedness of some sovereigns, companies, and households; ✓ increase in property prices could raise household's vulnerability to shocks and lead to renewed risks to banks' resilience; ✓ lack of liquidity in banking system; ✓ funding risk for banking sector; ✓ insufficient capital strengthening for banks; ✓ vulnerability of payment system; ✓ liberalization of capital control; ✓ deterioration of investors' confidence; ✓ adjustment fatigue; ✓ addiction to low interest rate environment.	✓ government debt levels remain high in some advanced economies; ✓ some euro-area borrowers stay vulnerable to shocks; ✓ financial markets stay vulnerable to an expected increase in interest rates; ✓ operational vulnerabilities, for example, cyber-attacks; ✓ foreign debt refinancing; ✓ uncertainty in monetary policy in the United States and other world-leading economies; ✓ deficient structure of banking union.

Source: Author's composition

On the one hand the processes as macroeconomic shocks are natural as the business cycle itself. However if financial imbalance becomes bigger than natural volatility of business cycle, then the policy makers have to interact and use their policy tools towards financial stability of a country. At the same time as the main source of time component of systemic risk is financial cycle, then the additional objective of macroprudential policy is to monitor and regulate financial institutions to behave less procyclically.

In the terms of central banks and their approach to promoting financial stability, the primary objective is systematic risk and its adjustment. Systematic risk may reflect contagion effects, when the

failure of one financial institution lead to others bankruptcy, or when the financial markets participants have familiar exposure to a single risk factor (Frait and Komarkova, 2011).

4.2. Central banks on the financial stability issue

A central bank or monetary authority is an institution that has as a function to manage national currency, money supply and interest rates. In addition, it has supervisory power to control banking system by setting requirements, in order to mitigate potential risks.

Another substantial function of central banks is a potential source of emergency liquidity provided to markets through open market operations or to financial institutions through discount window lending or as a lender of last resort. Thus, central banks have to monitor the current situation and predict potential events of instability, in order to respond immediately and supply the lack of liquidity in the system. At the time of financial instability or even crisis they use appropriate tools to ease liquidity pressure and raise public confidence.

Along with macro objectives as price stability and satisfactory economic performance central banks define financial stability as a significant objective. The financial imbalance may occur even at times of price stability and when output is close to potential level. Therefore, central banks should concentrate on both goals and be prepared to the different scenarios.

The main objectives of central banks according to financial stability could be:

✓ indicating, monitoring and reducing systematic risks that can damage the financial system of a country;

✓ monitoring and preventing moral hazard, i.e. to promote markets that are fair;

✓ monitor interactions between financial institutions and their environment;

✓ banking system supervision, in order to predict its failure;

✓ providing liquidity to the banking system;

✓ ex-ante and ex-post analysing of financial stability; further preparing and publishing of financial stability reports;

✓ regulation of credit and currency in the best interest of the economic situation in a country;

✓ promotion the economic and financial welfare of a country;

✓ maintaining price stability along with economic growth and employment.

Bauducco et al. (2011) argue that effective central bank would apply monetary easing during a short-lived financial instability shock, in order to limit the short-term decrease in output and consumption and quickly return to the normal trend.

The central bank has to coordinate with policy makers and another public and quasi-public agencies in terms of financial stability, moreover, it should weight financial stability as an objective vis-à-vis their other objectives.

4.3. Fiscal policy and its link to financial stability

The fiscal policy is focused on government spending and taxing for the purpose of economy stabilization. As well, there are short-term and long-term goals. In short-term outlook government prevent excessive unemployment and control inflation. For long-term perspectives fiscal policy encourage economic growth for the purpose of higher standard of living. Therefore, the primary objective of fiscal policy is to manage demand counter cyclically. Fiscal policy has two main tools as changing tax rates and changing government expenditure. There are also expansionary and contractionary fiscal policies. In the first case government increases aggregate demand by adjusting the budget through increasing spending or decreasing taxes. The companies lose their tax benefits for debt financing. Also raise in government spending may lead to bigger sales and profits thus the retained earnings as internal capital will be available and more preferable. Consequently, the total leverage is going to decrease. Under contractionary fiscal policy there is an opposite situation. The government resorts to debt, when spending exceed its revenue, and it is inadvisable to increase taxes or cut spending. The presence of well-functioning government debt market encourages development of efficient financial markets. Financial market development is essential for ensuring stable economic growth. Moreover, efficient financial markets provide longer-term loans for companies (Das et al., 2010). A supply of interest-bearing sovereign debt facilitates the trading and valuation of all financial instruments that provide liquidity to capital assets.

A key role of fiscal policy towards national financial stability is a shock absorber. First of all, the government revenue and expenditure decisions have significant impact on aggregate demand. Secondly, the government as a borrower provides a benchmark for risk free rates based on its bonds. The risk-free rate represented as a rule by Treasury bills rate is a significant element of the cost of equity capital.

The financial stability objective of fiscal policy is to maintain fiscal buffers that allow a response to financial system stress. During the good times government could accumulate budget surpluses and afterwards support the financial system in bad times. The recent crisis has shown the importance of debt capacity and ability to sustain the financial sector through bank rescue packages and the real

economy through discretionary fiscal stimulus (Hannoun, 2010). However, nowadays we face the opposite problem, when fiscal policy become a potential source of shocks rather than shock absorber. The excessively loose fiscal policies and increased sovereign debt weaken the financial system and economy in a whole.

A tax policy that is a part of fiscal policy can influence the economy and private investment and in turn the cost of financing directly and indirectly. The direct channel includes the standard income and substitutions effects that change households' and companies' budget constraints. The indirect impact emerges in tax cuts on deficits, and higher government borrowing on national savings and interest rates (Gale and Orzag, 2005). Taxes are the main source of government income. According to the Czech central bank government revenue can be presented as five groups namely consumption tax, wage tax, capital tax, social security contributions and lump-sum tax (Ambriško et al., 2013).

At the same time government expenditure can be divided into four categories: government consumption, government investment, unemployment benefits, other social benefits and interest payments paid on issued debt. Afonso et al. (2010) examine the influence of government spending on higher economic growth in the existence of financial crisis. The increases in real government spending growth have a positive effect on real GDP growth. The differences between the coefficients of government spending during crisis and non-crisis periods turn out to be insignificant in their estimation covered 127 countries for the period 1981-2007. However during banking crisis the evidence does not support the idea that expansionary fiscal policies positively influence economic growth. Earlier Afonso and Sousa (2009) argue that government spending shocks influence private consumption and private investment, and positively affect price level and average cost of refinancing debt.

Many economics argue that the economy reacts differently to fiscal policy during financial crisis than in normal times. However when the Global Financial Crisis had occurred, the governments of many countries all over the world implemented huge fiscal stimulus packages. Afterwards the economist started to investigate the real effect of debt-financed fiscal policy measures as spending programs and tax reductions. They found that there is a significant impact of fiscal policy on the output (Fatás and Mihov, 2001; Galí et al., 2007; Afonso and Furceri, 2010).

4.3.1. Sovereign debt as significant element of fiscal policy

In a general way, debt is amount of money that one party borrows from another. In economic terms debt is amount of money borrowed by one party from another under certain arrangements, and debt is considered to be loans, bonds or commercial papers. The debt can be classified as corporate and sovereign. According to Panizza et al. (2009) the main difference is the lack of a straightforward legal mechanism to enforce repayment of the sovereigns. The legal penalties in the event of default for sovereigns are more limited than for companies. However, in spite of shortage of direct power to

enforce repayment, the default will automatically limit access to a credit market as significant source of financing.

As a rule government debt is associated with government securities as bonds, which sovereign issues to raise funds and cover the budget deficit. The government securities are highly liquid and low-risk, for this reason their rates are used to indicate the benchmark in capital cost estimation. The sovereigns have advantages in compare with other borrowers: the ability to raise taxes, set laws, control supply of money, which in turn makes them more creditworthy and thus decrease risks (Standard & Poor's, 2014). The government debt is a source of external financing that a government uses to cover exceeded expenditures.

Based on the literature review conducted by Panizza et al. (2009) sovereigns issue debt, in order to smooth consumption by transferring income from countries that are more prosperous to worse. Levy Yeyati (2009) finds that private lending to sovereigns is procyclical, at the same time official lending is countercyclical, which contradicts with statement that countries use foreign debt to smooth income shocks.

A sovereign debt is widely traded on the fixed-income securities market, providing "vital benchmark interest rates for most types of privately issued securities at the levels of both theory and practice" (Scott et al., 2008). A supply of interest-bearing sovereign debt facilitates the trading and valuation of all financial instruments that provide liquidity to capital assets. As a rule the risk-free rate represented by Treasury bill rate is a significant element of the cost of equity, which in turn associated with capital structure (Modigliani and Miller, 1958).

Sovereign debt increases the risk of higher future corporate taxes or expropriation of private investments (Aktas at al. 2009). At the same time some studies show that sovereign debt can improve corporate access to a foreign credit market. For example, Ditmar and Yuan (2008) argue that sovereign bonds cause the sizable benefits for the development of corporate bond markets in emerging economies. Moreover, sovereign debt represented by government bonds usually serve as collateral in repo markets, for this reason banks keep them as an access to public liquidity.

On macro level a high sovereign debt leads to higher interest rates, higher labor taxes and increase in households' savings. However, the presence of a well-functioning government debt market supports the development of efficient financial markets. Moreover, systematic and strong financial market is essential for ensuring stable economic growth (Udaibir et al, 2010).

The effective debt management plays a crucial role both in short-term and long-term run. As Aguiar et al. (2014) argue the government decides to increase or decrease debt level based on the inflation credibility. If inflation credibility is low then the government might hold the current level of debt or even reduce it. However, during high inflation credibility regime the debt level will be increased. Nevertheless, the policies conducted by government should be complementary and support

the effectiveness of each other. For example, Bolton and Jeanne (2011) argue that "financial integration without fiscal integration results in an inefficient supply of government debt".

In time of deep integration and globalization it is not enough to pursue effectively internal monetary and fiscal policies, but also countries should cooperate and follow similar rules, in order to keep international stability. For the purpose of monetary stability, the treaty of Maastricht set five criteria that countries should met if they want to adopt single currency of European Union regarding inflation, budget deficit, debt, long-term interest rates and exchange rate mechanism. The national budget deficit should be at or below 3% of GDP and national public debt should not exceed 60% of GDP. Unfortunately, nowadays most of European countries do not satisfy these criteria. During period 2005-2012 Greece had the highest level debt (as percentage to GDP). Italy also overreached 100% of debt to GDP, i.e. total amount of sovereign debt is larger than GDP of a country. France, Germany and Hungary also exceed the limit (60%), however keep the level of debt around 75%. Poland, Slovakia and the Czech Republic satisfy the required debt criteria keeping sovereign debt ratio less than 50%.

Since government debt exceeds the appropriate level, there are a lot of debates regarding consequences of raising sovereign debt. As it was mentioned before government debt is associated with a tax raise. At high debt levels, the expected future tax increase will reduce the possible positive effects of government debt, decreasing investment and consumption resulting in less employment and lower output growth. Earlier Kumar and Woo (2010) find an inverse relation between debt and subsequent growth in advanced and emerging economies. Later Afonso and Jalles (2013) find the negative effect of government debt on growth.

Eaton (1995) argues that "problems relating to the sovereignty of the debtor can produce inefficiencies". Firstly, there is a need to finance repayment with tax revenue. Secondly, the debt influences on the debtor's incentives. Another significant issue of sovereign debt is the solvency of the government itself. The administrative cost and excess burden of taxation may reduce the funds that the government dispose to meet a debt service obligation. Even a relatively small amount of debt may negatively influence investment and government revenue due to debt service obligations financing sources. Subsequently another problem of debt is liquidity, i.e. the lack of resources required to meet its current obligations and debt services.

Theoretically, in terms of closed economy, a higher level of debt will absorb share of national wealth, then increase interest rates and cause the private capital decrease. And the consequences reduce the level of output as new capital is more productive than old capital; and reduced rate of capital accumulation leads to lower economic growth. On the other hand, in the open economy, international financial markets may moderate such effects, if investors stay confident in country's ability to repay. However, larger share of foreign debt leads to lower domestic income reduced by interest paid to foreign that in turn increase the gap between GDP and GNP. To a great extent the

higher level of debt might reduce the size and effectiveness of future fiscal response to the adverse shocks (Cecchetti et al., 2010).

Similarly, researchers investigate the influence of sovereign debt not only on macroeconomic performance, but also on corporate characteristics. There can be direct and indirect impact of sovereign debt level on private sector. According to previous studies the fiscal deficit has positive impact on the interest rates (Gale and Orzag, 2002). Therefore, the companies' choice of financing source is based on the cost of capital, where interest rate plays significant role in its estimation; consequently corporate capital structure relies on interest rates.

In addition, Dailami (2010) argues that "investors' perceptions of sovereign debt problems translate into higher cost of capital for corporate issues, with the magnitude of such costs increasing at times when sovereign bonds trade at spreads exceeding a threshold of 1000bps". Also Ağca and Celasun (2012) find the relation between external debt of a public sector and corporate borrowing costs. They argue that companies face significantly higher borrowing costs with higher level of sovereign debt; moreover, the relation is stronger for countries with weak creditor risks and episodes of sovereign defaults.

Moreover, sovereign debt influences the availability of financing sources. Arteta and Hale (2008) find that sovereign debt crisis and its aftermath influence the foreign credit availability to private sector. They argue that there is a 20% decline of foreign credit to emerging market private companies during debt renegotiation. Along with domestic private credit reduction sovereign defaults also increase the risk of a banking crisis (Borensztein et al. 2007, Sandleris, 2008). Dick-Nielsen et al. (2012) and their findings show that sovereign debt crisis increase corporate bond spreads. Additionally Corsetti et al (2014) also find that higher risk premium on government debt leads to hire corporate credit spreads.

The financial instability can manifest itself as sovereign debt crisis. In this case the financial instability is caused by public sector. The recent sovereign debt crisis was a running consequence of global financial crisis (2007-2008). Highly leveraged banks, deregulation of financial system, securitization growth, bankruptcy of investment banks as Bear Stearns and Lehman Brothers in USA caused panic in financial markets; increased systematic risk that in turn led to global financial crisis and deep recession. In order to support financial system and increase investor's confidence government decided to implement expansionary fiscal policy and provided bailout packages to banks. These measures dramatically raised public deficit, which led to sovereign debt growth and consequently growing default risk. Contagion effect through the banking system was another significant cause of sovereign debt crisis. The financial integration leads to the contagion, so nowadays contagion risk is one of the important components of systematic risk.

The causes of debt crisis can be classified as fiscal problems and problems with banking system. For example, Greece and Portugal had faced fiscal problems that led to sharp debt increase and

consequently caused crisis. On the other hand, Ireland and Spain suffered from banking crisis, in particular mortgage boom (Blundell-Wignall and Slovik, 2011).

According to Junevicius and Liutkus (2011) the sovereign debt crisis cane be divided into 4 steps: growing deficit, growing debt, downgrades of financial ratings and default. Logically, due to financial crisis or some other economic shocks government's expenditures increase (additional measures to stabilized economy) and at the same time its revenue mainly from taxes decreases as the result of downturn. Consequently the deficit emerges, which in turn forces government to borrow, the government rises with probability of default.

Blundell-Wignall (2012) analyzes the policies for solving sovereign debt crisis in Europe and highlights their advantages and disadvantages. The fiscal policy measures as fiscal consolidation, international transfers, debt haircuts or Eurobond issues can reduce debt, improve credibility and euro viability and cost reduction for problematic countries. However, such measure can lead to further problems in banking system or high costs and lower rating for healthier countries. Moreover, debt haircuts may cause political problems and uncontrolled incentives. The European Central Bank (ECB) may provide LTRO operations and reduce collateral requirements that in turn will provide banks with additional funding and cash, support interbank lending and prevent bank failures. One of the most popular unconventional monetary measures is Quantitative Easing (QE) that helps to avoid debt dynamics deteriorating and supports growth. The disadvantage of ECB intervention is greater concentration on the crisis assets; also QE may cause higher inflation. Blundell-Wignall (2012) argues that structural policies regarding labour market, product markets and pensions will reduce costs of fiscal consolidation and improve competitiveness by the means of labour market. In addition, transparent accounting for hidden losses and separation of retail and investment banking activities will help to divide risk as leverage and contagion risks: separate domestic retail from high-risk globally-priced assets. Later Ureche-Rangau and Burietz (2013) investigate the influence of government interventions on sovereign debt and find negative impact on the cost of sovereign debts. Moreover, the cost of the crisis depends on the instrument that the country primarily relies upon. As a rule it can be bonds or loans, domestic or foreign. And the differences between them play a great role the financial infrastructure as well as its stability. Interestingly, Hale (2007) argues that the debt crisis expected to be more frequent in countries that rely primarily on bank lending.

According to Prinz and Beck (2012) several measures were proposed in an effort to solve sovereign debt crisis in European Union. The first policy action conducted by ECB is bond-buying program of nearly insolvent countries, i.e. financing of public debt. The major concern is probability to transfer the full risk of defaulting countries to European taxpayers as bank and investors could force ECB to buy all debt securities with high risk; and therefore ECB would have enormous amount of critical assets on its balance sheet. The second solution is to issue Eurobonds, which emitted by the European agency on behalf of European member countries. However, this measure could result in higher moral hazard due to lack of sanction towards countries with excessive debt. As a result Eurobonds would socialize the sovereign credit risk.

Another policy measure is leveraging European Financial Stability Facility (EFSF) or European Stability Mechanism (ESM), i.e. ESM should buy sovereign debt securities and provide them as collateral for money from ECB. Such policy also could lead to debt explosion. However, ESM could recapitalize insolvent banks. The European Troubled Asset Relief Programme (Euro-TRAP) is directed to buy high risky troubled assets from banks accounts, in other words cleaning banks' balance sheets. Authors argue that Euro-TRAP would be better solution to solve sovereign debt crisis as it combined "enforceable sovereign default and mandatory adequate capital basis for banks".

According to Udaibir et al. (2010) debt management is a crucial component of sound policy framework, i.e. the improvement in debt structure can significantly complement fiscal consolidation "in ensuring robust recovery in post crisis environment". In terms of macroeconomic and financial stability the important decision is to attract foreign investors, which in turn can recue borrowing costs.

Several authors try to investigate the influence of sovereign debt crisis on private sector. Arteta and Hale (2008) find that sovereign debt crisis leads to decline in foreign credit to domestic private firms, first of all due to worsening macroeconomic fundamentals, political situation, and banking system distress. Later Dick-Nielsen et al. (2012) show that sovereign debt crisis has increased corporate bond spreads. However, most studies are focused on the sovereign debt crisis, its causes and consequences on the macro level, the financial markets, in particular government bond market, banking systems, and interest rates in connection with government bond yields. But the apparent influence of sovereign debt on the private sector, including its performance and financing decisions has not been analyzed in full extent.

4.4. Monetary policy and its link to financial stability

Monetary policy is a complex of actions managed by central bank. The main goal is to adjust the money supply or interest rates, in order to stabilize economy. There can be to types of monetary policy: expansionary and contractionary. The first one increases the total supply of money by lowering interest rates, in order to adjust unemployment. The contractionary monetary policy conversely decreases the money supply by raising interest rates to control inflation. The monetary policy maintains price stability, full employment and economic growth. In monetary policy regimes with target low and stable inflation, the key interest rate is the main policy instrument. Thus, there are two principal monetary policy rules. Firstly, nominal interest rate peg is an extreme form of stabilization which sets the short-term interest rate equal to a constant target plus noise (Bhamra, Fisher & Kuehn, 2011). So called passive policy as it does not respond to inflation. And, second rule is represented by constant inflation target as policy, where central bank fixes inflation rate and preserves it by the means of interest rate changes and other monetary tools.

There are different objectives of monetary policy that vary from one country to another, depending on the level of their development. However, recent years several new phenomena appear in economic

environment, which cause numerous difficulties and financial uncertainties regardless the strength of economy. Bandoi et al. (2009) detach following:

✓ deteriorating financial position of domestic companies and the existence of external debt crisis;

✓ the existence of conflict between economic stimulation and inflation;

✓ interdependencies between monetary and financial markets with unstable funds flows as a background, especially capital movement;

✓ financial innovations that create new financial products, which lead to difficulties to define monetary aggregates and establish their influence on monetary policy.

Theoretically, there are three standard strategies of monetary policy: targeting monetary aggregates, targeting exchange rate and inflation. Most of EU members have chosen to target inflation in terms of European central Bank strategy (the Czech Republic, Poland, Hungary, Slovakia, Germany, Greece, Netherlands etc.). Other countries also set medium-term price stability as the main objective of monetary policy (Russian Federation, Japan, Great Britain, Argentina, Australia, and South Africa). However there are some countries, mostly small open economy, that firstly focus on exchange rate and the stability of domestic currency with further price stability as a primary objective (Singapore, Indonesia, Madagascar).

As was mentioned before, inflation and consequently price stability are the main goal of monetary policy and central banks. According to Bandoi et al. (2009) theoretically price stability can be determine through several ideas:

✓ price stability as the aggregate price level measured by indices (as Consumer Price Index (CPI), Harmonized Index of Consumer Prices (HCIP), or Producer Price Index (PPI);

✓ price stability occurs, when the money keeps their value over the time the speed erosion of purchasing power is slow;

✓ the monetary stability concept overlaps price stability

Inflation represents an overall index for the cost of living. The expectation of changes in inflation rate influences credit and reinvestment risks. As a rule, the high rate of inflation is expected to adversely affect both the debt market and the stock market; consequently, the rate of return is expected to be high, which adversely affects the price of the securities. As a result, the cost of capital is increasing, which makes some investments projects unprofitable and thereby adversely affects the rate of growth of the economy and consequently adversely affects the stock market. Therefore, under

the conditions of higher inflation rate the debt will be more beneficial for companies, because the cost of debt decreases.

High and volatile inflation has adverse influence on the economic growth. It deteriorates the value of income and savings, and leads to high nominal interest rates, which in turn increase the uncertainty in the financial markets, decrease investors 'confidence, and consequently increase the cost of capital for private sector. However, excessively low inflation or even deflation also lead to recession.

As was mentioned before inflation stabilization is one of the major priorities of the Central bank. Generally price stability is always associated with financial stability thus Akram and Eitrheim (2008) investigate the influence of flexible inflation targeting on financial stability by the means of inflation and output stabilization. They find that output stabilization has tendency to improve financial stability in Norway. Moreover, growth in house prices, equity prices and credit increase inflation and output stability; however, there is a mix effect on financial stability.

The nominal interest rates as a significant tool of monetary policy can be divided into long-term and short-term interest rates. Short-term interest rates represent business cycle stage prevailing in the economy. It reveals volatility in the capital market and the money market as well. Growth in interest rates may lead companies to increase their debt ratio, because of tax benefits or decrease financial leverage in order to reduce bankruptcy risk. The changes in monetary policy affect the demand for money that in turn may influence financial market equilibrium, which consequently may change financing channels and financial constrains for private sector. For instance, Cúrdia and Woodford (2010) argue that the central focus of monetary policy should be interest rate. According to the study there can be four different possible specifications of monetary policy: (1) a simple "Taylor rule"[6]; (2) a "strict inflation targeting" regime, under which interest rate policy is used to ensure inflation never deviates from its target level (zero) in response to any disturbance; (3) a "flexible inflation-targeting" regime, under which interest policy ensures that inflation holds each period; and (4) a fully optimal policy (the solution to Ramsey policy problem)[7].

4.4.1. Unconventional monetary policy

The sluggish rate of economy recovery has shown that monetary policy itself is not effective enough to return economy to full employment rate after financial crisis. Thus the policymakers start to use unconventional policies during downturns. During global financial crisis the major central banks have introduced so called non-standard monetary policy measures, in order to support the functioning of the financial sector, to protect the real economy from the fallout, and preserve price stability over the medium term.

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[6] Is a monetary policy rule on the relation between inflation and nominal interest rate change (Taylor, 1993)
[7] Ramsey optimal policy should balance two goals as inflation and output stabilization

Trichet (2013), a former president of European Central Bank, emphasizes two distinct views on non-standard measures. The first view determines non-standard measures as a continuation of standard policy by other means. As central banks cannot decrease the nominal interest rates further, they start to use another tools. According to the second view, the non-standard measures deal with channels of more effective transformation of monetary policy. Thus, standard or traditional tools depend on medium- and long-term outlook for price stability; and non-standard or so called unconventional tools depend on the degree of dysfunction of monetary policy transmission through the financial system and financial markets.

Labonte (2013) groups the non-standard policies into three sets, which are focused on: (1) applying communication policies to adjust the future expectations regarding interest rates; (2) changing the composition of the central bank's balance sheet by the means of the target purchases of long-term bonds, in order to reduce the long-term interest rate (3) increasing the size of the central bank's balance sheet or so called "quantitative easing".

Sometimes conventional measures do not effectively work; it can happen when short-term interest rates reach zero level. In the recent years one of the most well-known unconventional measurers of monetary policy is quantitative easing. Quantitative easing (QE) is one of the unconventional monetary policy measures that designed to prevent banking system failure and increase money supply. The idea is to provide liquidity to the system and avert further financial distress. The central banks use different tools of QE such as financial asset purchases and direct lending to banks. As a rule QE is applied when interbank interest rate is close to or at zero level.

The particular QE programs vary across countries and depend on the specifics of economies and the further Central Bank's goals. As was mentioned above there are two main types of QE programs. Thus Federal Reserve (FED) and Bank of England (BOE) rely on bonds purchases, while European Central Bank (ECB) and Bank of Japan (BOJ) have chosen direct lending. The Table 7 represents the timeline of the quantitative easing conducted by Central Banks. Fawley and Neely (2013) provide comparison analysis regarding four central banks that applied QE to boost economy. In 2008 after bankruptcy of Lehman Brothers FED started to buy long-tern government bonds, mortgage-backed securities and government – sponsor enterprise debt. Later in 2011 and 2012 FED conducted so called Operation Twist, when Treasury purchases were funded by sales of short-term securities. The FED QE is distinguished into four separate programs: QE1 (asset purchases 2008-2009), QE2 (asset purchases 2010), Operation Twist (long-term asset purchases and short-term asset sales 2011 and 2012), and Q3 (asset purchase 2012). In 2014 FED announced the end of mortgage-backed securities purchase.

Quantitative easing provided by Bank of England can be divided into two episodes. The first stage refers to time period from March 2009 to February 2010, when BOE was increasing the asset purchase ceiling funded by money creation; and in February 2010 the first part of QE was ended with announcement that new purchases would be funded by Treasury issuance. The second stage started in

October 2011, when ceiling asset purchases was raised again funded by money expansion. BOE purchases were directed to government and corporate bonds. The Bank of Japan started its EQ program in early 2003s based on government bonds with maturity between 2 and 40 years. The BOJ used bank lending and asset purchases. In 2009 along with Japan government bonds monthly purchases BOE started to buy commercial papers and corporate bonds. In 2010 the exchanged-traded funds and Japanese real estate investment trust were added to the program. European Central bank has larger purchases of private assets compare with other Central Banks. Upward 2009 the ECB was buying euro-dominated bonds. In 2010 purchases of Greek, Irish and Portuguese debts were realized, and then in 2011 Italian, Spanish, Portuguese and Irish sovereign debts were purchased by ECB. The additional measure of QE was longer-term refinancing operations started from 2008.

Table 6: The Quantitative Easing timeline by Central Banks

Central Bank	Time	Measures
FED	2008	• Government –sponsor enterprise (GSE) debt purchase ($100 billion) and mortgage-backed securities (MBS) purchases ($500 billions) (QE1)
	2009	• Treasuries purchases ($ 300 billion); GSE debt purchases ($100 billion); MBS purchases ($750 billion)
	2010	• Further Treasuries purchase ($ 600 billion) QE2
	2011	• Purchase of additional long-term Treasuries ($ 400 billion); the equivalent selling of short-term Treasuries
	2012	• Further long-term bonds purchase and short-term bonds sales • Monthly MBS purchase ($40 billion) • Long-term Treasury purchase ($ 45 billion per month) (QE3)
	2013	• Purchase reduction
	2014	• The end of MBS purchase (QE3)
ECB	2008	• 6 month longer-term refinancing operations (LTROs) • Fixed-rate and full allotment repos conduction
	2009	• Covered bonds purchase (€60 billion) • 12-month LTROs announcement
	2010	• Purchase of sovereign debt at secondary markets
	2011	• Further covered bonds purchase (€40 billion) • 36- month LTROs announcement
	2012	• New program for buying sovereign debt

		2013	• The end of covered bond purchase program
			• Three-month longer-term LTROs announcement
			• Further conduction of the main refinancing operations
		2014	• Further asset-backed securities and euro-dominated covered bond purchase programs
			• Targeted long-term refinancing operations (€82.6 billion)
		2015	• Monthly asset purchase expansion (€60 billion)
			• Inclusion purchases of bonds of euro area central governments, agencies and European institutions
BOE		2009	• Private assets purchase (£50 billion)
			• QE program (£75 billion)
			• QE program expansion (up to £ 125 billion)
			• QE program expansion (up to £175 billion)
			• QE program expansion (up to £200 billion)
		2011	• QE program expansion (up to £275 billion)
		2012	• QE program expansion (up to £325 billion)
			• QE program expansion (up to £375billion)
BOJ		2001	• Increase bank reserves
		2004	• Further bank reserve increase
			• Purchas of public and private bonds
		2006	• The end of QE regime: reinstating of uncollateralized overnight call rate
		2008	• Unlimited lending to banks at policy rate
			• Increase of Japanese government bonds (JGB) monthly purchases to ¥1.4 trillion per month
		2009	• Commercial paper purchase (¥3 trillion)
			• Corporate bonds purchase (¥1 trillion)
			• Further increase of monthly JGN purchases (up to ¥ 1.8 trillion)
			• 3-month loans offer (¥10 trillion)
		2010	• Further 3-month loans offer (¥10 trillion)
			• Loans for the growth projects ((¥3 trillion)
			• 6-months loans offer (¥10 trillion)
			• Public and private assets purchase (¥5 trillion)
		2011	• Further public and private assets purchase (¥5 trillion)
			• Loans for equity purchases/asset-backed lending (¥0.5 trillion)
			• Purchase of public and private assets (¥5 trillion) and further 6-month loans (¥5 trillion)
			• Further JGBs purchase (¥5 trillion)

2012	• Additional JGB purchase (¥10 trillion)
	• Loans in U.S. dollars (¥1 trillion) and in Japanese Yen ((¥1 trillion)
	• Further JGB purchase (¥10 trillion); fixed/rate operation (FROs) reduction
	• Additional Treasury bills purchase (¥5 trillion); FRO reduction
	• Additional Treasury bills purchase and JGBs (¥10 trillion)
	• Additional public debt purchase (¥10 trillion) and private assets (¥1 trillion); the funding of depository institutions' net increase in lending to non-financial sector
	• Further purchase of Treasury bills and JGBs (¥10 trillion)
2013	• Further asset purchases (JGBs, CPs, corporate bonds, exchange-traded funds and Japan real estate investment trusts (¥7 trillion monthly)
2014	• Further JGB purchase (¥80 trillion)
	• Purchase of ETFs and J-REITs (¥3 trillion and ¥90 trillion respectively)

Source: Author's composition

The main target of QE is to reduce systemic risk and prevent further recession. However, if QE is an anti-recessionary measure during recession, it can represent a pessimistic outlook of central bank at the time of economy growth. Besides financial system stabilization the QE is targeted to inflation, real economy stimulation and even European sovereign debt crisis relief.

Many economists argue about effectiveness of quantitative easing. According to Putman (2013) the securities purchase by central bank is more effective than loans to the banks, in order to recover from crisis and return to economic growth. Such purchases of long-term securities reduce long-term interesting rates. However, the choice of QE program (whether it is bonds purchase or bank loans) directly depends on the type of economy: if it is bank-centric economy (Japan and European Union) or bond-market oriented economy (USA and England).

Bauducco et al. (2011) argue that effective central bank would apply monetary easing during a short-lived financial instability shock, in order to limit the short-term decrease in output and consumption and quickly return to the normal trend and financial stability of a system. According to Putnam (2013), another contradictory issue of QE is its exit strategy. The long-term costs of QE can be large, i.e. damage of long-term activity growth, currency values and the future inflation. Thus there is always deliberation between advantages and risks of QE as unconventional monetary policy measure.

The aim of central banks is to promote economic stability by targeting price stability and financial stability. The interest rate as a significant instrument of monetary policy with target low inflation may influence the financial stability. Moreover, under some circumstances the financial stability and price stability may be in conflict. Policy makers should trade off objectives of financial stability and price stability and find the optimal balance.

The unconventional monetary tools are designed to stimulate economy thus such measures intend to influence interest rate and economic growth. For instance, quantitative easing is implemented to reduce long-term interest rates. Under quantitative easing the long-term yields for government bonds are going down, which are used as a benchmark in private securities pricing. In the same way the

interest rates might decrease as a consequence of such called portfolio rebalancing effect, when low yields on government bonds stimulate demand on other securities. Investors tend to buy them until the yields are equalized. There is a direct effect of buying Mortgage-Backed Securities (MBS), as lower yields on MBS leas to mortgage rates reduction that in turn stimulate demand on real estate. However, it is complicated to evaluate the real effect on interest rates and as there are might be other macroeconomic factors as inflation or economic growth. Even though there can be situation, when low interest rates do not stimulate economic activity as there is another barrier to economic growth as unavailability of financial resources, i.e. credit restrictions. Another effect of unconventional measure as QE is money supply increase by the means of bank reserves. The banks have opportunity to extend lending to private sector and as a result stimulate economy. However, on practice banks prefer to hold their reserves. Potentially if banks start to lend their holdings created by the means if quantitative easing, the money supply will increase and that in turn will lead to higher inflation. In addition, quantitative easing should reduce the real exchange rate of domestic currency by the means of unattractive assets (Labonte, 2014).

There are many other unconventional measures proposed by policy makers and economist. However all of them have their cons and pros, which should be considered in the carefully weighted decision towards financial stability of a country.

4.5. Macro-prudential policy towards national financial stability

The sequences of recent crises show the need to improve the traditional macro approaches and analytical framework to predict and cope with suddenly happened events of financial instability. The reason of necessity for macro-prudential policy is lack of fundamental understanding of system-wide risk. Thus macro-prudential policy is the main element of financial stability policy, which is focused on the system as a whole and monitors endogenous processes, where financial institutions may get into situation of instability through common behaviour and mutual interactions (Frait and Komarkova, 2011). The general view in the term of goal of macro-prudential policy is to limit systematic risk and cost of systematic financial distress. However, there are some differences in emphasis of macro-prudential regulation role. For example, Brunnermeier et al. (2009) argue that the key purpose of macro-regulation is to represent a countervailing force to the natural decrease in measured risks in a boom and the subsequent rise in measured risks in the subsequent bust. Another view on the goal of macro-prudential policy is to limit the risk of episodes of system-wide distress that have significant macroeconomic costs (Borio and Drehmann, 2009a). Caruana (2010) describes the objective of macro-prudential policy as "to reduce systemic risk by explicitly addressing the interlinkages between, and common exposures of, all financial institutions, and the procyclicality of the financial system". At the same time, Hanson et al. (2010) argue that macro-prudential policy should be focused on internalization of banks' losses on their assets and mitigating moral hazard.

However, in order to understand the nature of macro-prudential policy, the micro-prudential policy has to be taken into consideration, which adjusts the financial stability of each individual institution

and mitigates idiosyncratic risk. Borio (2003) proposes the distinction between these two perspectives (Table 8):

Table 7: Macro- vs. micro-prudential perspectives

	Macro-prudential	Micro-prudential
Proximate objective	✓ Limiting financial system-wide distress	✓ Limiting distress of individual institutions
Ultimate objective	✓ Avoiding macroeconomic costs linked to financial instability	✓ Consumer (investor/depositor) protection
Characterization of risk	✓ Endogenous (dependence on collective behavior)	✓ Exogenous (independence of individual agents' behavior)
Correlation and common exposures across institutions	✓ important	✓ Irrelevant
Calibration of prudential controls	✓ In terms of system-wide risk; top-down	✓ In terms of risks of individual institutions; bottom-up

Source: Borio (2003)

The traditional monetary and fiscal policy tools have become inefficient under some circumstances during recent financial crises. Thus, the unconventional tools were developed, in order to maintain instability of a system, when policy rates are close to the zero bound. In spite of the fact that there are still debates on the efficiency and suitability of macroeconomic and prudential tools usage, the policymakers should combine them and direct towards stable financial system. For example, Hanoun (2010) presents the alternative toolkit to foster financial stability (Table 9).

The policymakers make their actions regarding financial stability both ex-ante and ex-post. The ex-ante approach includes consideration of potential size of economic shocks, the ability of buffers to absorb them and their consequences, and robustness of infrastructure. Ex-post approach is more expensive, including repair of financial system and economy in general after the crisis. Thus, the ex-ante measures, i.e. official policies, prevent financial crisis that in turn save national capital. The failure of financial system leads to additional economic costs and amounts to 15-20% of Gross National Product (Hoggarth et al., 2002). In addition, the system continues to develop and become more strong and stable.

Table 8: Alternative set of tools to foster financial stability

Tool set	Goal	Instruments
Micro-prudential policy	✓ Limiting distress of individual institutions	✓ e.g. quality/quantity of capital, leverage ratio
Macro-prudential policy	✓ Limiting financial system-wide distress	✓ e.g. countercyclical capital charges
Monetary policy	✓ Price stability	✓ Policy interest rates, standard repos
	✓ Liquidity management	✓ Collateral policies, interest on reserves, policy corridors
	✓ Lean against financial imbalances	✓ Policy rate, reserve requirements, mop-up of liquidity, FX reserve buffers
Fiscal policy	✓ Manage aggregate demand	✓ Taxes, automatic stabilizers, discretionary countercyclical measures
	✓ Build fiscal buffers in good time	✓ e.g. measures to reduce debt levels, taxes/levies on the financial system
Capital controls	✓ Limiting system-wide currency mismatches	✓ e.g. limits on open foreign exchange positions, constrains on the type of foreign currency assets
Infrastructure policies	✓ Strengthen the resilience of the infrastructure of the financial system	✓ e.g. move derivative trading on exchange

Source: adapted from Hannoun (2010)

4.6. Indicators and measures of financial stability

In order to measure financial distress, the studies generally use two kinds of proxies: binary variables based on expert valuation and data-driven measures. Nowadays, most of the existing instability indexes are built on high-frequency data with differences in the selected variables as bank capitalization, credit ratings, credit growth, interest rate spreads or volatility of different assets (Baxa et al., 2013). There are some well-known indexes of financial distress. For example, the USA monthly financial stress index is provided by the Bank Credit Analyst and is based on the banks shares towards to whole stock market, credit spreads and the slope of the yield curve, and new issues of bonds, stocks, and also consumer confidence. JP Morgan provides another stress index, where seven variables are taken into consideration (see Appendix B).

One of the most common indexes of financial stability indicators among policy makers is *Financial Stability Indicators (FSI) provided by International Monetary Fund (IMF).* First IMF proposed in 2001 "core" and "encouraged" sets of indicators in order to investigate and analysed financial stability of banking system as well as other sectors of economies and markets. These indicators have to comply

with several features as analytical significance, usefulness, relevance, and availability. The "core" set covers banking system represented by individual banks. In order to investigate the health of individual banks, six groups of aggregating indicators were established, namely as Capital adequacy, Asset quality, Management soundness, Earnings, Liquidity, and Sensitivity to market risk. Capital adequacy as well as its availability appears to be a key to the robustness of financial institutions to shocks to their balance sheets. The common used proxies of capital adequacy are aggregate risk-based capital ratios. The quality of bank assets and off-balance sheet positions represents the credit risk of financial institutions, notably their repayment performance and capacity to pay, diversification by individual borrowers, by sectors, and even by country, and currency composition, if it is applicable. Further, bank profitability also plays a great role in bank solvency, which can be attended by poor asset quality and unsustainable asset/liability management. In this case return on assets (ROA) and return on equity (ROE) are the widely used indicators of bank profitability. However, the liquidity problems may occur even in solvent banks. Thus, the liquidity of bank assets and liabilities has to be monitored. In addition, the systematic liquidity associated with country's liquidity infrastructure is assessed by indicators of the tightness and depth of key markets, such as bid-ask spreads and turnover ratios, and relevant sectoral balance sheet indicators. This type of liquidity influences both bank and market liquidity. The diversified operations make banks sensitive to market risks, notably interest rate risk, exchange rate and other price risks. Net open positions or duration of assets and liabilities are used to access these kinds of risks (IMF, 2001).

As the banking system and its stability have significant influence on the financial system as a whole, the Basel Capital Framework is directed to strengthen the stability of the international banking system. So far there are three modifications of the Basel Capital Framework (Basel I, Basel II and Basel II). The Basel Capital Accord (i.e. Basel I or the 1988 Accord) was released in 1988 and provided a minimum capital ratio of capital to risk-weighted assets of 8%, which had to be implemented by the end of 1992. In July 1999 a new proposal for capital adequacy framework was presented and later in 2004 the Revised Capital Framework (i.e. Basel II) was released and contained three pillars: (1) minimum capital requirements; (2) supervisory review of an institution's capital adequacy and internal assessment process; (3) and effective use of disclosure. New framework was directed to improve the influence of regulatory capital requirements on underlying risks and to address the financial innovation in a better way. Under Global Financial Crisis the banking sector became overly leveraged with inadequate liquidity buffers. Moreover, poor governance, risk management and inappropriate incentive structures enhance the situation. These factors led to the mispricing of credit and liquidity risks and excess credit growth. In order to stand against increased risks Basel Committee issued Principles for sound liquidity risk management and supervision. After several further documents aimed to strengthen the Basel II, in December 2010 the new standards were proposed, namely Basel III: International framework for liquidity risk measurement, standards and monitoring[8]. This accord is based on the same pillars as the previous one, but several innovations were added to it:

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[8] For more information see Basel III: I International framework for liquidity risk measurement, standards and monitoring, December 2010, BIS

(1) the capital conservation buffer (an additional layer of common equity); (2) a countercyclical capital buffer; (3) proposal to additional capital and liquidity requirements; (4) a leverage ratio; (5) liquidity requirements (i.e. a minimum liquidity ratio); and (6) additional requirements s for systemically important banks (BIS, 2013a). In January 2013 the improved Basel II was introduces: The liquidity coverage ratio and liquidity risk monitoring tools[9]. The first objective of this document was to promote short-term resilience of a banks' liquidity risk profile. In order to achieve this goal, the Liquidity Coverage Ratio was proposed, which should improve the banks' ability to absorb shocks arising from financial and economic instability and thus reduce the contagion risk that transits from financial sector to real economy (BIS, 2013b). The second objective was resilience over a longer time period by requirements for banks to fund their activities with more stable sources. For this purpose the Net Stable Funding Ratio was introduced by new document, namely Basel III: the net stable funding ratio[10] . The available amount of stable funding should exceed or at least be equal to required amount of stable funding, where required funding is measured based on the different characteristic of the liquidity risk profile of an institution. Regularly Basel Committee on Banking Supervision provides Monitoring reports in order to determine the influence of the Basel III framework on banks and financial stability.

The health of financial system depends not only on banking system, but also development of nonbank financial intermediaries, the corporate sectors, households, and the real estate market. Therefore the Encouraged set represents the indicators of financial stability of these significant economical groups.

The ability to work with both core and encouraged sets provides a degree of flexibility in the selection of soundness indicators, in order to investigate the vulnerabilities and conduct comprehensive analysis of financial stability under country-specific circumstances. Indicators of the core set can be combined with other additional indicator, according to the level of financial development of a country, its institutional structure, and regional circumstances.

Based on the current financial situation in the world and risks, which countries can face, IMF modifies the list of FSI. In 2013 the current FSI list, in particular capital-based, liquidity and some other Financial Soundness Indicators, was adjusted according to Third Basel Accord (so called Basel III) that represents a global, voluntary regulatory standards on bank capital adequacy, stress testing and market liquidity risk (IMF, 2013). The current list of FSI for deposit takers, other financial corporations, non-financial corporations, households and real estate markets, both core set and additional set, is represented in Appendix B. One of the advantages of FSIs by IMF is international comparability.

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[9] For more information see Basel III: The liquidity coverage ratio and liquidity risk monitoring tools, January 2013, BIS

[10] For more information see Basel III: the net stable funding ratio, October 2014

European Central Bank has also created methodology to monitor the stability of banking system as an element of financial stability. A set of so-called macro-prudential indicators (MPIs) was established, in order to identify risks in banking sector:

- ✓ Internal factors
  - Profitability (38 indicators), balance sheet quality (18 indicators) and capital adequacy (18 indicators)
  - Demand and supply conditions (7 indicators)
  - Risk concentrations (57 indicators)
  - Market assessment of risks (8 indicators)
- ✓ External factors
  - Financial fragility (15 indicators)
  - Asset price developments (5 indicators)
  - Cyclical and monetary conditions (10 indicators)
- ✓ Contagion factors
  - Interbank markets (3 indicators)

There are two main differences of MPIs from FSIs: firstly, the number of indicators that cover the financial stability state. Secondly, as the data for the most of MPIs are consolidated thus the overview of banking system can be considered on the EU as a whole integral system as there is a tight integration among banks in European countries. On the other hand, the problem might arise in terms of territorial principle and individual country specifics (Geršl and Hermanek, 2008).

The World Bank annually proposes another set of indicators. World Development Indicators report consist of several sections that represent millennium development goals, demographic trends, health environment, economy, states and markets, and global links between trade, financial flows and movements of people (World development indicators, 2014). The indicators also touch on financial stability issue. Based on the World Bank data Valvi et al. (2012) use several indicators to express financial stability of a country: GDP annual growth rate, interest rate spread (lending rate minus deposit rate), inflation, annual industrial value and GINI index.

Furthermore, there are many attempts of policy makers to construct one single indicator to evaluate the level of financial stability. The aggregate financial soundness indicator can be constructed based on the daily data from financial markets. The advantage of such approach is market perceptions about probability of any difficulties in financial sector in the future (Geršl and Heřmánek, 2008). US Federal Reserve System experts (Nelson and Perli, 2005) and specialists from Canadian central bank (Illing and Liu, 2003) utilize such approach. Another approach includes combination of financial market information and information from financial statements of financial institutions. The example of such aggregate index of financial stability is introduced by Swiss central bank as so-called stress index for banking sector. Swiss central bank (SNB 2006) indicates the symptoms of stress in banking sectors (i.e. instability) as follows:

- ✓ a fall in the banks stock price index;
- ✓ and increase in the banks' bond yield spreads;
- ✓ a fall in interbank deposits;
- ✓ a decrease in the banks' profitability;
- ✓ a decrease in the banks' capital;
- ✓ an increase in the banks' provisioning rate;
- ✓ the share of total assets held by banks listed on the regulator's watch list;
- ✓ a decrease in the number of banks' branches.

High intensity of such symptoms indicates high level of stress index thus financial instability of a system.

Another type of index is proposed by Netherlands Central Bank and involves monetary condition index with interest rates, the effective exchange rate, real estate and stock prices, the solvency of financial institutions and volatility of the stock index of financial institutions (van den End, 2006). Another approach to construct index includes the default risk for the whole system. The advantage of this financial stability index is relation with real problems of financial sector as default of financial institutions and with business cycle. However there are disadvantages of this approach as demanding analysis and existence of liquid stock market.

Summing up, according to Geršl and Heřmánek (2008) the aggregate financial stability indicator construction approaches can be classified into several types:

- ✓ based on weighted average of partial indicators of the financial stability of banking system;
- ✓ based on daily data from the financial markets;
- ✓ based on information from financial markets and information from financial statements of financial institutions;
- ✓ based on the extended monetary conditions;
- ✓ based on the stochastic default risk distribution of individual distributions.

Also Nelson and Perli (2005) summarize existing individual and aggregate indicators of financial stability and classified them based on their features and influence on the stability of financial system. The stable financial system should include well-functioning market along with key institutions that operating without any difficulties, where asset prices volatility is low and where economy is able to keep sustained growth and low level of inflation. The first group of indicators refers to measures based on interest rates and asset prices. "Measures of market liquidity provide information on the ability of financial markets to absorb large transactions without large changes in prices, and on the premiums investors are willing to pay to hold more liquid assets" (Nelson and Perli, 2005). The liquidity premiums as the spread between the yields on a less liquid security and the yields on a highly liquid similar security might indicate the financial difficulties on the market quit rapidly. In addition, sudden and significant widening of spreads between yields on risky securities and riskless assets also

signals the indications of financial turmoil. The option prices also might be used as an indicator of instability through investors' uncertainty. For instance, the options on Eurodollar futures represent the expected volatility of short-term rates, which increase with investors' uncertainty about future course of monetary policy. The risks, liquidity, term spreads, market volatilities significantly increase during financial instability thus the aggregate financial fragility indicator based on the information about the changes of these variables might be utilized as measure of financial instability. The financial fragility indicator assesses the probability of default or appearance of stress in economy. Furthermore, the mortgage market indicators are considered as measures of financial stability through their impact on long-term interest rates. Especially after Global Financial Crisis 2007/2008, where the mortgages crisis in USA gave an impulse to Global Financial Crisis 2007/2008, the instability of mortgage market might be significant indication of current and future problems in whole financial system. Firstly, there are mortgage indicators that represent the duration of fix-rate mortgages. Secondly, there are indicators that stand for convexity, i.e. the amount by which duration might change following 100 bps change in yields. The information on MBS duration and convexity might be applied to evaluate a degree of mortgage-related hedging flows influence on the long-term interest rates shocks. The conditions of individual institutions also play significant role in financial stability of economy. The banks as financial intermediaries can transmit the financial problems to non-financial organizations and household by the means of aggressive lending practices or on the contrary credit restrictions. However nowadays Central Banks are able to maintain the soundness of financial organization in some degree. At the same time, the stability of non-financial institutions also should be monitored as an element of the system. The most frequent used indicators are commercial papers, corporate bonds, and credit default swap spreads. As probability of default of an individual institution indicates the degree of financial system stability then the probability of default of multiple entities might have greater influence on the soundness of economy.

The main objective of financial stability indicators is to provide the concerned parties the idea bout soundness of the financial system in a constructive and precise way. The profitability indicators indicate the ability of the system to absorb losses without any impact on capital. The liquidity indicators determine resilience of banking system to cash flow shocks. The foreign currency exposure indicators measure risk exposure of banking system in terms of movements in asset prices on financial markets (Geršl and Hermanek, 2008).

Chapter 5 Methodology and research design

The Chapter 5 describes the research methodology and design applied in this dissertation work. The first part of this chapter deals with research paradigm including nature of research, its type and approaches used in this study. Then the process of research question and hypothesis development are presented. The third part is dedicated to primary research design with its instrumentation. The last section deals with index construction modelling.

The scientific research is subject to specific ideals and norms, which represent generalized conceptualizations of research aims and approaches. These ideals and norms of scientific knowledge are the set of defined conceptual, value, methodological and other purposes of scientific research. The combinations of different types of ideals, norms and perceptions of reality created through the historical evaluation of scientific research stand for paradigms. The term paradigm became popular after the works of Thomas Kuhn, who determines paradigm as scientific achievements that give to scientific community the model of problem statement and examples of its solution (theories, rules, methods, approaches, symbolic structures, metaphysical conceptual foundations of models of values). A philosopher Jürgen Habermas understands paradigm as a set of researcher's interest. In contrast Paul Feyerabend denies the existence and necessity of paradigms and believes in concept of "epistemological anachronism". Stepin V.S. argues that paradigm is a type of rationality, intrascientific strategy, the foundation of science, namely ideals and norms, world view, philosophical underpinnings (Kotenko, 2006).

The term paradigm can be interpreted in different ways, in the present dissertation work the paradigm is considered as a type of research concept with a set of specific methods and techniques. In modern theory there are two main paradigms positivist (or quantitative) and phenomenologist (or qualitative) (Collins and Hussey, 2003). The present study tends to positivist research paradigm, where environment is considered between two stages of continuum: a concrete process and the contextual field of information (according to Morgan and Smircich, 1980). Logical reasoning, precision, objectivity and rigour are peculiar to positivism paradigm.

The Figure 6 represents the conceptual framework of the research including specific steps of the scientific work. The first step is to identify research problem. The research problem of current work is influence of internal and external factors on the cost of equity capital from the corporate point of view. The next step the development of theoretical framework is a fundamental part of research, which support the explanation of research questions and determination of hypothesis. The critical literature review of published previous studies on the investigated theme is conducted. Based on literature review and composed theoretical background the research questions and hypothesis are determined. In order to answer the indicated questions and test hypothesis the data should be collected. The next step is data analysis of achieved results. The final step stands for results application.
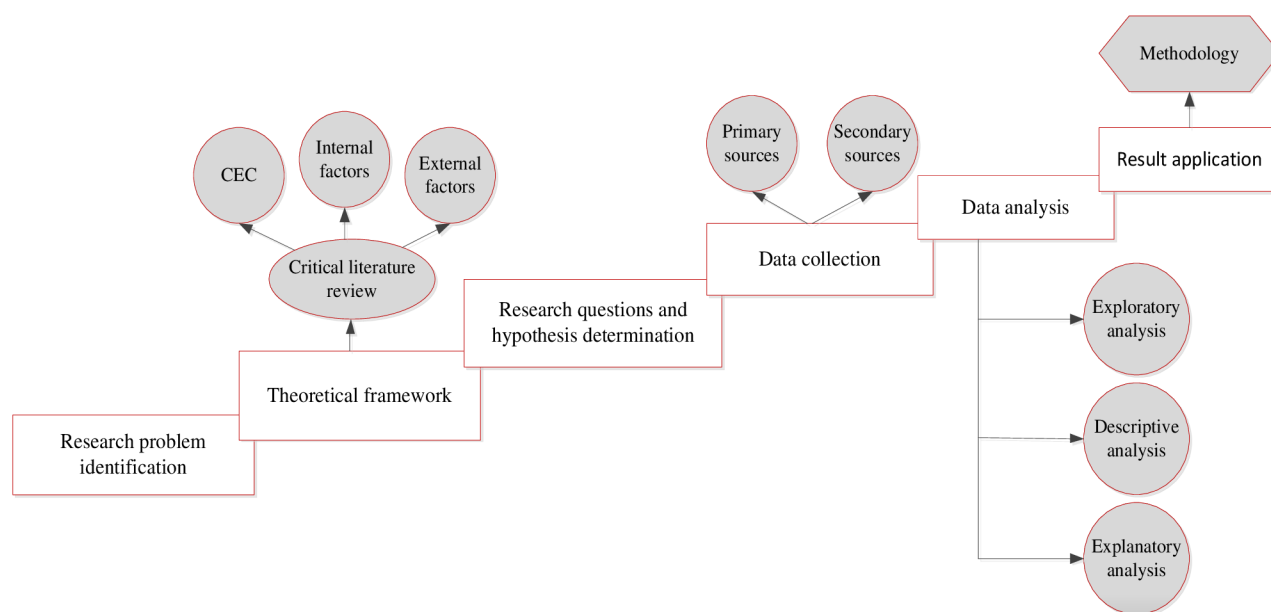
Figure 6: The conceptual framework of research design

5.1. Types of research

The dissertation work includes theoretical and practical parts regarding the influence of internal and external factors on the cost of equity capital. The theoretical part is conducted by the means of secondary research based on the critical review of existing literature on the investigated topic. The secondary literature sources used in this work are represented by:

- ✓ International scientific journals
- ✓ Conference proceedings
- ✓ Working papers
- ✓ Government and other research institutions research publications
- ✓ Books and monographs

The main source of literature secondary resources is international informative databases as Scopus, ScienceDirect, EBSCO, Emerald, ProQuest Central. In addition the literature review was conducted in state libraries as Moravian Library (Brno), Library of Faculty of Business and Management (Brno), Bibliothèque nationale de France (Paris), Dauphine University Library (Paris), Library of Vienna university of economics and business (Vienna), Russian State Library (Moscow). As the sources and availability of data is crucial for quantitative research then multifold resources are used to collect data.

Different kinds of approach were applied in the dissertation work. According to the logic research can be divided into deductive an inductive. The deductive approach is thought of as reasoning from

general to particular. The research with deductive approach explores an existing theory, creates a set of hypothesis, tests them with observations and in the end confirm or reject assigned hypothesis. The opposite approach in terms of research logic is inductive approach, which begins with observations. The inductive approach searches patterns from observations, which are developed into tentative hypothesis and consequently reaches the conclusions, i.e. theory. Thus two types of research deductive and inductive were applied in this dissertation work. The first one is used to generate the hypothesis based on the critical literature review and verify them after. Moreover, the inductive approach is used to generalize the research results and come to conclusion.

In terms of the purpose of research several types of research are applied as

✓   *Exploratory*: research problem investigation, literature review
✓   *Descriptive*: primary research
✓   *Explanatory* (or analytical): evaluation of findings and creation of methodology

The main aim of exploratory research is to search for patterns, ideas or hypothesis, when the investigated topic is not discovered in a full extent. According to exploratory research approach a hypothesis is represented by idea that is tested for association or causality by extrapolating the conclusion, which in turn can be explored towards empirical evidence. In this dissertation work the exploratory approach was applied to search for internal and external factors that might influence the cost so equity capital and investigate the direction of their influence on CEC.

The descriptive research approach is dedicated to deeper problem examination. It identifies and obtains required information on the specific problem. The descriptive approach is applied to identify the importance of external and internal factors in terms of CEC from the corporate managers' point of view. Besides the degree of influence of investigated relations (i.e. external and internal factors and CEC) can be examined by the means of descriptive approach.

The explanatory (or analytical) represents the extension of descriptive research approach. The goal of this kind of research is not only to describe the characteristics of the specific issue, but also to analyse and explain the causes of association (Collins and Hussey, 2003). The analytical approach is applied, in order to analyse the found relations and expert evaluations, test and explain the finding and consequently create a methodology based on the discovered results.

As was mentioned before this research represents positivist (or quantitative) paradigm. At the same time in the context of the process of the current research the quantitative approach is chosen, in order to collect primary data on the investigated relations, which can be applied in further analysis. The quantitative research is applied for the purpose of survey and further statistical analysis of results and their application. The main advantage of quantitative approach is depth and accuracy of conclusions and generalization. Several features of quantitative approach can be identified:

✓   Utilization of numeric data

      ✓   Utilization of standard data processing activities

      ✓   Segregation of variables or categories of investigated object before the stage of analysing

      ✓   Average rates handling to determine variables

      ✓   Generalization at the stage of analysis and attempts to discover cross-functional patterns (Kasheeva, 2013).

Hereafter the outcome of research can be classified into fundamental and applied. The fundamental research extends the theoretical knowledge of the investigated subject, while applied research is focused on specific problems and their solutions. The present research attempts to fill the gap between theory and practice on the theme of internal and external factors and their influence on the CEC and thus to reevaluate the existing associations and facilitate the theory expansion and further research. On the other hand the applied type of research is represented by the practical outcome. The applied research is conducted in order to support the decision making process in the complicated area of equity capital management and specifically in the area of cost of equity capital minimization.

5.2. Critical literature review as theoretical background

The literature review is essential in research as it provides a solid theoretical background, which supports the development of research questions and further set of hypothesis. The first step of literature review includes the investigation of existing literature on the research topic, in order to identify the problems and gaps in scientific knowledge. The next step devotes to deeper literature analysis, where the previous studies are analysed more precisely, in order to identify the existing relations, causes and consequences of analysed phenomena.

The research topic is defined as influence of internal and external factors on the cost of equity capital. The first part of literature is dedicated to internal factors that have impact on the cost of equity capital. The internal factors are factors associated with corporate activities and can be managed by managers. The internal factors can be classified in several categories: corporate disclosure, corporate governance and social factors. However there is one singular factor that can be represented as a linkage between many factors and the cost of equity capital. According to literature research the information asymmetry is one of the significant factors that influence the cost of equity capital directly. The lower information asymmetry leads to lower costs of equity capital. The corporate disclosure is tightly related to information asymmetry. Higher corporate disclosure leads to lower information asymmetry that in turn decreases the cost of equity capital. The corporate disclosure policy is design to increase transparency and decrease information asymmetry that in turn is reflected in company's performance. The disclose can be presented as individual factors, but it can include several separate internal factors that have their own degree of influence on the cost of equity capital and that were analysed separately and consequently manage by managers. Besides researchers usually construct accumulative corporate disclosure indexes that including different variables that influence

the cost of equity capital. Therefore, the category disclosure includes the following internal factors (Figure 7). Another category of internal factors that can be extracted from the literature review is corporate governance. Likewise, the corporate disclosure includes several independent variables as shareholder rights, dividend policy, investors' protection, board characteristics, ownership structure and etc. (Figure 7). The previous studies indicate that there is a significant relation between corporate governance and cost of equity capital. Moreover stronger corporate governance leads to lower cost of equity capital. The social factors are quit new topic that have been investigated among researches during the last few years. However, researchers find the relation between social responsibility, corporate ethics and environmental performance and the cost of equity capital.
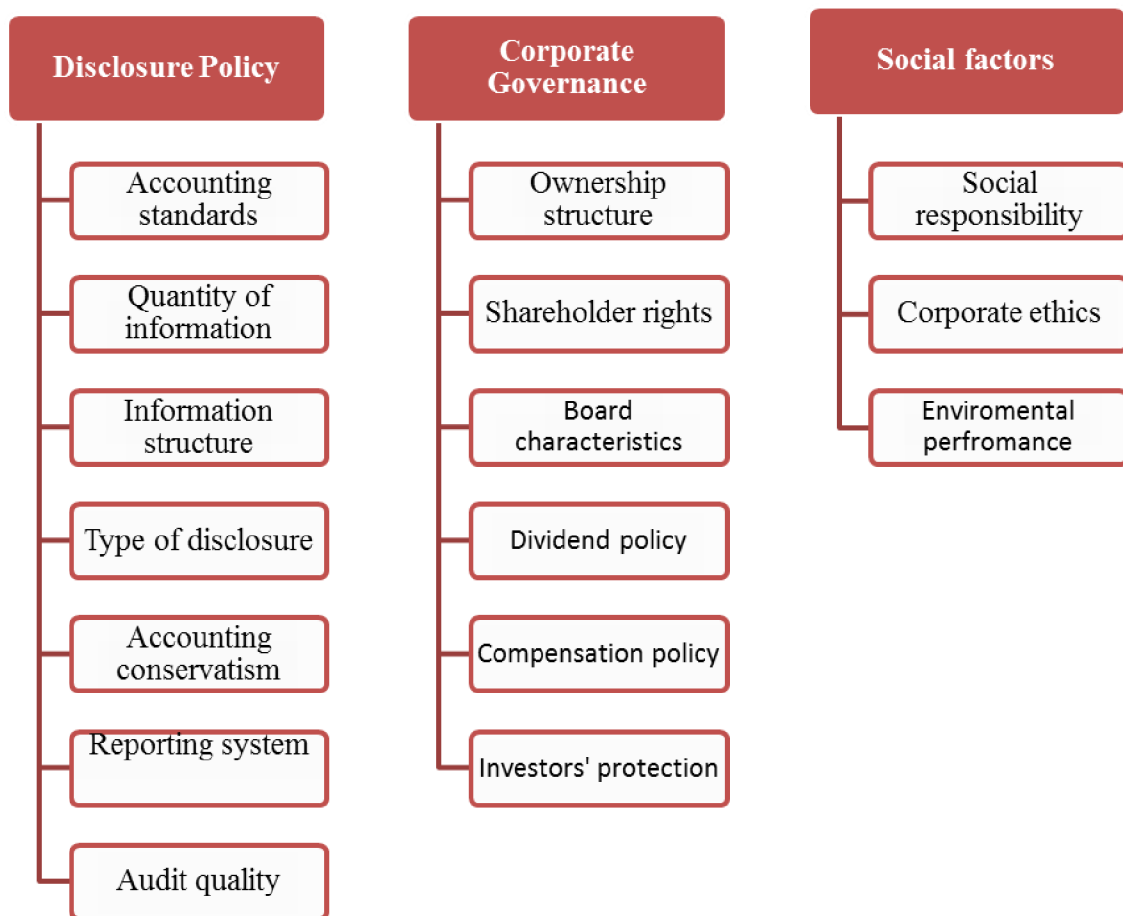
Figure 7: Internal factors influencing the cost of equity capital

There exists a large and interesting body of research on the theme of relation between cost of equity capital and different internal factors. The authors attempt to investigate influence of corporate activities on the cost of equity capital. As a result, there is evidence of causal relationship between internal factors and CEC. Based on the literature research eighteen internal factors were identified

that should influence the cost of equity capital. In accordance with the findings of previous studies the hypothesis are set to be tested in the further step of research.

The influence of external factors on the cost of equity capital is not discovered in a full extent as the impact of internal factors. Only recent years a few studies have made attempt to evaluate the direct influence of external factors on the cost of equity capital. However, financial performance including the cost of equity capital varies based on the changes in the macroeconomical conditions and the state of economy. The external factors are investigated as a set of variables that indicate the state of financial stability of the system, where a company operates. The external factors also can be classified in separate categories based on their nature. These categories represent the state polices as monetary, fiscal, macroprudential. The combination of external factors and the level of their development represent the state of economy. The five stages of economy as recession, stagnation, stability, expansion and overheated economy are identified.

The literature analysis identifies many existing studies that investigate the influence of individual internal factors (or at least categories) on the cost of equity capital. However the results show the influence of one separate factor without taking into consideration the existence of other factors. Moreover the managers would find difficult to combine and integrate these findings into their decision making process. In another words the knowledge regarding the influence of internal factors on the cost of equity capital exists but widely spread that decrease its value on practice.

5.3. The research questions and hypothesis

The research question has the substantial significance in any kind of research. By the means of in-depth literature review the research questions are identified, which represent the object of the present research. As shown on the Figure 7 the process of research question development has several steps from the literature review on the research topic through brainstorming to final identification of research questions and creation of hypothesis. The set of hypothesis represent the attempt to answer those arisen questions of research. More precisely hypotheses are established for primary research purpose.
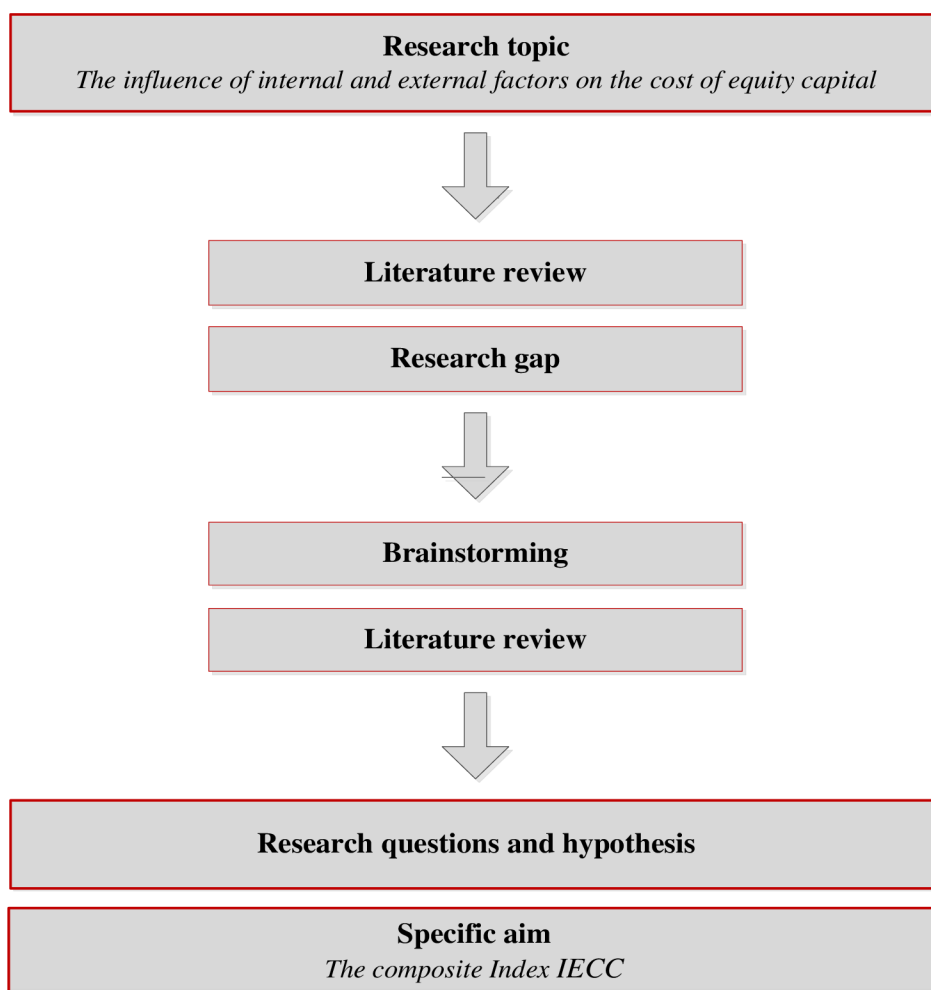
Figure 8: The formulation of research questions and hypothesis

Operating on the premise that the theoretical background regarding influence of internal factors is reach and significant and there is a limited number of studies concerning external factors and their influence on the cost of equity capital, the internal and external factors are viewed through different angles. The internal factors are considered as unique independent manageable factors and external factors are examined as a set of variables represented the external environment as a whole. From this it follows that we can deliberate research question as a set of several questions.

Research question I:

✓   *How do the internal and external factors influence the cost if equity capital?*

First of all based on the literature research of existing studies the set of factors are determined. The findings of the previous studies assist to indicate the significance and direction of influence on the cost of equity capital.

The second research question arises due to the fact that there are many studies concerning the influence of internal factors, where the managers can be lost. On the other hand, there are few studies that show the direct influence of the external factors on the cost of equity capital. Needless to say, there is still a gap between theory and practice (real economy). The theory is based on assumptions that do not satisfy the real economic situation. Moreover, the corporate managers might be not aware of research findings in the scientific sphere in terms of capital costs management. Thus, the second question is arisen.

Research question II:

> ✓ *Is there a gap between theory and practice in terms of influence the internal and external factors on the cost of equity capital?*

In order to answer the first two questions, the comprehensive literature analysis is conducted. The critical review indicates a set of internal and external factors and stages of financial stability of a country. Towards the attempt to answer the raised questions several hypotheses are created. Based on the purpose of this paper to create an aggregate index the analysed internal factors are combined in three categories driven by their common nature. The external factors are transformed into the development state of economy. Hypotheses are stated in the alternative form:

- H1.1. There is significant negative influence of corporate disclosure on the cost of equity capital.
- H1.2. There is significant negative influence of corporate governance on the cost of equity capital.
- H1.3 There is significant negative influence of social factors on the cost of equity capital.
- H1.4 The recession as a state of economy leads to lower cost of equity capital.

The hypotheses are tested based on the conducted primary survey. The rejection of null hypothesis can answer the second question. If the H0 is rejected then the theory is congruent with practice and there is no gap. But if H0 is accepted than there is a possibility of knowledge gap between theory and practice regarding the influence of specific factor on the cost of equity capital. The Chi-Squared Test and one-sample Kolmogorov-Smirnov test were applied to test hypothesis.

Research question III:

> ✓ *How a company can reduce its cost of equity capital?*

The third question is directly connected with the main aim of this paper to help a company reduce its cost of equity capital by the means of internal and external factors. By the means of the secondary and primary research the knowledge on the relation between internal and external factors and the CEC

is accumulated from theory and practice and transformed into a methodology that support corporate decision making process in CEC reduction.

5.4. Primary research: survey

The survey has been chosen as a research strategy to gain primary data. The main aim of the survey is to find the influence of the internal and external factors on the cost of equity capital and evaluate the level of agreement between theory and practice. The survey is associated with deductive approach. It is a popular instrument in research to collect primary data. It tends to be applied for exploratory and descriptive research. According to Saunders et al. (2003) there are several advantages and disadvantages of the survey:

Advantages:

    ✓   ability collect large amount of data from a sizeable population
    ✓   ability to compare with other studies in the field
    ✓   highly economical
    ✓   reliability
    ✓   ability to control the collection process

Disadvantages:

    ✓   time-consuming
    ✓   possible software necessity
    ✓   questions limitation

As a tool of survey the self-administrated questionnaire is applied in the conducted primary research, which is divided into on-line questionnaire and postal questionnaire. In another words the respondents receive a questionnaire by e-mail or regular post, fill the form and send back using the same delivery method. The questionnaire as a research strategy is chosen due to several factors as anonymity, respondent availability, simplicity form the respondents' point of view and simplicity in data coding and further statistical analysis.

In order to test the instrumentation of questionnaire, intelligibility of questions and to ensure an appropriate response rate, the pilot survey was undertaken. The pilot survey was conducted in autumn 2011 by the means of direct e-mailing to selected sample of private non-financial joint-stock companies. The pilot survey helped to correct the questions, design of questionnaires, the tools and approaches. Afterwards, in order to receive representative and reliable primary data the several steps were conducted (Table 11).

Table 9: The outline of primary research study

Phase	Tasks
Problem establishing	Initial formulation of the research problem
	Assessing the situation and identifying the problem
	Investigation of the state of worldwide knowledge
	Determination of the purpose of research
Conceptualization	Clarifying the meaning of terms
	Specification of investigated factors
Operationalization	Identification and justification of research questions and hypothesis
	Selection of research methods and techniques
Selection of surveyed population	Definition of study population
	Selection of data source
Research instruments preparation	Survey questionnaire
	pilot study, corrections
Sampling	Determination of criteria for research sample selection
	Selection of research sample
Primary research conduction	Survey conduction and collection of primary data
Primary data application	Further utilization of collected and analysed primary data in Index creation

Source: Author's composition

The survey was conducted in the period from 01.06.2015 to 31.12.2015. The sample consists of Czech non-financial private joint-stock companies. The companies were selected from database Amadeus by Bureau Van Dijk (a database of comparable financial information for public and private companies across Europe). The criteria to select the research sample are as follows (Table 12):

Table 10: The selection criteria for primary research

Criteria	N
Czech Republic 485371	485371
Joint stock company (A.S.) 20007	20007
Non-financial organisation (exclude industry classification Nace codes 64 – 69): 13391	13391
Active	13320
Size: very large and large[11]	2113
Headquarters located in Czech Republic	1529
Website and e-mail address availability	1469
CFO and CEO e-mail addresses	773

Source: Author's composition

After all selection criteria were applied 1469 corporate e-mail addresses were available. The target respondents are financial and executive directors, who represent the experts in the equity capital management. If the e-mail addresses of appropriate respondents were not publicly available, then the email invitation with kindly request to provide the contact of CFO or CEO was sent. After e-mailing campaign towards respondents' direct contacts was conducted 773 direct survey invitations were sent to CFO and CEO (Appendix C). The respondents were invited to fill online survey. Thus, the questionnaire was sent to 773 companies in the Czech Republic. Altogether 53 questionnaires were filled and returned, which give us a response rate of 7%. However the number of full filled questionnaires is lower, only 40 forms were fully filled thus the total research sample consists of 40 expert evaluations, which represents 5% response rate. The research subject is highly confidential thus 5% can be considered as a success especially in Czech Republic environment.

In such a manner, the respondents are financial directors in non-financial joint-stock companies that have headquarters in Czech Republic. The questionnaire was anonymous and exercised by the means of a provider of web-based survey solutions Survey Monkey[12] for companies with public available e-mail addresses. This kind of tool has many advantages as flexibility, convenience, simplicity and time and resources savings. However, some companies are less transparent thus a demand arose for additional tool to gather responses. The second step of gathering survey data was conducted by the means of postal services. The first reason to use traditional post as supported tool to gather information is conservatism of some companies that still do not rely on online communication. Including such type of respondents gives opportunity to extend the variety of experts. The attitude to online communication channels reflects in companies' activities and decision-making process. On the

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[11] Amadeus considers companies to be very large (large) they should match at least one of the following conditions: (1) operating revenue >= 100 million EUR (10 million EUR); (2) total assets >= 200 million EUR (20 million EUR); (3) employees >= 1000 (150); (4) listed

[12] https://www.surveymonkey.com

other hand companies that broadly use web-sites, e-mails, social net-works, i.e. digital competent, have higher corporate disclosure and are more forward-looking that in turn contributes in their decision-making process. Therefore applying traditional (post) and modern (online based surveys) tools of gathering information provides ability to cover different types of respondents from disclosure and conservatism point of view.

As there are two types of questionnaire mail and online the online version has several advantages and specific survey tools. In the online version, there were applied different tools of questions' visualization, in order to make the questions more understandable for respondents and more informative for further analysis of obtained data. These tools are multiple textboxes, answer choices, multiple choice, matrix with rating scale, matrix of dropdown menus, comment box. In the key questions regarding internal and external factors, the respondents in their questionnaire applied direct valuation or so called point-factor evaluation approach. The respondents were able to evaluation the significance of individual factors. The detailed description of conducted survey is presented in Chapter 5 with questionnaire represented in Appendix D.

In order to perform further sophisticated analysis the primary research results were coded into one unique scale for the purpose of comparability.

One of the crucial characteristics of primary research is it *credibility*. In another words the quality of research is essential, as its findings will be applied in theory and practice. As a rule, the credibility of research is represented by reliability and validity of research. The reliability corresponds to repeatability of obtained observations or results of research. Joppe (2000) determines reliability as "the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable". He also provides the explanation of validity in quantitative research: "Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? Researchers generally determine validity by asking a series of questions, and will often look for the answers in the research of others". The credibility (reliability and validity) of the present research can be evaluated through several aspects. First of all, the in-depth analysis of previous studies on the investigated issue creates a solid theoretical background of research problem, facilitates to find out specific required variables and determine their measures. The previous qualified surveys on the theme of cost of equity capital are taken into consideration, in order to compose reliable questions in questionnaire.

In order to evaluate the consistency reliability of primary data the reliability analysis by the means of Cronbach's alpha was conducted. The table 12 presents the reliability statistics on the primary data. The reliability analysis is calculated by SPSS software applying the following formula:

$$\alpha = \frac{N * \bar{c}}{\bar{v} + (N-1) * \bar{c}}$$ (7)

The most of researches consider Cronbach's aplpha coefficient to be at least 0.70. The value is taken from Nunnally's (1978) work Psychometric theory (section "Standards of Reliability". However Lance et al. (2006) argue that the criteria is misleading as Nunnally mentioned that a satisfactory level of reliability depends on the purpose of research and the reliability that is more than 0.8 should be considered as more adequate. Carmines and Zelier (1979) also recommend that reliability should not be lower than 0.80. Later Nunnaly and Bernstein (1994) state that 0.70 as an acceptable minimum for a newly developed scale, in other words at the early stages of research.

Table 11: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
.808	.801

Source: Author's composition

Thus we can conclude that the obtained data is reliable based on the Cronbach's Alpha coefficient vale equal to 0.808.

5.5.   Index construction

This section describes the technical and methodological procedure of final composite index construction. The chain of steps should be implemented, in order to create sophisticated aggregate index that could exhibit robustness and methodological soundness while final utilization. The chain of steps contains the phases of index development from theoretical framework to the presentation and application. Thus the following steps are taken:

1. Theoretical groundwork for the selection, definition, and combination of factors
2. The main factors selection based on the primary survey results
3. Scale and measurement procedure
4. Weighting of selected factors based on the primary survey results
5. Index construction

Step 1 represents the selection of factors based on the literature research. The influence of internal and external factors on the cost of equity capital takes a significant place in corporate finance literature. There are many studies taking attempt to investigate the relation between internal factors

and the cost of equity capital through different angles. These studies are taken as theoretical background for internal factors selection, their definitions and impact on the cost of equity capital. However, there are few studies that analyze the direct influence of external factors on the cost of capital. Thus the external factors were considered as a combination of macro-economic conditions that reflect the state of financial stability of a country. Consequently the state of economy influences the level of capital costs. Thus the *Step 1* indicates the pronounced background for aggregate index creation.

Step 2 By the means of literature review and primary survey the selected factors were chosen to be implemented in the aggregate index.

Step 3 deals with scale adjustments, measurement unit problems and suitable data normalization procedure. The numerical values of Index are in the [0;1] range, where values close to zero represents a week and unstable condition (i.e. the level of factor development), while those values that are close to the opposite extreme (respectively 1) represent strong and stable value states. The main purpose of such transformation is to make factors flexible for further integration into final Index. Besides, the numerical values of final Index in unified scale make Index comparable and facilitated for practical application and further analysis.

Step 4 stands for weighting the factors by the means of primary survey. Based on the expert evaluations collected by the utilizing questionnaire the weights of selected factors were determined. The weights are the measures of importance from the point of view of corporate financial directors and executives.

The final *step 5* reflects the index construction, where all weighted factors are aggregated into the final index. In the last step the robustness of the index is checked.

There is an additional step that has not been included into the chain of index construction, however, plays a significant role in index application. The last phase is to simulate the different scenarios of Index utilization. The simulation shows different types of outcomes and recommendations to three modelled companies with different levels of internal factors development and under changing macroeconomic conditions.

Chapter 6 Findings of primary research

6.1. The survey design and findings

The primary survey was conducted in the period from 01.06.2015 to 31.12.2015. The respondents are financial directors in joint-stock companies that have headquarters in Czech Republic. The questionnaire was anonymous and exercised by the means of a provider of web-based survey solutions Survey Monkey[13] for companies with public available e-mail addresses. This kind of tool has a lot of advantages as flexibility, convenience, simplicity and time and resources savings. However, some companies are less transparent thus a demand arose for additional tool to gather responses. The second step of gathering survey data was conducted by the means of postal services. The first reason to use traditional post as supported tool to gather information is conservatism of some companies that still do not rely on online communication. Including such type of respondents gives opportunity to extend the variety of experts. The attitude to online communication channels reflects in companies' activities and decision-making process. On the other hand companies that broadly use web-sites, e-mails, social net-works, i.e. digital competent, have higher corporate disclosure and are more forward-looking that in turn contributes in their decision-making process. Therefore applying traditional (post) and modern (online based surveys) tools of gathering information provides ability to cover different types of respondents from disclosure and conservatism point of view.

The questionnaire is divided into several parts: (1) the cost of capital and its estimation methods; (2) internal and external factors influencing the cost of equity capital; and (3) company's characteristics.

The first part that is dedicated to cost of equity capital estimation includes three questions. The first question: *"What is the capital structure of your company?"* The respondents have to indicate the percentage (or actual numbers) of each component of capital, namely equity capital, long-term debt and short-term debt thus the capital structure can be determined. The average debt to equity ratio is 1.74 with Standard deviation equal to 1.73 (Table 14). At the same time the 25th percentiles is 0.54 and 75th percentiles is 2.33. Thus the mean of debt to equity capital is very high due to very wide range of distribution (Figure 9)

Table 12 Descriptive statistics: Debt to Equity ratio

	Mean	Std. Dev.	Median	Min	Max
Debt to Equity	1.74	1.73	1.33	.00	9.00

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[13] https://www.surveymonkey.com
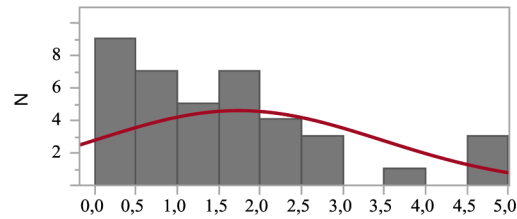
Figure 9: Distribution of Debt to Equity ratio

The next important question was referred to estimation methods that companies apply: *"Which methods do you apply to estimate the cost of equity capital?"* There were six proposed well-known methods: CAPM, Arbitrage pricing theory, three factors Fama-French model, Multi-beta CAPM model, Dividend discount model and Average historical return. Also there is an option to indicate another non-mentioned approach. The methods were chosen based on the literature review on the CEC estimation and previously conducted surveys. At the same time respondents were able to evaluate the frequency of methods usage: from "never" to "always" (five-grade scale includes values as never, sometimes, often, very often and always). Among Czech companies the most frequent method is average historical returns, 50% of respondents applies it often, very often or always to estimate the cost of equity capital. Historical returns run a close second by Dividend model, where 20% of respondents apply it I different frequency. The Artbitraz model, Three-factors Fama-French model and Multi-beta CAPM are never applied by respondents. Interestingly the CAPM is not preferred approach in Czech Republic (only 5% of respondents apply this model to estimate cost of equity capital). Table 15 represents descriptive statistics on the three approaches that are utilized by Czech companies.

Table 13: Descriptive statistics: the utilized CEC estimation methods by Czech companies

	Mean	Std. Dev.	Median	Min	Max
CAPM	0,45	1,38	0,00	0,00	5,00
Dividend model	0,50	1,09	0,00	0,00	4,00
Average historical return	1,95	2,06	2,00	0,00	5,00

Source: Author's composition

One of the most important question in questionnaire was dedicated to evaluation the internal factors. There were 18 internal factors selected based on the conducted literature analysis with option to indicate another non-mentioned internal factor. The respondents were provided by the possibility to evaluate the significance of internal factors that might influence the cost of equity capital. They were asked to agree or disagree with the following statements by the means of five grade scale: where 1 was "definitely disagree" and 5 - "definitely agree":

✓ The cost of equity capital decreases with the growth of the company's size

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✓ Very good financial performance of the company decrease the cost of equity capital
✓ The capital structure influences the cost of equity capital - with debt growth the cost of equity capital have tendency to decrease
✓ The high share of liquid assets in company's property decreases the cost of equity capital
✓ Flexibility in the search of the external financing resources decreases the cost of equity capital
✓ Stability of company's earnings decreases the cost of equity capital
✓ The ability to plan financial results in long-term decreases the cost of equity capital
✓ High audit quality leads to lower cost of equity capital
✓ High transparent disclosure leads to lower cost of equity capital
✓ Strong Corporate Governance decreases the cost of equity capital
✓ Ownership structure influences the cost of equity capital
✓ Stronger shareholder rights lead to lower cost of equity capital
✓ Dividend policy influences the cost of equity capital
✓ High investors' protection leads to lower cost of equity capital
✓ Higher board independence decreases the cost of equity capital
✓ The structure of the board of directors influences the cost of equity capital
✓ Lower information asymmetry between managers and investors leads to lower cost of equity capital
✓ Corporate ethics has impact on the cost of equity capital
✓ Another factors influence the cost of equity capital

Table 14: Descriptive statistics: Internal factors

Internal factors	Mean	SD	Median	Min	Max
Size	3,00	0,76	3,00	2,00	4,00
Financial performance	2,84	1,40	3,00	1,00	5,00
Capital Structure	3,40	1,22	3,00	1,00	5,00
Liquidity	3,24	1,05	3,00	1,00	5,00
Flexibility in external financing	3,32	1,31	3,00	0,00	5,00
Earnings stanility	3,44	1,16	4,00	1,00	5,00
Plan of financial results	3,52	1,00	4,00	1,00	5,00
Audit quality	2,64	1,11	3,00	1,00	5,00
Disclosure	3,16	1,25	3,00	1,00	5,00
Corporate governance	3,12	1,20	3,00	1,00	5,00
Ownership structure	4,20	1,04	5,00	2,00	5,00
Shareholder rights	3,12	1,27	3,00	1,00	5,00
Dividend policy	3,88	1,17	4,00	1,00	5,00
Investors' protection	3,40	1,26	3,00	1,00	5,00
Board independence	2,76	1,16	3,00	0,00	5,00
Board of directors structure	2,76	1,20	3,00	0,00	5,00
Information asymmetry	3,08	1,21	3,00	1,00	5,00
Corporate ethics	2,68	1,07	3,00	0,00	5,00

Source: Author's composition

Size	Financial performance	Capital Structure
Liquidity	Flexibility in external financing	Financial planning
Audit quality	Disclosure	Corporate governance
Ownership structure	Shareholder rights	Dividend policy
Investors' protection	Board independence	Board of directors' structure

Information asymmetry   Corporate ethics

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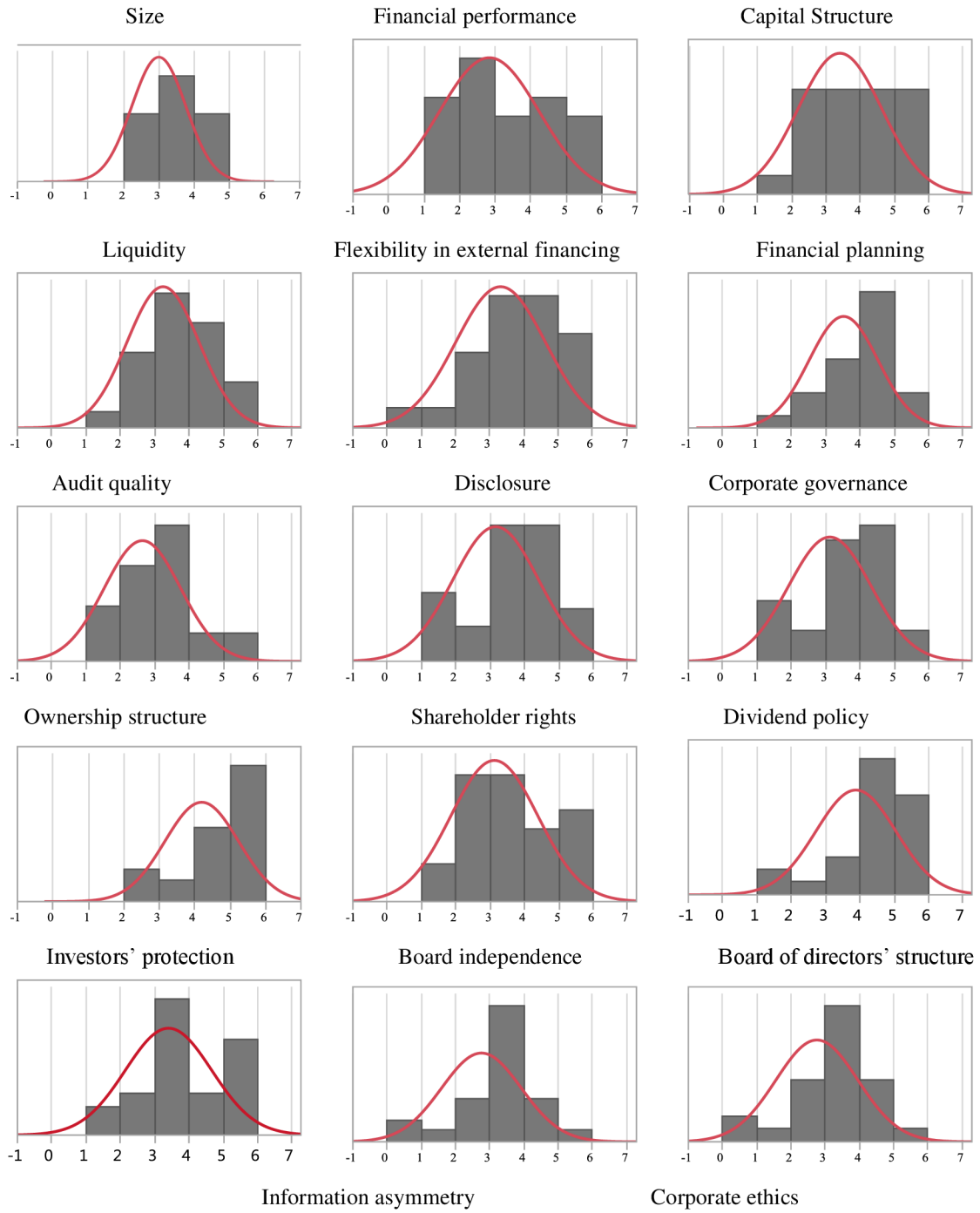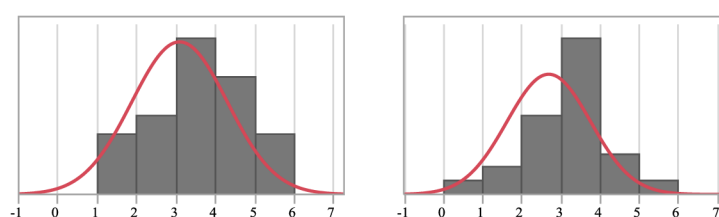
Figure 10: Distributions of Internal factors

The survey results show that corporate managers have lack of knowledge regarding the internal factors and their influence on the cost of equity capital. More than 40% of respondents have answered neutral regarding the influence of internal factors as board independence, the structure of board of directors, corporate ethics, size, investors' protection and audit quality. Most of the respondents think that ownership structure, dividend policy and financial performance have impact on the cost of equity capital (more than 84%). However, 80% of respondents agree that ownership structure influence the CEC. As well as 76% of respondent think that dividend policy also has impact on the cost of equity capital. At the same 48% of respondents answer that financial performance does not decrease the cost of equity capital. Moreover, 44% of respondents consider audit quality does not lead to lower cost of equity capital.

Table 15: The survey results on internal factors by the level of agreement and lack of awareness

Internal factors	Agree (%)	Internal factors	Neutral (%)
Ownership structure	80%	Board independence	57%
Dividend policy	76%	Board of directors structure	48%
Plan of financial results	60%	Corporate ethics	48%
Flexibility in external financing	52%	Size	44%
Earnings stability	52%	Investors' protection	40%
Capital Structure	48%	Audit quality	40%
Disclosure	44%	Liquidity	36%
Corporate governance	44%	Disclosure	32%
Liquidity	40%	Corporate governance	32%
Investors' protection	40%	Information asymmetry	32%
Information asymmetry	40%	Flexibility in external financing	28%
Financial performance	36%	Shareholder rights	28%
Shareholder rights	36%	Plan of financial results	24%
Size	28%	Earnings stability	24%
Board of directors structure	26%	Capital Structure	24%
Board independence	21%	Financial performance	16%
Audit quality	16%	Dividend policy	12%
Corporate ethics	16%	Ownership structure	8%

Source: Author's composition

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Table 16: Rating of internal factors

Internal factor	Sign	Mean	Rank		Weights
Ownership structure	F_{in}^1	4,2	1	w_{in}^1	0.073
Dividend policy	F_{in}^2	3,88	2	w_{in}^2	0.067
Plan of financial results	F_{in}^3	3,52	3	w_{in}^3	0.061
Earnings stability	F_{in}^4	3,44	4	w_{in}^4	0.06
Capital Structure	F_{in}^5	3,4	5	w_{in}^5	0.059
Investors' protection	F_{in}^6	3,4	6	w_{in}^6	0.059
Flexibility in external financing	F_{in}^7	3,32	7	w_{in}^7	0.058
Liquidity	F_{in}^8	3,24	8	w_{in}^8	0.056
Disclosure	F_{in}^9	3,16	9	w_{in}^9	0.055
Corporate governance	F_{in}^{10}	3,12	10	w_{in}^{10}	0.054
Shareholder rights	F_{in}^{11}	3,12	11	w_{in}^{11}	0.054
Information asymmetry	F_{in}^{12}	3,08	12	w_{in}^{12}	0.054
Size	F_{in}^{13}	3	13	w_{in}^{13}	0.052
Financial performance	F_{in}^{14}	2,84	14	w_{in}^{14}	0.049
Board independence	F_{in}^{15}	2,76	15	w_{in}^{15}	0.048
Board of directors structure	F_{in}^{16}	2,76	16	w_{in}^{16}	0.048
Corporate ethics	F_{in}^{17}	2,68	17	w_{in}^{17}	0.047
Audit quality	F_{in}^{18}	2,64	18	w_{in}^{18}	0.046
Total				w_{in}	1

Source: Author's composition

Table 18 represents the weights of the factors based on the evaluation of importance by financial managers. In this case the importance speaks for the strength of the influence of internal factors on the cost of equity capital. The weight of each factor is calculated based on the average evaluation of the factors (mean). In another words the highest mean represent the highest weight among the set of internal factors thus the highest rank of importance. The individual weights are

The correlation between internal variables is calculated by the means of Spearmans' correlation coefficient as nonparametric method (Appendix E). There are several variables that have significant positive correlations between each other. Interesting that these variables received high neutral score or respondents think that there is no impact on CEC. The Figure 11 shows the significant linear relations between selected variables.

$$r_S = \frac{6 \sum d_i^2}{n(n^2 - 1)} \qquad (8)$$

where r_S is the Spearman coefficient

d_i is the difference in the ranks given to two variables values of each observation

n is a number of observations

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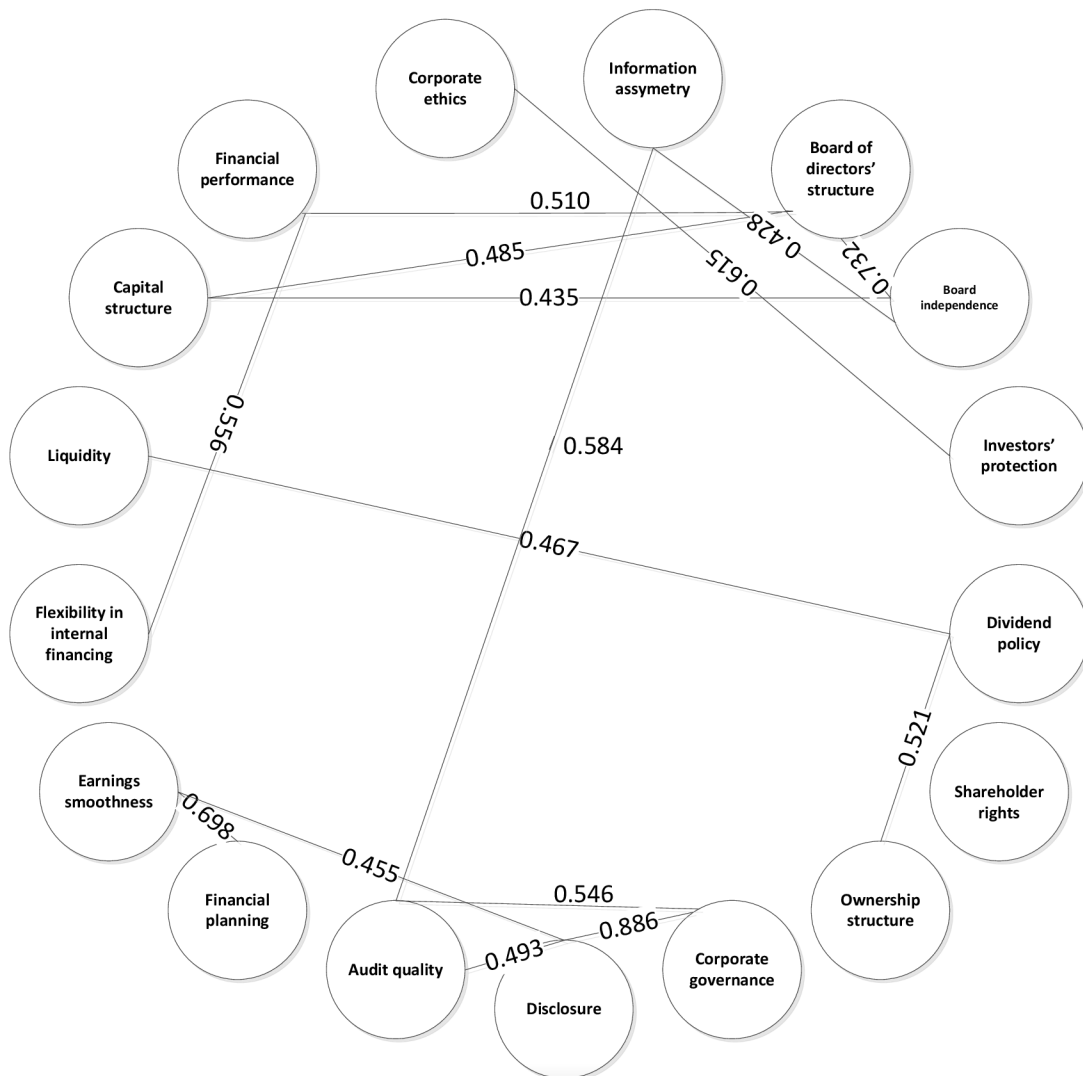
Figure 11: The significant correlation between internal factors

The external Factors

Based on the analysis of macroeconomic environment and previous studies regarding influence of external factors on the different features of the capital and other corporate performance 23 external factors were presented to the respondents:

      ✓ The growth of GDP (Gross Domestic Product)

- ✓ The unemployment rate growth
- ✓ The appreciation of domestic currency
- ✓ The growth of Foreign Direct Investments
- ✓ The growth of sovereign default probability
- ✓ The growth of inflation (Consumer Price Index)
- ✓ Raw materials prices growth (oil)
- ✓ Money supply growth
- ✓ Long-term interest rate growth
- ✓ Short-term interest rate growth
- ✓ Short-term interest rate growth
- ✓ Sovereign debt
- ✓ Country sovereign rating improvement
- ✓ The growth of corporate tax rate
- ✓ The growth of government expenditures
- ✓ The growth of stock market volatility
- ✓ The financial market development
- ✓ The decrease of risk free rate (i.e. government bond yields)
- ✓ The growth of banks capital adequacy
- ✓ Banking system liquidity
- ✓ The growth of bank lending to non-financial private sector
- ✓ The probability growth of banking system default
- ✓ The increasing level of corruption
- ✓ Political stability

The external factors should be evaluated in terms of their influence on the cost of equity capital. The seven-grade scale was applied to estimate the significance of the external factors. The choices were ranged from "Decrease significantly" to "Increase significantly".

Table 19 presents the percentage of respondents that consider selected external factors to have impact on the cost of equity capital. All respondents agree that long-term interest rate growth influence the CEC as well as short-term rate and inflation (88% and 87% of respondents respectively). More than 70% of corporate managers think that such external factors as financial market development, sovereign default and banking system default probabilities, sovereign rating, GDP growth and risk free rate might influence the level of equity capital costs. At the same time 67% of respondents consider sovereign debt not to influence the CEC. Besides unemployment rate is evaluated as factor without any impact (63% of respondents). More than 50% of corporate managers define foreign direct investment, government expenditures and political stability also as factors that do not influence CEC.

Table 17: The survey results on external factors by the level of influence on the CEC

External factors	Influence (%)
Long-term interest rate growth	100%
Short-term interest rate growth	88%
Inflation	87%
Financial market development	83%
Sovereign default probability	75%
The GDP growth	75%
Risk free rate	75%
Sovereign rating improvement	75%
Probability of banking system default	71%
Raw materials inflation (oil)	67%
The appreciation of domestic currency	67%
Bank lending to non-financial private sector	63%
Stock market volatility	63%
Corporate tax rate	58%
Banks capital adequacy	55%
Banking system liquidity	54%
Corruption	54%
Money supply growth	54%
Politic stability	50%
Government expenditures	46%
Foreign direct investment	46%
Unemployment rate	37%
Sovereign debt	33%

Source: Author's composition

However, despite of the fact that coherence of corporate managers is high in terms of influence, the direction of such impact (whether the factor decrease or increase CEC) varies as well as the strength of relations. Table 20 shows the descriptive statistic of the influence of external factors on the cost of equity capital (the scale varies from (-) 3 – decrease significantly to (+) 3 – increase significantly and where 0 is no impact on CEC).

Table 18: Descriptive statistics: External factors

External factors	Mean	SD	Median	Min	Max
The GDP growth	-0,33	1,67	0,00	-3,00	2,00
Unemployment rate	-0,57	0,90	0,00	-3,00	1,00
The appreciation of domestic currency	-0,17	1,64	0,00	-3,00	3,00
Foreign direct investment	-0,43	1,36	0,00	-3,00	3,00
Sovereign default probability	1,17	1,66	1,50	-3,00	3,00
Inflation	1,23	1,33	2,00	-3,00	3,00
Raw materials inflation (oil)	0,70	1,26	1,00	-3,00	3,00
Money supply growth	-0,03	1,00	0,00	-2,00	2,00
Long-term interest rate growth	1,37	1,35	2,00	-2,00	3,00
Short-term interest rate growth	1,43	1,19	2,00	-1,00	3,00
Sovereign debt	0,30	0,84	0,00	-2,00	2,00
Sovereign rating improvement	-0,73	1,28	-1,00	-3,00	2,00
Corporate tax rate	0,50	1,36	0,00	-2,00	3,00
Government expenditures	-0,07	0,78	0,00	-1,00	2,00
Stock market volatility	0,27	1,68	0,00	-3,00	3,00
Financial market development	-0,60	1,07	-1,00	-2,00	2,00
Risk free rate	-0,77	1,22	-1,00	-3,00	2,00
Banks capital adequacy	0,40	1,00	0,00	-1,00	2,00
Banking system liquidity	0,30	0,92	0,00	-1,00	2,00
Bank lending to non-financial private sector	-0,07	1,08	0,00	-2,00	3,00
Probability of banking system default	1,40	1,28	2,00	-1,00	3,00
Corruption	1,10	0,99	1,00	0,00	3,00
Politic stability	0,13	1,63	0,00	-2,00	3,00

Source: Author's composition

The Spearmans' correlation coefficient is also calculated for external factors (Appendix F). There is no significant relation between variables as appreciation of domestic currency, money supply, sovereign debt, corporate tax rate, government expenditures, bank landing and political stability. All these external factors have the lowest score in terms of influence on the CEC.

Table 19: The external factors and the direction of influence

External factors	Decrease (%)	External factors	Increase (%)
Risk free rate decrease	63%	Long-term interest rate growth	87%
Financial market development	63%	Short-term interest rate growth	79%
Sovereign rating improvement	58%	Inflation growth	79%
The GDP growth	42%	Sovereign default probability growth	67%
Bank lending to non-financial private sector growth	33%	Probability of banking system default growth	63%
Foreign direct investment growth	33%	Raw materials inflation (oil) growth	54%
Money supply growth	33%	Corruption growth	54%
Unemployment rate growth	33%	Banks capital adequacy growth	42%
The appreciation of domestic currency	29%	Corporate tax rate growth	42%
Politic stability	25%	The appreciation of domestic currency	38%
Stock market volatility growth	25%	Stock market volatility growth	38%
Government expenditures growth	21%	The GDP growth	33%
Banking system liquidity	21%	Banking system liquidity	33%
Corporate tax rate growth	17%	Bank lending to non-financial private sector growth	29%
Banks capital adequacy growth	13%	Sovereign debt growth	29%
Raw materials inflation (oil) growth	13%	Government expenditures growth	25%
Long-term interest rate growth	13%	Politic stability	25%
Sovereign default probability growth	8%	Financial market development	21%
Inflation growth	8%	Money supply growth	21%
Probability of banking system default growth	8%	Sovereign rating improvement	17%
Short-term interest rate growth	8%	Foreign direct investment growth	13%
Sovereign debt growth	4%	Risk free rate decrease	13%
Corruption growth	0%	Unemployment rate growth	4%

Source: Author's composition

Table 21 represents the relation between the external factors and the cost of equity capital and the level of agreement with such statement by respondents. The first part of the table introduces how many respondents (in percentage terms) believe that development of external factors decreases the costs of equity capital. The second part (right) shows how many respondents consider the following external factors and the state of their development increase the cost of equity capital. Therefore 63% of respondents the risk free believe that risk free reduction leads to lower cost of equity capital and better financial market development decrease CEC. At the same time, the long-term interest rate and short-term interest rate growth facilitate increase of CEC according to 87% and 79% of respondents respectively. The growth of sovereign default probability also leads to higher cost of equity capital (67% of CFO agree with such statement).

Table 20: Rating of external factors

External factor	Mean	Rank		Weights
Long-term interest rate	1,78	1	w_{ex}^1	0.068
Banking system default	1,78	2	w_{ex}^2	0.068
Sovereign default probability	1,7	3	w_{ex}^3	0.065
Short-term interest rate	1,59	4	w_{ex}^4	0.061
Inflation	1,52	5	w_{ex}^5	0.058
Raw material inflation (oil)	1,37	6	w_{ex}^6	0.053
GDP growth	1,26	7	w_{ex}^7	0.048
Sovereign rating	1,26	8	w_{ex}^8	0.048
Domestic currency appreciation	1,22	9	w_{ex}^9	0.047
Financial market volatility	1,22	10	w_{ex}^{10}	0.047
Risk free rate	1,19	11	w_{ex}^{11}	0.046
Political stability	1,15	12	w_{ex}^{12}	0.044
Corruption	1,11	13	w_{ex}^{13}	0.043
Financial market development	1,04	14	w_{ex}^{14}	0.040
Banking system liquidity	1	15	w_{ex}^{15}	0.038
Corporate tax rate	0,96	16	w_{ex}^{16}	0.037
Government expenditure	0,81	17	w_{ex}^{17}	0.031
Banks capital adequacy	0,81	18	w_{ex}^{18}	0.031
Bank lending to private sector	0,81	19	w_{ex}^{19}	0.031
FDI growth	0,74	20	w_{ex}^{20}	0.028
Unemployment rate	0,63	21	w_{ex}^{21}	0.024
Money supply	0,59	22	w_{ex}^{22}	0.023
Sovereign debt	0,48	23	w_{ex}^{23}	0.018
Total			w_{ex}	1

Source: Author's composition

Corporate managers are more confident in their knowledge regarding the influence of external factors on the cost of equity capital, which they cannot control, than the influence of internal factors, which they are able to improve.

The next question: „*Which of the following risks influence the cost of equity capital?*" was dedicated to evaluation of internal and external risks, with which a company can face in the decision-making process regarding the equity capital. The respondents could use five grade scale, where 1 is no impact and 5 is the maximum impact on the cost of equity capital. The risks were divided into two groups: systematic risks or risks of external environment (interest rate risk; currency risk; inflation risk; risk of sovereign default; corruption risk; contagion risk) and individual risks or internal (information risk (information asymmetry risk); moral hazard; counter party risk; liquidity risk; management risk; competition risk).

Table 21: Descriptive statistics: the risks influencing the cost of equity capital

Risks	Mean	SD	Median	Min	Max
Liquidity risk	3,90	0,91	4,00	2,00	5,00
Systemic risk	3,85	1,09	4,00	2,00	5,00
Individual risk	3,75	0,97	3,50	2,00	5,00
Country party risk	3,70	1,08	4,00	1,00	5,00
Management risk	3,65	0,93	4,00	2,00	5,00
Interest rate risk	3,60	0,82	4,00	2,00	5,00
Competition risk	3,50	0,95	3,00	2,00	5,00
Sovereign default risk	3,45	1,28	3,00	1,00	5,00
Inflation risk	3,40	0,94	3,00	2,00	5,00
Currency risk	3,35	0,93	3,00	2,00	5,00
Information assymetry risk	3,20	0,77	3,00	2,00	4,00
Corruption risk	2,90	1,12	3,00	1,00	5,00
Moral hazard	2,90	0,85	3,00	2,00	4,00

Source: Author's composition

The Table 23 represents the descriptive statistics of risks that influence the cost of equity capital. The risks are ranked from the most influential to the least according to respondents' evaluation. The liquidity risk has the highest importance in terms of CEC impact. At the same time moral hazard and corruption risk might have the lowest influence on the cost of equity capital.

The seventh question was referred to external environment: „*Under which macroeconomic conditions does the cost of equity capital reach its minimum?* " There were five macroeconomic situations, which respondents had to evaluate from the cost of equity capital point of view. In another words CFOs were asked to indicate when a company might benefit from the minimum cost of equity capital. The stages of economy that theoretically represent the combination of different external factors and their certain degree were:

- ✓ Recession (depression) of economy
- ✓ Stagnation of economy
- ✓ Stable economy
- ✓ Expansion
- ✓ "Over heated" economy

Overall the respondents do not have clear vision when a company can expect the lowest cost of equity capital in terms of financial stability of economy. However, 50% of respondents indicate recession as a state of economy where the costs of equity capital reach their minimum. The 44% of respondents do not associate expansion and overheated economy with low cost of equity capital. In addition, 48% of respondents indicate stability to be neutral in terms of CEC level. On the other hand, stability of economy decreases the significance of external factors on CEC and enables corporate internal factors influence the cost of equity capital in a greater extent.

Table 22: Survey result: under which external conditions there is the lowest CEC

State of economy	Disagree	Agree	Neutral
Recession	39%	50%	11%
Stagnation	22%	39%	39%
Stability	21%	32%	48%
Expansion	44%	39%	17%
Overheated (boom)	44%	28%	28%

Source: Author's composition

Table 23: Descriptive statistics: macroeconomic conditions as a state of economy

State of economy	Mean	SD	Median	Min	Max
Recession	3,22	1,26	3,50	1,00	5,00
Stagnation	3,11	1,08	3,00	1,00	5,00
Stability	3,11	1,02	3,00	1,00	5,00
Expansion	2,83	1,10	3,00	1,00	4,00
Over heated	2,67	1,37	3,00	1,00	5,00

Source: Author's composition

The part company's characteristics provide additional information about the respondents that can be applied to classify the answers based on the peers. The characteristics include the industry type, the size, export occurrence, existence of IPO. The majority of respondents belong to Manufacturing industry (48%), the Construction and Electricity, gas, steam and air conditioning supply industries include 12% each. The Initial Public Offering (IPO) has 22% of respondents. There are 59% of companies that have export as business activity.

Table 24: The companies by industry sector

Industry	% of Sample
Agriculture, forestry and fishery	4%
Construction	12%
Electricity, gas, steam and air conditioning supply	12%
Human health and social work activities	4%
Manufacturing	48%
Mining and quarrying	4%
Transportation and storage	4%
Water supply; sewerage, waste management and remediation activities	8%
Wholesale and retail trade; repair of motor vehicles and motorcycles	4%

Source: Author's composition

Table 25: The companies by IPO and export

IPO	% of Sample
No	78%
Yes	22%

Export	% of Sample
No	41%
Yes	59%

Source: Author's composition

The existence of the Initial Public Offering (IPO) directly influences the capital structure of a company and other financial performance. Two nonparametric tests are conducted in order to find the differences between companies that have IPO and those who do not (in other words listed and non-listed companies) regarding the internal factors and their impact on the cost of equity capital. The tests are Mann-Whitney U test and Kolmogorov-Smirnov test. For all variables except Audit quality the null hypothesis ("The distribution of Variable is the same across category of IPO") was remain. The significant result is found only for Audit quality. Thus the listed companies consider Audit quality to be more significant factor in CEC reduction than non-listed companies. It can be explained by the fact that listed companies must have the audit reviews and they can evaluate the importance of audit quality.

However the mean of factors' importance differs for several variables in terms of IPO. On average the companies with IPO evaluate the influence of information asymmetry, investors' protection and audit quality in greater extent than companies without IPO. At the same time the existence of IPO indicates financial performance, shareholder rights and flexibility in internal financing less important in term of CEC than companies without IPO.

Figure 12: The importance of influence of internal factors on the CEC in terms of IPO

In terms of external factors based on the Mann-Whitney U test and Kolmogorov-Smirnov test there are also no difference between listed and non-listed companies except three factors, namely sovereign debt sovereign ratings and free risk rate. Through comparisons of average levels of influence (Table 28), we can conclude that the listed companies consider these external factors to be more significant in CEC changes than non-listed companies.

Table 26: The difference of impact in terms of IPO

IPO		Sovereign debt	Sovereign rating	Risk free rate
no	**Mean**	.14	-.43	-.57
	Std. Dev.	.727	1.207	1.248
	Median	0.00	-1.00	-1.00
yes	**Mean**	1.00	-2.33	-2.33
	Std. Dev.	0.000	.577	.577
	Median	1.00	-2.00	-2.00
Total	**Mean**	.25	-.67	-.79
	Std. Dev.	.737	1.308	1.318
	Median	0.00	-1.00	-1.00

Source: Author᾽s composition

In terms of state of financial stability the test also show no difference between listed and non-listed companies.

As there are two types of questionnaire mail and online the online version has several advantages and specific survey tools. In the online version there were applied different tools of questions' visualization, in order to make the questions more understandable for respondents and more informative for further analysis of obtained data. These tools are multiple textboxes, answer choices, multiple choice, matrix with rating scale, matrix of dropdown menus, comment box.

In the key questions regarding internal and external factors the respondents in their questionnaire applied direct valuation or so called point-factor evaluation approach. The respondents were able to evaluation the significance of individual factors. The whole questionnaire and the cover letter are represented in Appendix C and D with visualization of the results in Appendix G.

6.1.1. Is there a gap in knowledge?

One of the research questions of present paper is to identify the gap between theory and practice, where theory is represented by previous scientific studies on the theme of influence of different factors on the cost of equity capital and where the practice is knowledge and experience of corporate managers. The first test to be performed is Chi-Squared Test in order to test whether the evaluation of factors by experts is equally distributed among levels of influence. In another words we hypothesis that respondents choose the degree of influence of each factor equally (null hypothesis), which indicate the lack of knowledge among experts.

Table 27: Chi-Squared Test: Internal factors

	1 Size	2 Financial perfromance	3 Capital structure	4 Liquidity	5 Flexibility in internal financing	6 Earnings smoothness	7 Financial planning	8 Audit quality
Chi-Square	1.280^a	1.200^b	4.000^b	8.000^b	5.200^b	5.200^b	14.800^b	9.600^b
df	2	4	4	4	4	4	4	4
Asymp. Sig.	.527	.878	.406	.092	.267	.267	.005	.048

	10 Corporate governance	11 Ownership structure	12 Shareholder rights	13 Dividend policy	14 Investors' protection	15 Board independence	16 Board of directors' structure	17 Information assyemtry
Chi-Square	8.800^b	11.960^c	3.600^b	14.800^b	9.200^b	19.600^b	14.400^b	4.400^b
df	4	3	4	4	4	4	4	4
Asymp. Sig.	.066	.008	.463	.005	.056	.001	.006	.355

Source: Author's composition

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Table 28: Chi-Squared Test: External factors

	1 GDP	2 Unemployement rate	3 Apprecuation of domestic currency	4 Foreign Direct Investment	5 Soverign default probability	6 Inflation	7 Raw materials infaltion (oil)	8 Money supply
Chi-Square	1.500[a]	28.500[b]	9.250[c]	32.583[c]	10.000[a]	17.000[a]	9.500[a]	12.250[b]
df	5	4	6	6	5	5	5	4
Asymp. Sig.	.913	.000	.160	.000	.075	.004	.091	.016

	9 Long-term interest rate	10 Short-term interest rate	11 Sovereign debt	12 Sovereign rating	13 Corporate tax rate	14 Government expenditures	15 Stock market volatility	16 Financial market development
Chi-Square	11.417[b]	5.583[b]	25.000[d]	8.500[a]	14.500[a]	12.667[d]	15.667[c]	13.917[b]
df	4	4	3	5	5	3	6	4
Asymp. Sig.	.022	.233	.000	.131	.013	.005	.016	.008

	17 Risk free rate	18 Banks capital adequacy	19 Banking system liquidity	20 Bank landing	21 Probability of banking system default	22 corruption	23 Political stability	
Chi-Square	9.500[a]	6.000[d]	5.667[d]	15.500[a]	3.083[b]	7.000[d]	21.500[a]	
df	5	3	3	5	4	3	5	
Asymp. Sig.	.091	.112	.129	.008	.544	.072	.001	

Source: Author's composition

In terms of internal factors the Chi-Squared test shows that experts do not evaluate equally financial planning, audit quality, ownership structure, dividend policy, board independence, board of director structure and corporate ethics. We assume that there is a lack of knowledge among corporate managers regarding the influence of the rest of internal factors as size, financial performance, capital structure, liquidity, flexibility in internal financing, earnings smoothness, disclosure, corporate governance, shareholder rights, investor protection, and information asymmetry.

Regarding the external factors the corporate managers have no idea about the direction of influence of external factors on CEC. An equal spread among values can be found for factors as GDP, appreciation of domestic currency, sovereign default probability, raw materials inflation, short-term interest rate, sovereign rating, risk free rate, banks capital adequacy, banking system liquidity, probability of banking system default, and corruption.

The one-sample Kolmogorov-Smirnov test is also conducted, which identifies only Capital structure to be normally distributed with mean 3.4 and standard deviation 1.22 (which means no effect on CEC). In terms of external factors the test shows that factors as GDP and Raw material inflation are normally distributed with mean close to 0 which indicate no impact on CEC.

6.3. The survey as an experts' evaluation

The primary finding from the survey do not only show the practitians' attitude towards the influence of internal and external factors on the cost of equity capital, but also the gap between theory and practice, where theory is represented by scientific research findings and practice is associated with managers' knowledge and experience regarding cost of equity capital. In order to fill this gap and

integrate the experience of experts into scientific research the primary results of survey are applied as expert evaluation of investigated factors that have influence on the cost of equity capital. The experts are the professionals from the field, i.e. financial directors of joint-stock companies, which have to make effective and balanced decisions in terms of equity capital management.

The experts' evaluations from the survey results were taken into consideration, in order to assess the weights of the investigated factors. As a rule the importance of factors is estimated by the expert evaluation, which process can be divided into two steps: collecting the data (by the means of conducted survey) and data processing with mathematical methods. The weight of the factor is always a positive number w_i, $i = 1, …, n$, where

$$0 < w_i < 1, \sum_{i=1}^{n} w_i = 1, i = \overline{1,n} , \tag{9}$$

where n – number of investigated factors

At the same time the numbers $w_i = \overline{(i,n)}$, represented the coefficients of relative importance, not only assign harmonization of factors by importance, but define at what extent one factor is more significant than other from the experts' point of view.

Vector of real required coefficients of relative importance of analyzed factors:

$$w = (w_1, w_2, …, w_n) \tag{10}$$

For set of the internal factors the vector of importance has the following type

$$w_{\text{in}} = (w_{in}^1, w_{in}^2, w_{in}^4, w_{in}^5, w_{in}^6, w_{in}^7, w_{in}^8, w_{in}^9, w_{in}^{10}, w_{in}^{11}, w_{in}^{12}, w_{in}^{13}, w_{in}^{14}, w_{in}^{15}, w_{in}^{16}, w_{in}^{17}, w_{in}^{18}) \tag{11}$$

For set of the external factors the vector of importance has the following type

$$w_{\text{ex}} = (w_{ex}^1, w_{ex}^2, w_{ex}^3, w_{ex}^4, w_{ex}^5, w_{ex}^6, w_{ex}^7, w_{ex}^8, w_{ex}^9, w_{ex}^{10}, w_{ex}^{11}, w_{ex}^{12}, w_{ex}^{13}, w_{ex}^{14}, w_{ex}^{15}, w_{ex}^{16}, w_{ex}^{17}, w_{ex}^{18}, w_{ex}^{19}, w_{ex}^{20}, w_{ex}^{21}, w_{ex}^{22}, w_{ex}^{23}) \tag{12}$$

The base of weights is average mean (*μ*) of expert evaluation from primary survey. The Figure 12 and Figure 13 represent the internal and external factors ranking by their weights respectively. The rank value 1 represents the most significant factor from the experts' point of view, as relevant 18th rank represents the least significant internal factor and 23th rank refers to the least significant external factor.
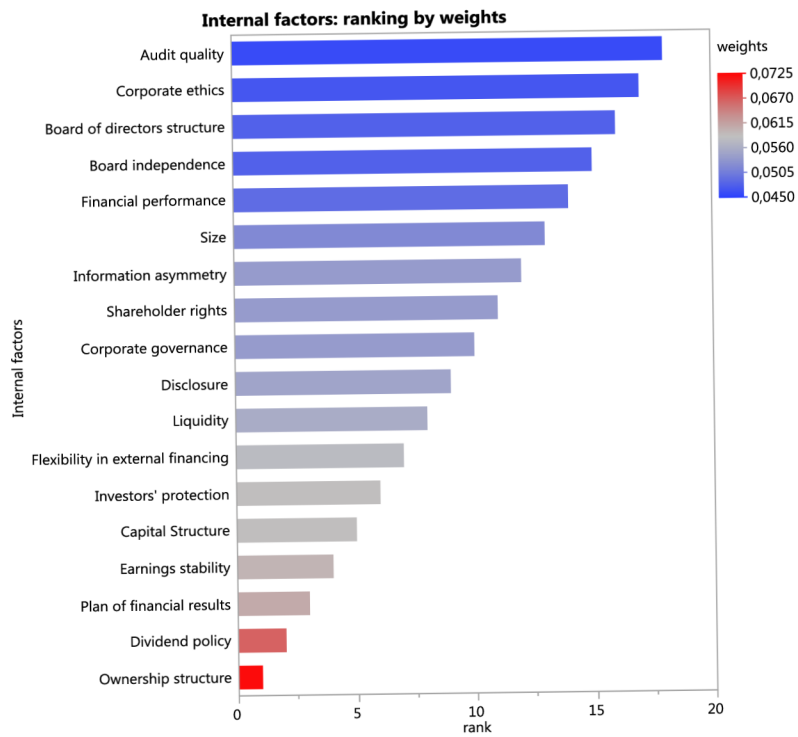
Figure 13: The ranking of internal factors by weights
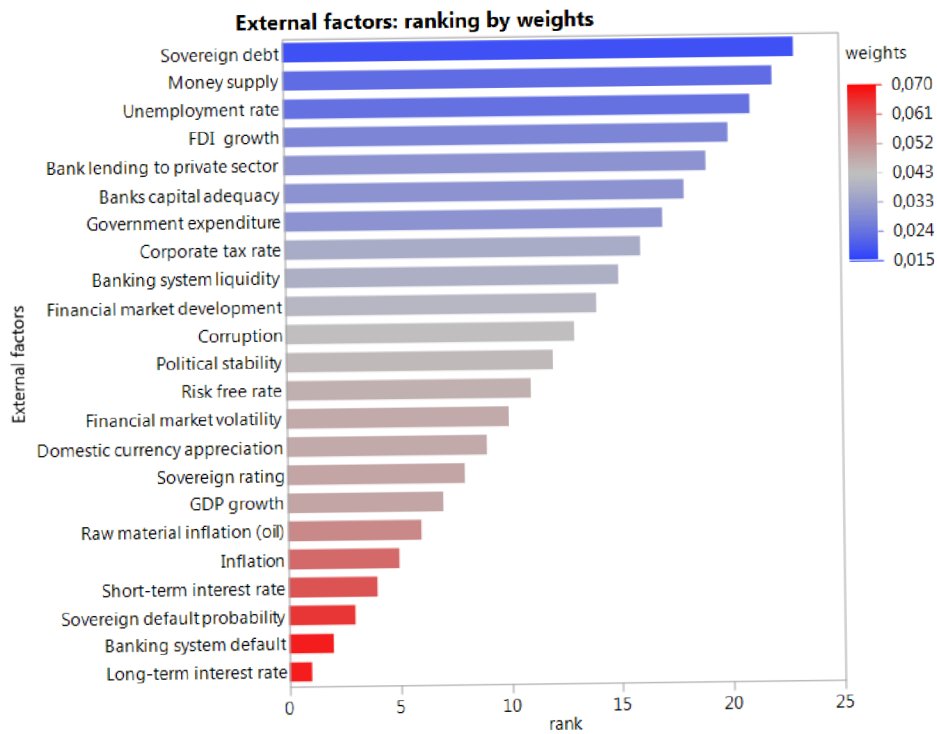
Figure 14: The ranking of external factors by weights

Chapter 7 Proposal: Methodology towards CEC reduction

The Chapter 7 covers the practical application of research findings. By the means of critical literature review and primary research and subsequent analysis of accumulated knowledge, the influence of internal and external factors on the cost of equity capital was determined. These findings contribute to creation of functional methodology supporting CFO's decision-making process in the context of corporate financing with regard to the cost of equity capital manipulations. The methodology represents the combination of internal and external factors that results in definite level of CEC. The internal factors that are manageable compose aggregate Index of Internal factors; thereby the combination of external factors and the level of their development represent the external environment or in another words the state of economy. A company operates under certain macroeconomic conditions at a specific period of time, which it cannot adjust.

The methodology is dedicated to evaluate the level of cost of equity capital based on the actual internal factors and current macroeconomical conditions. The methodology accumulates the existing knowledge on the influence of internal and external factors on the cost of equity capital and facilitates effective decisions regarding CEC minimization. The formative construction of the Index is represented by Figure 15 The combination of external factors compose a current state of economy. The set of internal factors represent the internal environment of a company.
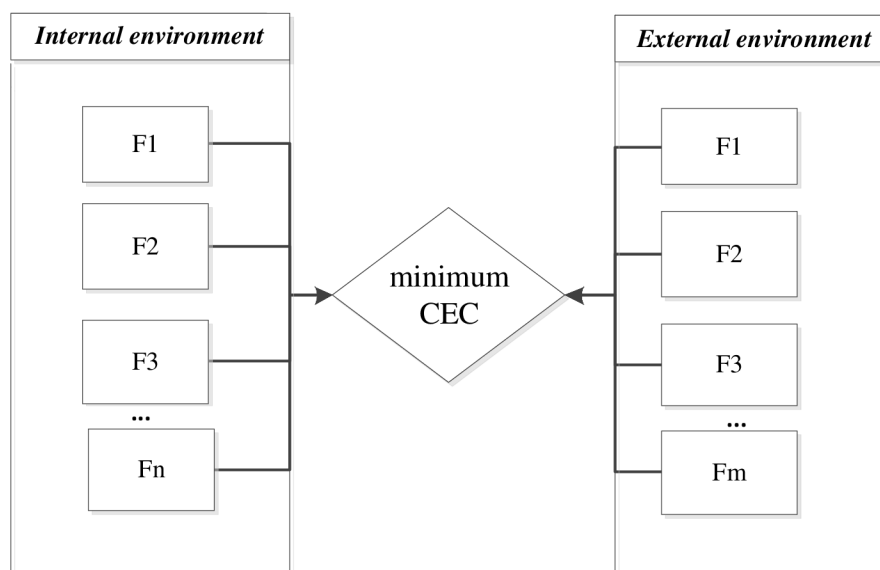
Figure 15: The formative construction of methodology

Based on literature review the several categories of internal factors are indicated: corporate disclose, corporate governance and social factors. The common features and their nature lay into this classification. They survey results also provide the background to limit the factors included into final

index. As the size and board characteristics are considered to be less significant among respondents, the factors are excluded from the Index composition. Despite of the fact that only 16% of respondents agree that corporate ethics influence the cost of equity capital, it is included into index as the evidence concerning its impact is quite new and managers might not be aware about the significance of the factor. However, the weight of corporate ethic in Index is the lowest. Besides, information asymmetry is excluded from final Index as independent factor as it represent the link between other internal factors and cost of equity capital.

The operational framework designed for synthetic index construction requires assumptions, in order to ensure the correct methodological sequence. The main assumption is geographical and limits the Index application to Czech companies. The limitation is caused by expert evaluation, which was gathered among Czech experts thus the weights of factors reflect the Czech Republic specifics.

The utilization of index assumes to apply ex-ante cost of equity capital calculated based on four models derived from the literature review. The purpose of this research is not to evaluate the measures of cost of equity capital, but instead evaluate the influence of internal and external factors on the cost of equity capital. Thus based on the literature research the composite measure of cost of equity capital should be used in the Index application. The composite measure of CEC is the average of four measures widely used in published financial research concerning the relation between CEC and different factors: the industry ROE model by Gebhardt et al. (2001), the economy-wide growth model by Claus and Thomas (2001), the unrestricted abnormal earnings growth model by Gode and Mohanram (2003), and the restricted abnormal earnings growth model by Easton (2004).

These four measures of CEC were aggregated into one composite measure by the means of the following formula:

$$r_{AVG} = \frac{r_G + r_{CT} + r_{GLS} + r_{PEG}}{4} \qquad (13)$$

where r_{AVG} – the applied cost of equity capital as an average of four selected measures.

The internal factors are coded with strength distinctions thus the provisions of index can be stronger, average or weaker. The complexity of the index construction will benefit in ability to provide recommendations for internal factors adjustment and external factors adoptability and further cost of equity capital minimization in the decision making process of a company.

The index is continues indicator of the level of the cost of equity capital, where the optimal level for a company is its minimum. Thus the combination of factors (respectively their values) should lead to minimum cost of equity capital.

The factors included in Index reflect three internal and one external categories. The Figure 14 represents the structure of Index IECEC

I.	Corporate Disclosure Policy	
	i.	Corporate disclosure
	ii.	Audit quality
II.	Corporate Governance	
	i.	Shareholder rights
	ii.	Investors protection
	iii.	Ownership structure
III.	Social and Financial Factors	
	i.	Corporate ethics
	ii.	Liquidity
	iii.	Financial performance
	iv.	Earnings stability
	v.	Flexibility in external; financing
	vi.	Financial planning
IV.	The Current State of Economy	

Figure 16: The Methodology Structure

As presented in the table the selected indicators have been used for the construction of the aggregate Index for the influence of internal and external factors on the cost of equity capital for Czech Republic.

7.1.   Internal factors determination in index

As was mentioned before the internal factors are classified into several categories that represent sub-indices. The Figure 16 represents the internal factors accumulated into Index ICEC and the direction of their influence on the cost of equity capital.

Factor	The influence
Corporate Disclosure Policy	
Corporate disclosure	Higher disclosure leads to lower CEC
Audit quality	Higher audit quality leads to lower CEC
Corporate Governance	
Shareholder rights	Stronger shareholder rights leads to lower cost of equity capital
Investors protection	Stronger sinvestor protection leads to lower cost of equity capital
Ownership structure	Lower excess control decrease CEC
Social and Financial Factors	
Corporate ethics	Higher corporate ethics leads to lower CEC
Liquidity	Higher liquidity leads to lower CEC
Financial performance	Better financial perfromance leads to lower CEC

Figure 17: The influence of internal factors on CEC in Index

The corporate ethics Sub index includes variables in terms of employee relations, environmental policies, and product strategies. The social factors work through increase in investors' confidence, partly disclosure and in the end financial performance.

The index construction is straightforward. The factors values are coding into three-grade scale:

Table 29: the Index coding

Power distinction	Value	Coding
Low	< 25pct	-1
Average	25-75pct	0
High	>75 pct	1

The average value of each factor is considered to be the benchmark (the average value of the factor among peers, i.e. companies operating in the same industry, the same size, the IPO occurrence. The average is considered as interval between 25th and 75th quartiles of the data sample. If a factor has value lower than 25th quartile than the factor consider to be low and if value is higher than 75th quartile than the factors is too high.

$$Index_{in} = \sum_{i=1}^{n} w_{in}^n F_{in}^n = 0.091F_{in}^1 +$$
$$0.084F_{in}^2 + 0.077F_{in}^3 + 0.075F_{in}^4 + 0.074F_{in}^5 + 0.074F_{in}^6 + 0.072F_{in}^7 0.07F_{in}^8 + 0.069F_{in}^9 + 0.068F_{in}^{10} +$$
$$0.068F_{in}^{11} + 0.062F_{in}^{14} + 0.058F_{in}^{17} + 0.057F_{in}^{18} \tag{14}$$

As there are sub indices that are taken into consideration as first step than the weighted formula will be:

$$Index_{in} = \sum_{i=1}^{n} w_{in}^n F_{sub\_I}^n = 0.27F_{sub\_I}^{Disclosure} +$$
$$0.26F_{sub\_I}^{Corporate\ Governance} + 0.24F_{sub\_I}^{Financial\ performance} + 0.23F_{sub\_I}^{Corporate\ ethics} \tag{15}$$

The Disclosure has heavier weights that corporate governance, the corporate ethics as a sub-index has the lowest weight form the CFO's point of view.

7.2. The external environment scenarios in index

Based on the conducted analysis of external factors and their relations to cost of equity capital several external environment scenarios are determined. Specifically the state of financial system is classified into separate types with specific characteristics. The states of financial system are represented by external environment scenarios included definite set of external factors.

The external environment scenarios that are implemented into final index are:

- ✓ Recession of economy
- ✓ Stagnation of economy
- ✓ Stable economy
- ✓ Expansion
- ✓ "Over heated" economy

With reference to primary research, the recession is the state of economy, when a company should expect the lowest cost of equity capital. The overheat economy and expansion might lead to higher cost of equity capital. At the same time stable economy have no effect on the cost of equity capital according to experts. The experts could not evaluate the influence of stagnation state of economy on the cost of equity capital (i.e. the opinion divided from no effect to lower CEC) thus we will assume that there is no effect due to uncertainty.

7.3. The final methodology and proposed recommendations

In respect that the internal factors are controllable and external factors (specifically the state of financial stability) are beyond the control of managers, the external environment is served as possible corrections to the trend (Figure 18).

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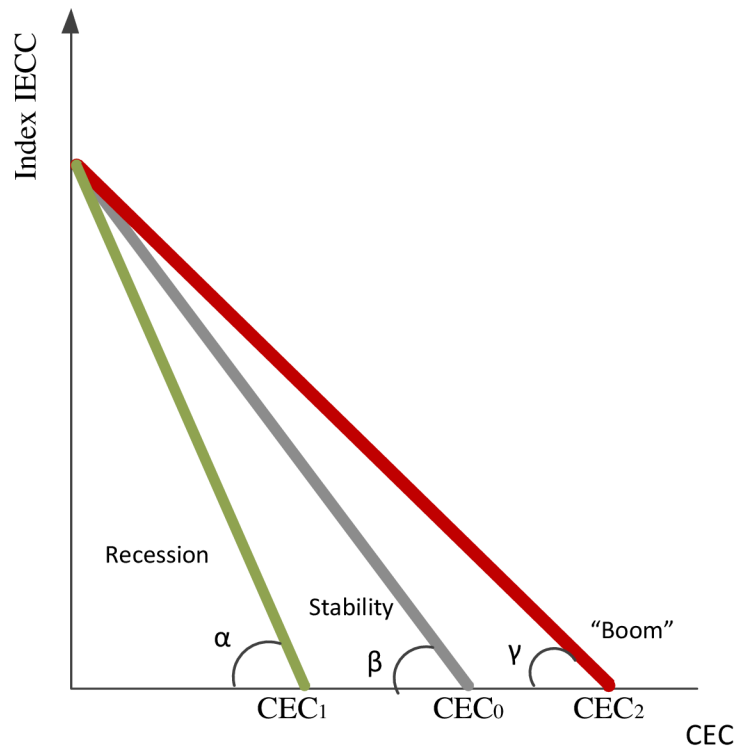
Figure 18: The influence of external environment on the relation between Index and CEC

Under specific combination of internal and external factors there is a possibility to determine the lowest viable level of the CEC; in case of even one factor change as a consequence the cost of equity capital might also be changed (Figure 19). In addition the changes in combination of parameters might lead to changes of minimum possible and maximum possible level of CEC.
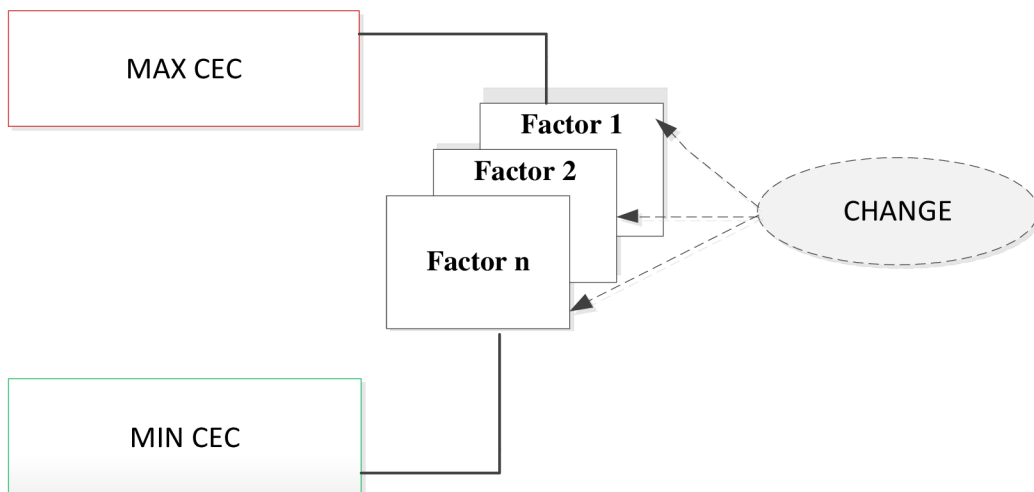
Figure 19: The influence of determinants changes on CEC level

By definition, the Index ICEC captures the current and consequential level of cost of equity capital based on the actual state of internal factors in terms of distinct private company.

The most important outcome of the methodology as an applicable tool is ability to facilitate the decision making process of a company. Thus the substantial significance of the proposed tool is to generate recommendations for further improvement of internal environment in order to approach to minimum cost of equity capital. In addition with the relevant importance there is the guidance to changes in external environment (more specifically individual external factors) that might decrease the cost of equity capital.

The recommendations are divided into two levels. The first one is more generalized and indicates the areas of improvements; if the sub-indexes are lower than 1, i.e. the Sub-index score is below 75percentile of selected benchmark.
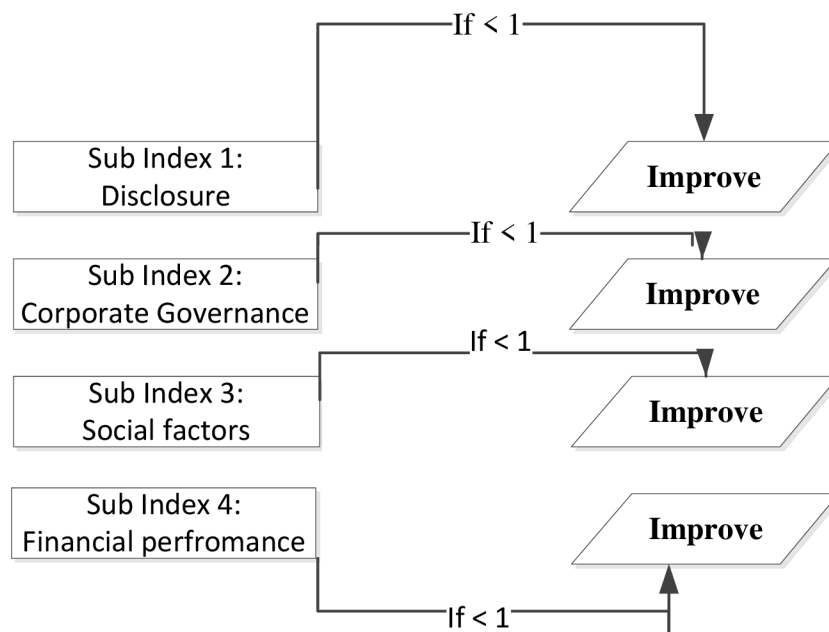
Figure 20: The algorithm of proposed recommendations towards determinants improvement

The second level of recommendation is more detailed including defined actions and improvements in internal environment of a company.

Possible recommendation for Disclosure:

✓ Increase voluntary disclosure, i.e. initiatives in actions towards higher transparency
✓ Increase share of public available information
✓ Increase amount of information provided to the market
✓ Use of timely disclosure, i.e. change annual report to quarterly and etc.

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- ✓ Disclosure of forecast information
- ✓ Disclosure of non-financial performance
- ✓ Utilization of conservative accounting policy
- ✓ Utilization of high duality reporting system, i.e. improvement in reporting system
- ✓ Switch to International Accounting Standards
- ✓ Increase audit quality

Possible recommendations for Corporate Governance:

- ✓ Investors' protection improvement
- ✓ Shareholder rights improvement
- ✓ Adjustment of audit committee
- ✓ Fully independent committee
- ✓ Increase the independence of board of director
- ✓ Independence of audit committee
- ✓ Decrease the excess control

Possible recommendations for Social factors:

- ✓ Increase of corporate ethics
- ✓ The stronger management support
- ✓ Increase the level of corporate culture
- ✓ Create open communication channels
- ✓ Provide ethical training
- ✓ Resource reduction
- ✓ Emission reduction
- ✓ Product innovation towards environmental improvements
- ✓ Decrease environmental risk
- ✓ Improvements in employment quality, health and safety
- ✓ Increase of human rights
- ✓ Increase in product responsibility
- ✓ Employment training and development

Possible recommendations for financial performance:

- ✓ Increase liquidity
- ✓ Improve financial performance
- ✓ Smooth earnings
- ✓ Increase flexibility in external financing
- ✓ Deeper and more efficient financial planning

As a rule the indexes include the elements with yes/no terms (for example of a company disclosure its forecasts). Thus the logic of next level of recommendations is follow:
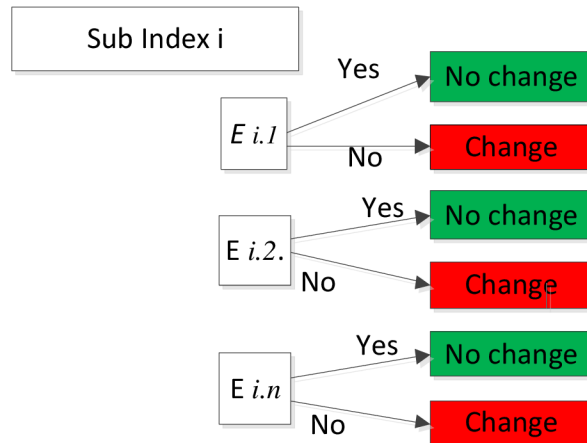
Figure 21: the logic of recommendations on sub-level of Index

7.4.   *Verification of methodology: a case study*

In order to verify the methodology, a case study is conducted based on the simulation of three theoretic companies. Assume that there are three theoretic companies that operate in the same industry under specific macroeconomic conditions in the definite time span. Let's name them Company A, Company B and Company C. All companies are non-financial joint-stock large companies from X industry.

Companies' characteristics

There are three companies that represent different types of management in terms of internal environment. The short description summaries the attitude of a company to the investigated categories and Table 30 shows the specifics variables of sub-indices.

Table 30: Simulation – the specific variables of Index ICEC

Sub-indices and Variables	Company A		Company B		Company C	
	Actual	Coding	Actual	Coding	Actual	Coding
Disclosure policy sub-index	**10 pct**	**-1**	**55 pct**	**0**	**98 pct**	**1**
V1 quarterly management earnings forecast	no	0	yes	1	yes	1
V2 frequently forecast of private information	no	0	yes	1	yes	1
V3 forecast precision	yes	1	yes	1	yes	1
V4 strategic events disclosure	no	0	no	0	yes	1
V5 the share of public information in information structure	no	0	yes	1	yes	1
V6 key non-financial statistics in reports	no	0	no	0	yes	1
V7 conservative accounting policy	yes	1	yes	1	yes	1
V8 ex ante accounting system	yes	1	yes	1	yes	1
V9 high duality reporting system	yes	1	yes	1	yes	1
V10 international accounting system	no	0	yes	1	yes	1
Corporate governance sub-index	**20 pct**	**-1**	**67 pct**	**0**	**97pct**	**0**
V1 non-concentrated ownership (less block holders)	no	0	yes	1	yes	1
V2 independent audit committee	no	0	no	0	yes	1
V3 shareholder rights to secure methods of ownership registration;	no	0	yes	1	yes	1
V4 shareholder rights to convey or transfer of shares;	no	0	no	1	yes	1
V5 shareholder rights to obtain relevant and material information on a company on a timely and regular basis;	no	0	yes	1	yes	1
V6 shareholder rights to participate and vote in general shareholder meetings;	no	0	yes	1	yes	1
V7 shareholder rights to elect and remove members of the board;	no	0	yes	1	yes	1
V 8 shareholder rights to share in the profits of a company.	no	0	yes	1	yes	1
V9 absence of poison pill	yes	1	yes	1	yes	1
V10 absence of golden parachute provisions	yes	1	yes	1	yes	1
V11 borad independence (more than 50%)	no	0	no	0	yes	
Social factors sun-index	**5 pct**	**-1**	**76 pct**	**1**	**89 pct**	**1**
V1 Employment health and safety	yes	1	yes	1	yes	1
V2 Employment development	yes	1	yes	1	yes	1
V3 Human rights	no	0	yes	1	yes	1
V4 product innovation and responsibility	no	0	yes	1	yes	1
V5 ethical training	no	0	yes	1	yes	1

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V6 open communication channels	no	0	yes	1	yes	1
V7 ethical leadership	no	0	yes	1	yes	1
V8 ethics hotline	no	0	no	0	yes	1
V9 ethical codes (policy)	no	0	yes	1	yes	1
V10 resource reduction (environmental risk)	no	0	no	0	yes	1
V11 emission reduction (environmental risk)	no	0	no	0	yes	1
Financial factors	AVG	100	AVG	75	AVG	100
V1 high liquidity ratio	yes	1	no	0	yes	1
V2 high financial performance	yes	1	yes	1	yes	1
V3 Smooth earnings	yes	1	yes	1	yes	1
V4 I flexibility in external financing	yes	1	yes	1	yes	1

Source: Author's composition

The sub-indices are calculated based on the previous created indices of disclosure, governance and social responsibility. For sub-index Disclosure policy the index is calculated by disclosure score DISC created by Hail (2002) that is based on annual reports and represents the voluntary disclosure. Despite the companies are enabled to choose the distinct binary variables in each sub-index (if they have a characteristic or do not). For Corporate Governance sub-index the Ramly (2012) corporate governance score is applied as it includes the most of categories of corporate governance compare to other scores (139 items in total). For social factors sub-index the corporate ethical commitment index by Choi andJung (2009) is applied. The Industry benchmark should be calculated for each peer group for each sub-indices. And based on the percentile each company receive a point.

Company A

The Company A is more conservative compare to its peers. The Company A makes effort mostly for production increase and revenue growth. The managers follow the stick privacy policy and close internal environment. As a rule in conservative corporate environment there is no reach corporate culture and other social performance.

Company B

The company B continuously develops its disclosure policy; moreover, it improves corporate governance, however, as the Company B has become listed not long time ago, there are still some drawbacks. Being listed the Company B has decided to elevate its social performance as the social responsibility.

Company C:

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The managers of the company C pays significant attention to its performance and the development of corporate internal environment. The management of Company C is innovative and progressive.

Applying Index ICEC for three companies

Company A

Company A received - 1 for three sub-index: compare to its peers from the industry X in terms of sub-index Disclosure policy it is in 10th percentile; for sub-index Corporate Governance only 20% of all companies in the industry X has lower score; in terms of social factors sub-index the situation is worse it is found to be in 5th percentile. Thus the overall index is calculated by formula 15:

$$Index_{in} = \frac{\sum_{i=1}^{n} w_{in}^{n} F_{sub\_l}^{n}}{100} = 0.27X10 + 0.26X20 + 0.23X5 + 0.24X100 = 0.33$$

The index is 0.33 for Company A

There are several individual variables in each category that have received answer no and thus the code 0 was indicated.

Company B

Company B received 0 for all three sub-index: compare to its peers from the industry X in terms of sub-index Disclosure policy it is in 55th percentile; for sub-index Corporate Governance 67% of all companies in the industry X has lower score; in terms of social factors sub-index the situation is worse it is found to be in 76th percentile. Thus the overall index is calculated by formula 15:

$$Index_{in} = \frac{\sum_{i=1}^{n} w_{in}^{n} F_{sub\_l}^{n}}{100} = 0.27X55 + 0.26X67 + 0.23X76 + 0.24X75 = 0.68$$

There are several individual variables that can be improved thus a company B as well as Company A will receive a list of specific recommendations to improve.

Company C:

Company C received 1 for all three sub-index: compare to its peers from the industry X in terms of sub-index Disclosure policy it is in 98th percentile; for sub-index Corporate Governance 97% of all companies in the industry X has lower score; in terms of social factors sub-index the situation is worse it is found to be in 89th percentile. Thus the overall index is calculated by formula 15:

$$Index_{in} = \frac{\sum_{i=1}^{n} w_{in}^{n} F_{sub\_l}^{n}}{100} = 0.27X98 + 0.26X97 + 0.23X89 + 0.24X100 = 0.96$$

There no individual variables that can be improved. Only the social factors sub-index can be increased to maximum level and represent the best practice in Industry X in terms of social factors development.

Based on the Index ICEC Company C might experience the lowest CEC among three theoretical companies. The lowest score is received by Company A, which might have higher cost of equity capital than Company B and C.

The external environment scenario

The companies operate at the same period of time and under the same macroeconomic conditions. Assume that there is a financial stability thus the current external factors do not influence the CEC.

Methodology outcome: Recommendations

Company A

1 step: Recommendation to improve all three sub-indices:

2 step:

❖ *Decrease a number of block holders in ownership structure*
❖ *Make quarterly earnings forecast*
❖ *Make forecast more frequent with larger share of private information*
❖ *Disclosure strategic events*
❖ *Include non-financial statistics in reports*
❖ *Adopt international accounting standards*
❖ *Independent audit committee*
❖ *relevant and material information on a company on a timely and regular basis*
❖ *Secure methods of ownership*
❖ *secure methods of ownership registration*
❖ *convey or transfer of shares*
❖ *secure methods of ownership registration*
❖ *convey or transfer of shares*
❖ *increase board independence*
❖ *Human rights*
❖ *product innovation and responsibility*
❖ *ethical training*
❖ *ethics hotline*
❖ *ethical codes (policy)*
❖ *resource and emission reduction*

Company B

1 step: Recommendation to improve all three sub-indices:

2 step:

- ❖ *Strategic event disclosure*
- ❖ *Include key non-financial statistics in reports*
- ❖ *independent audit committee*
- ❖ *board independence (more than 50%)*
- ❖ *establish ethics hotline*
- ❖ *resource and emission reduction*
- ❖ *emission reduction*

In 2 step for Companies A and B the recommendations are ordered based on the ranking of importance.

Company C:

The company C has the highest value of the Index in Industry X thus there is no internal factors that can be improved, in order to decrease the costs of equity capital. The company C has reduced the cost of equity capital and has reached its lowest possible level of CEC in terms of internal factors. However under assumption the external factors are not taken into consideration due to financial stability of a country. Consequently the Company C receives recommendation to wait for changes in the following external factors (i.e. macroeconomic conditions), when it might expect further reduction of its CEC.

Based on the importance of external factors (ranks determined by primary research) the following recommendations are generated for Company C (Figure 22):
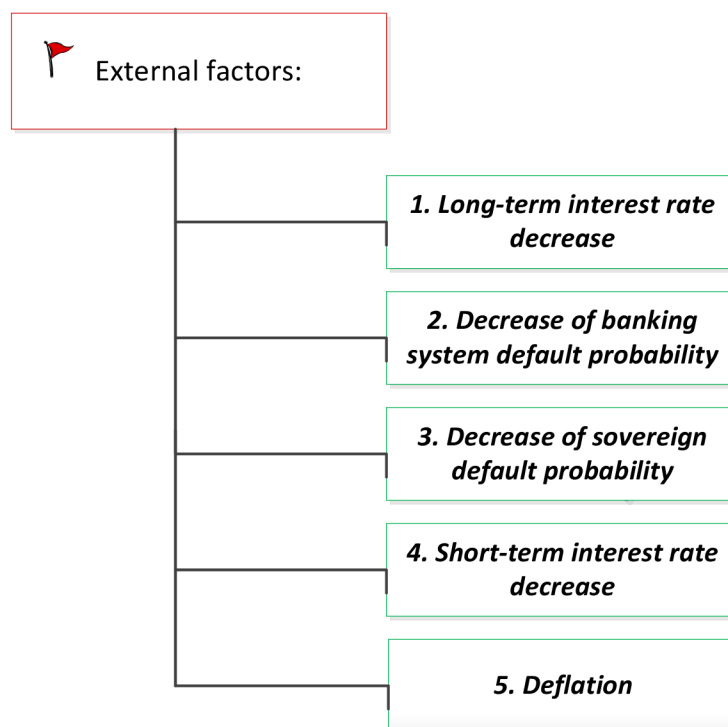
Figure 22: Methodology simulation: Recommendations Company C

The Company C might expect the highest degree of reduction, when the long-term interest rate will decrease. The time when the probability of sovereign default and default of banking system will decrease, the Company C might get a signal that its level of CEC is lower now. The next external factors that will signal the possibility to reach lower CEC are short-term interest rate and deflation.

Chapter 8 Discussion and concluding remarks

Although the influence of several factors on the cost of equity capital has been extensively studied on the past few decades, the knowledge has been spread and has not been accumulated; moreover the influence of internal and external factors in the Czech Republic has remained relatively unexplored. In this work, the knowledge about the influence of internal and external factors on the cost of equity capital has been accumulated, analysed and transformed into specific applicable methodology.

The finding of secondary research highlights the variety of internal factors influencing the costs of equity capital, however, the information spread and is not accumulated. The companies with stronger corporate governance have lower cost of equity capital. Corporate transparence and shareholder rights are the essential components of strong corporate governance. By lower estimation risk and lower agency risk strong shareholder rights and increased financial discloser lead to lower cost of equity capital The company with weaker shareholder rights and higher transparent disclosure policy has similar cost of equity capital as the firm with stronger shareholder rights and lower disclosure. So firm can choose the best way to manage the equity capital by the instrumentally of combination of these two factors. Effective corporate governance includes greater institutional ownership and stronger outside control. So high level of audit quality leads to lower cost of equity capital. At the same time high level financial disclosure reduce information and estimation risks, enhance market liquidity and reduce transaction costs that in result decrease the cost of equity capital. Financial characteristics for example profitability or asset liquidity provide lower capital expenses. However earning smoothness doesn't lead to the lower cost of capital as it was considered by many owners and managers.

There are a few studies regarding the influence of external factors on the stock returns. Despite of the indirect influence of the external factors on the cost of equity capital, the impact might be very significant. The combination of external factors represents the state of economy development, which promotes decrease or increase of CEC.

The finding of primary research has not been previously established in Czech Republic. The finding is partly in agreement with international previous studies on the investigated issue. The primary findings illustrate the CFO perception and experience regarding the cost of equity capital determinants and show the possible gap in knowledge regarding investigated issue.

In order to make finding useful and applicable the methodology is created, which support decision making process of companies in terms of CEC management. The cost of equity capital reduction is one of the key targets of corporate financial management. The corporate managers are more confident on the influence of external factors, which they cannot manage than the influence of internal factors, which they are able to improve. The methodology is based on the expert evaluation, whose knowledge and experience reflect the specifics of Czech Republic. Therefore, the current methodology (respectively Index ICEC) is applicable for Czech companies.

As a general thing, there are some research limitations. The main limitation of the current research is secondary data availability and the confidence and sensitivity of primary data. The information regarding internal factors (i.e. the level of disclosure, corporate governance strength and etc.) are stored in the international databases that was collected by authoritarian institutions. There was attempt to gather such information for Czech companies in the most relevant and widely used databases as DATASTREAM and COMPUSTAT (which are used in the most of studies around the world on the investigated issue). Unfortunately, the required information for the Czech Republic is missing. Moreover the internal and external factors differ in its availability and complexity, i.e. some of the factors are simple and easy available and others are more complex in nature and require additional access to necessary information. Another limitation connected with the first one is the confidence and sensitivity of gathered information by the means of survey. It is the main reason of low transparent level among Czech companies. The financial managers are not willing to share information that might influence their performance if it becomes public available. The fear of disclosure can be explained of lack of knowledge regarding possible impacts. Thus, the response rate of 5% is quite valuable and acceptable for equity research topic. However, this dissertation work makes one of the first moves to disclosure of information regarding the cost of equity capital and its determinants.

8.2. Contributions of research: theoretical and practical

The current thesis makes original and significant contribution to science and corporate practice.

From the scientific point of view there are *theoretical contribution* and *empirical contribution* of the current thesis:

✓   Accumulation of worldwide knowledge on the theme of the influence of the internal and external factors on the CEC
✓   Collection of unique primary data based on the evidence of Czech companies
✓   Evaluation of the gap between theory and practice on the investigated issue

From the corporate point of view there are the following contributions:

✓   The practical tool supporting corporate decision-making process
✓   Improvement of the CFO knowledge regarding the influence of the internal and external factors on the cost of equity capital

8.3. Recommendations for future research

The current research is promising and future-oriented. There are several recommendations for future research to be extended. The collection of evidence on the cost of equity capital and internal factors values included in the aggregate index for Czech Republic environment should be conducted. This kind of primary data will increase the opportunity of Czech scientific society to conduct

comprehensive research in the field of corporate finance and in the context of current research development will support analysis to identificate the exact coefficients of influence under certain country's specifics. In another words elimination of limitations of current research is a first step of future research proposition. The further future step is based on regression analysis make a forecast of macroeoconomic conditions and possible development of internal factors, which in the end will give a predicted cost of equity capital.

Another recommendation is to create a prototype by the means of Python programing language, in order to make simulations and test on the real companies. This tool will give opportunity to test the methodology on the real companies.

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Accounting information, disclosure policy and cost of equity capital

Study	Analyzed relations	The cost of equity capital (or its elements) measures	Internal factor measurement	Major findings	Additional information
Botosan (1997)	Ex ante cost of capital and disclosure level	EBO valuation formula (developed by Edwards and Bell (1961), Ohlson (1995) and Feltham and Ohlson (1995)) based on the dividend discount model	The level of voluntary disclosure is measured by the disclosure index based on the firms' annual reports included: background information, summary of historical results, key non-financial statistics, projected information and management discussion and analysts. The analyst following is determined by two proxies for disclosure: the fractional rank of analyst following and the fractional rank of the number of Wall Street Journal articles.	• The greater disclosure is associated with lower cost of equity capital for companies with low analyst following • There is no relation between disclosure level and the cost of equity capital for firms with high analyst following	1990
Botosan and Plumlee (2000)	Accounting standards and CEC	information asymmetry components of CEC as bid-ask spread, price volatility and trading volume	The switch to the international reporting strategy ("event study")	• The switch to the international reporting strategy leads to lower bid-ask spreads and higher share turnover. • The switch to the international reporting strategy has a negative relation with price volatility.	Germany 1998
Richardson and Welker (2001)	Financial disclosure and CEC	Accounting based valuation model (Ohloson, 1995, Gebhardt et al))	Disclosure rating by Society of Management Accounts of Canada (SMAC)/ University of Quebec at Montreal (UQAM) based on corporate annual reports	• There is a negative significant relation between financial disclosure and CEC	Canada 1990-1993
Botosan and Plumlee (2002)	Ex ante cost of equity capital and disclosure (levels of annual report, timely disclosure, and investors relations	Classic dividend model	Three types of disclosure from AIMR reports (annual report, other publications and investors relations) are measured by the means of the fractional rank of the annual reports score, the fractional rank of the other publications score and the fractional rank of the	• The cost of capital decrease in the annual report disclosure. • The cost of capital increase in the level of timely disclosure. • There is no association between the cost of equity capital and the level of investors' relations activities.	Germany 1986-1996

	activities)		investors relations score.		
Hail (2002)	The ex-ante cost of equity capital and the voluntary disclosure	The finite horizon version of accounting-based valuation formula proposed by Gebhardt et al (2001), the implied discount rate represent the ex-ante cost of equity capital	The disclosure score DISC (index based on the voluntary information companies provide in their annual reports).	• There is a negative and highly significant relation between the cost of equity capital and the voluntary disclosure (represented by DRANK, the fractional rank of authors disclosure score DISC)	Switzerland 1997
Geitzmann and Trombetta (2003)	Accounting policy choice, voluntary disclosure and the cost of raising capital	The cot of raising capital is defined by the equilibrium consisted the choice of accounting policy and disclosure strategy.	The aggressive accounting policy is described by straight line depreciation adoption. The conservative accounting policy is described by the accelerated depreciation method adoption. The voluntary disclosure is measured by dichotomous test whether a project can be successful or not, i.e. with good news or bad.	The companies with aggressive accounting policy and voluntary disclosure may face higher cost of raising capital then the firms adopted conservative accounting policy even without voluntary disclosure.	Theoretical approach
Easely and O'Hara (2004)	The cost of capital and the composition of private and public information	Multi-asset rational expectations equilibrium model that includes public and private information	The dispersion of private information is represented by the fraction of traders who receive the private information	• A firm's stock with more private information and less public faces a higher cost of equity capital. • Firms benefit from having many analysts, "because analysts increase the precision of information and this lowers the companies' cost of capital".	Theoretical approach
Geitzmann and Ireland (2005)	Expected cost of equity capital and timely strategic disclosure	The ex-ante cost of equity capital is measured by the means of three stage approach for forecasting residual income and in deriving the terminal value adopted from Hail (2002) and Gelbhardt et al. (2001)	The ranking of announcement of strategic events was used with the newsworthiness ratio as a measure of quality of disclosure.	• There is a negative relation between cost of equity capital and disclosure for firms with aggressive accounting choices • Expected cost of capital is significantly influenced by factors as discretionary accruals, the ratio of debt to market value, and the mean expected long-term growth rate	UK 1993 - 2002
Li (2005)	Information quality and the	Market risk premium	The less precise information (the public signal), the larger the	• The less precise information or noisy information can increase the risk premium	Theoretical approach and

	stock market returns		estimation error of expected dividend growth rate	and stock return volatility.	U.S.A. 1887-1996
Daske (2006)	The expected cost of equity capital and the adoption of IFRS or US-GAAP	There were used two accounting based estimation procedures: Residual income valuation (RIV) and the abnormal earnings growth model (AEG)	Financial reporting strategy (use HGB as local GAAP vs. switch to IAS/IFRS or US-GAAP)	• The companies adopted international GAAP (IAS/IFRS or US_GAAP) have higher expected cost of equity capital on average than local GAAP (HGB)	Germany 1993-2002
Eaton, Nofsinger and Weaver (2007)	Disclosure quality level and the cost of capital	The empirical model focused on the changes in the cost of equity capital by the changes in the incomplete information premium and market risk after reconciliation and cross-listing. The model is based on the Merton's (1987) two-factor model of expected returns in which one factor is market risk and the other is an information completeness factor	Disclosure measures: • The number of analysts following each firm. • The source of GAAP (set by government or by private sector in the home country) • The accounting quality index of home country based on the rating on accounting standards from the Table of La Porta et al. (1998)	• Cross-listing firms experience a decrease in cost of equity over 0.2% per week in average. • Firms from countries with low levels of accounting disclosure have economic benefits from the added disclosure of cross-listing. • Firms with low analyst following or from countries with relatively low levels of exchange/regulatory disclosure have more economic benefits from cross-listing.	USA NYSE
Espinosa and Trombetta (2007)	Disclosure and the cost of capital	There are two measures of the ex-ante cost of equity capital based on the forecast future earnings: (1) Gebhart et al. (2001) model based on the residual income valuation model; and (2) Abnormal Earnings Growth Valuation Model developed by Ohlson and Juetter-Nauroth (2001)	Annual report disclosure quality is measured by index combined with a proxy for the accounting policy choice, where conservative policy is measured by discretionary accruals.	• Firms that adopt conservative accounting policies do not need to add additional disclosure in order to reduce the cost of equity capital. • On the other hand firms adopted aggressive accounting policies may increase the voluntary disclosure in order to reduce the cost of capital.	Span 1999-2002
Feltham et al. (2007)	Stock prices and accounting	One period and two period models to estimate firm's	The accounting precision is determined by quality of its	• Accounting information is an increasing function of debt.	Theoretical approach

	information	value equity with an interim review of debt covenants	internal controls and the quality of its auditors.	• When private information for equity holders exists, firms with moderately high performance will have most accurate accounting information and firms with low performance will have the least accurate accounting information.	
Gomes, Gorton, Madureira (2007)	The adoption of Regulation Fair Disclosure and information production, transmission on capital markets, the cost of capital and other firms characteristics.	Fama-French three-factor framework	Analysts following – The number of outstanding analyst forecasts for a firm's upcoming earnings release for a quarter. Earnings pre-announcement – one o more pre-announcements in the period from 15 days before the date of the quarter, until 2 days before the actual earnings release. Volatility at earnings announcements dates – cumulative absolute abnormal return over the window [-1,+1]around the earnings announcement day, where the abnormal return is obtained as the residual of a market model based on the value-weighted market index returns. The degree of agency costs represented by corporate governance provisions and bylaws and takeover laws.	• After the adoption of the Regulation Fair Disclosure there was a reallocation of information-producing resources that led to asset-pricing effects. • The reallocation of the information-producing resources results in a higher cost of capital for small firms (and at the same time there is no significant change for large firms). • The cost of capital increase for the small firms with some analyst coverage before the adoption. • There is no difference between firms with good and bad governance according to the influence of the Reg FD adoption on the flow of information and asset prices.	NYSE and NASDAQ 1997-2003
Lambert. Leuz and Verrecchia (2007)	The cost of capital and accounting information	LLV model based on the CAPM expressed in terms of cash flows, rather than returns: "The ratio of expected future cash flow to the covariance of the firm's cash flow with the sum of all cash flows in the market is a key	The accounting reports represent noisy information about future cash flows, which correspond with actual reporting behavior.	• The quality of accounting information influences the cost of capital directly by affecting market participants' perceptions about the distribution of future cash flows. • The quality of accounting information influences the cost of capital indirectly by affecting the real decisions that alter the distribution of future cash	Theoretical approach

				flows. • The increase of mandatory disclosure quality has an ambiguous reduction impact on the cost of capital for each firm in the economy.	
Li and Hui (2007)	The cost of capital and the Regulation Fair Disclosure	A two-period asset pricing model based on rational expectation equilibrium	The regulation Fair Disclosure represented by proportion of public information	• The increase of the proportion of public information represented the Regulation Fair Disclosure may not definitely reduce the cost of capital "...because of the difference between public information's precision and the precision of "selective disclosure" and the information transmission effect by equilibrium price".	Theoretical approach
Daske et al. (2008)	Mandatory adoption of IFRS and cost of capital, market liquidity and Tobin's Q	The implied cost of capital is estimated by four models consistent with discounted dividend valuation but rely on different earnings-based representations (Claus and Thomas, 2001; Gebhardt, Lee and Swaminathan, 2001; Ohlson and Jeuttner-Nauroth, 2005, and modified price-earnings growth ratio model by Easton, 2004).	The date of IFRS adoption	• There is a significant decrease in the cost of capital for firms that are forced to adopt IFRS. • There is a significant increase in the market liquidity for mandatory adopters. • There is a corresponding increase in Tobin's Q with "possibility that these effects prior to the official IFRS adoption date".	2001-2005
Chan et al. (2009)	The accounting conservatism and the cost of equity capital	The cost of equity capital is estimated by the means of the Ohlson and Juettner-Nauroth model (Ohlson and Juettner-Nauroth, 2005)	A proxy for ex ante conservatism is the opening book-to-market ratio. A proxy for ex post conservatism is the incremental bad news slope coefficient of an augmented earnings-return regression model.	• The ex-ante conservatism is associated with higher quality of accounting information and leads to lower cost of equity capital. • The ex post conservatism is associated with lower quality of accounting information and leads to higher cost of equity capital.	UK 1987 - 1999

Karamanou and Nishiotis (2009)	Short-run and long-run returns and the voluntary adoption of international accounting standards	Abnormal return is estimated by cross-sectional model using local currency daily returns	The date of IAS adoption announcement (day 0) is taken into consideration (the OLS market model coefficients are estimated in a pre-announcement period from -150 to -26 and post-announcement period from -25 day to +150)	• Voluntary IAS adoption increases firm value and reduces cost of capital • There is a negative relation between disclosure and the cost of capital. • There is a strong positive abnormal return around the IAS adoption announcement and "economically significant reduction in long-run returns in the two-year period after announcement as compared to the two-year period before"	International 1989 - 2002
Armstrong et al (2010)	Information asymmetry and the cost of capital	The proxy for the cost of capital is the expected monthly returns estimated by three-factor model (Fama and French, 1993)	There are five measure of information asymmetry: market-based (the adverse selection component of bid-ask spread; and the bid-ask spread itself); accounting based (the ratio of annual research and development expense to sales and scaled accruals quality); and analyst coverage (represented by the number of sell-side analysts issuing one-year-ahead earnings-per-share forecasts for the firm during the year).	• Information asymmetry has a positive relation with the cost of capital in excess of standard risk factors and if markets are imperfect. • There is incremental influence of information asymmetry on the cost of capital when the degree of market competition is low, and no effect when the competition is high.	USA 1976 – 2005
Artiach and Clarkson, 2010	Accounting conservatism	PEG measure by Easton (2004)	Conservatism proxy: the ratio of non-operating accruals to total assets determined using the indirect method	• Negative relation between ex ate conservatism and CEC • The relation is weaker with lower information asymmetry	USA 1985-2000
Chen et al. (2010)	(2000)	1. portfolio-specific simultaneous of CEC and long-term growth based on realized earnings as expected earnings 2. firm-specific approaches	The event of Regulation Fair Disclosure by The Securities and Exchange Commission	• The cost of capital is significantly decreased in the post Regulation Fair Disclosure • The CEC reduction is significant for medium and large companies, but not for small	USA 1998-2002
Fernando et al. (2010)	Audit quality and CEC	PEG by Easton 2004	Audit it quality attributes as auditor size (as a member of BigX, auditor	• There is a negative relation between three audit quality attributes and CEC.	1990-2004

			industry specialization and auditor tenure	• The impact is limited to small companies	
Li (2010)	The cost of equity capital and mandatory adoption of IFRS	The cost of equity capital is estimated by the mean of four measures based on the industry ROE model (Gebhardt, 2001); the economy-wide growth model (Claus and Thomas, 2001); the unrestricted abnormal earnings growth model (Gode and Mohanram, 2003); and the restricted abnormal earnings growth model (Easton, 2004).	Pre- versus post-mandatory adoption periods were investigated with voluntary adopters as a control group	• The mandatory IFRS adoption reduces the cost of equity capital; however, the impact is significant only in countries with strong legal enforcement.	EU 1995-2006
Lopes and de Alencar (2010)	Disclosure and the cost of equity capital	The cost of equity capital estimated according to the Ohlson and Juetnner-Nauroth (2005) model based on the price-earnings growth ratio.	There is a score on the Brazilian Corporate Disclosure Index, which measure disclosure across several dimensions: "… (1) general information about the firm; its market, and major events over the last year; (2) relations to employees and managers regarding compensation and policies; (3) non-financial information about markets, sales, and products; (4) information about forecasts of sales, cash flows, and earnings; (5) discussion and analysis of financial data, including tie series information about performance and explanations of past behavior; and (60 other information".	• There is a significant negative association between disclosure and cost of equity capital. • The impact of disclosure is more significant for firms with less analyst coverage and dispersed ownership structure.	Brasilia 1998, 2000, 2002, 2004, 2005
McInnis (2010)	Earnings smoothness and implied cost of capital	Monthly stock returns COC estimates by Brav et al. (2005)	Earnings smoothness as the standard deviation of net income divided by the standard deviation of cash flows from operations	• There is no relation between stock returns and earnings smoothness • There is inverse relation between cost of capital and earning smoothness due to optimism in analysts' long-term	USA 1975-2001

					earnings forecasts.	
Rakow, 2010	Earnings forecast characteristics	PEG measure	Characteristics of earnings forecasts: specificity of the forecasts, information content, bad news, forecast horizon, loss/0/earnings prediction, pre-earnings announcements	• Pessimistic forecasts, forecasts with loss or less specific forecasts lead to higher CEC. • Forecasts with more information content or more timely forecasts lead to lower CEC.	USA 2006
Apergis et al. (2011)	Accounting information and the cost of capital	Fama's CAPM model	Earnings quality is represented by firm's report on its investment opportunities to the market	• There is a direct link between accounting information and the cost of capital, moreover, the quality of accounting information has real impact on capital allocation that governs firms' cost of capital.	Theoretical approach
Kim and Shi (2011)	Voluntary disclosure as management earnings forecasts	PEG ratio method by Easton (2004) model		• The disclosure of forecasts with bad news lead to higher costs of equity capital. • The forecasts with good news do not influence CEC	USA 2003-2005
Apergis et al. (2012)	Earnings quality and the cost of capital	The weighted average cost of capital	4 measure of earnings quality	• Accounting information directly effects the cost of capital • Earnings quality negative effect the firms' excess returns	USA 1990 – 2009
Barron et al (2012)	Information environment and CEC	PEG ratio (Easton 2004)	Information asymmetry, average information precision and precision of public and private information measured by modified BKLS (Barron et al,1998) approached by Sheng and Thevenot (2012)	• Information asymmetry is positively associated with cost of capital • There is a negative relation between CEC and public information precision • There is low positive influence of private information on CEC, but it	USA 1983-2010

				becomes negative with low level of public information	
Barth et al (2013)	Transparent earnings	The cost of capital is based on Fama –French and momentum factors	Disclosure proxy: the extent to which earnings and change in earnings covary contemporaneously with stock returns.	• Transparent earnings and cost of capital have significant negative relation	USA 1974 - 2000
Baginski and Rakow, 2012	Management earnings forecast disclosure policy	PEG ratio method by Easton (2004) model	Three dimensions of disclosure: forecast supplier, forecast frequency and forecast precision	• There is negative relation between the quality management earnings forecast policy and CEC • The relation is stronger for companies with higher disclosure costs and for companies with more relevant forecasts.	USA
He et al (2013_	Information asymmetry	Ex-ante cost of capital by 4 models	Information asymmetry proxy: bid-ask spread of a company	• There is significant positive relation between informational symmetry and CEC	Australia 2001-2008
Core et al, 2015	Mandatory disclosure and cost of capital	4 models	Disclosure requirements index by La Porta et al (2006) based on the international survey of security-law attorneys	• There is a negative relation between mandatory disclosure and CEC • Increased ownership reduces CEC	International 1990-2004

Corporate governance and cost of equity capital

Author	Analyzed relations	The cost of equity capital (or its elements) measurement	Internal factor measurement	Major findings	Sample: Region and time
Guedhami and Mishra, 2009	Excess control and CEC	Four models	The difference between the ultimate controlling shareholder's control rights and ownership rights	There is positive significant relation between excess control and CEC	International: 22 countries
Shah and Butt, 2009	Corporate governance quality	CAPM	Constructed corporate governance index	There is a negative relation between managerial ownership, board size and CEC There is a positive relation between, board independence, audit committee independence, corporate governance and CEC	Pakistan 2003-2007
Huang and Wu, 2010	Shareholder rights and CEC	Abnormal earning growth valuation model or OJ (2005) model	24 shareholder rights provisions by Gompers et al 2003	The poison pill and golden parachute increase the CEC Some shareholder rights restrictions as the presence of fair price provision decrease CEC	USA 1989-2005
Ly 2010	Investors relations and CEC	Information asymmetry component of CEC represented by bid-ask spread	The level of investors relation is measured by membership I Japanese Investor Relations Association	The increased level of investors relations lead to lower cost of equity capital via higher disclosure	Japan
Chen et al. (a), 2011	Shareholder rights	Four models: two residual income valuation models and two abnormal earnings growth valuation model (Claus and Thomas,	G-index by Gompers et al (2003)	Stronger shareholder rights reduce CEC The influence is significantly stronger for companies with more severe agency problems from FCFs	USA 1990-2004

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		2001; Gebhardt, lee, and Swaminathan, 2001; Easton, 2004; and Ohlson and Juettner-Nauroth, 2005)			
Chen et al (b) 2011	Audit quality	Ex-ante CEC by Gebhardt et al (2001) and the Peg ratio by Easton 2004	the proxy of audit quality is the frequency of modified audit reports	In non-state owned Chines enterprise the high quality auditors significantly reduce the cost of equity capital.	China 2001-2004
Collins and Huang (2011)	Management entrenchment	OJ method	The six factor entrenchment index by Bebchuk, Cohen and Ferrel (2009)	There is a significant positive relation between the degree of management entrenchment and CEC	1989-2002
Ramly, 2012	Corporate governance	Industry-adjusted earnings-price ratio, i.e. PE ratio	Corporate governance index (six categories)	The higher quality of corporate governance (with credible board monitoring and financial reporting, internal control system, and empowering shareholders) leads to lower cost of equity capital	Malaysia 2003-2007
Mazzotta and Veltri, 2014	Corporate governance	The Fama – French model	Corporate governance index (four board dimensions)	Corporate governance index is negatively correlated with CEC	Italy 2009
Tran, 2014	Corporate governance	PEG ratio	Financial information quality (score) Ownership structure (four binary variables) Board remuneration (two dimensions)	Higher level of financial transparency and bonus compensations lead to lower cost of equity capital Block ownership is negatively influence the CEC, when the block holders are other companies, managers or founding-family members	Germany 2006-2008

Non-financial social factors and cost of equity capital

Author	Analyzed relations	The cost of capital (or its elements) measurement	Internal factor measurement	Findings[14]	Sample
Richardson and Welker, 2001	Social disclosure and CEC			There is a positive significant relation between social disclosure and CEC	Canadian companies over the period 1990-1993
Singh et al, 2005	Product market advertising and CEC	Equity beta	The proxy for product market advertising is the log of advertising expenses.	There is a negative relation between product market advertising and CEC	USA 1998-2001
Sharfman and Fernando, 2008	Environmental risk management	CAPM	Environmental risk management index: TRI dataset and KLD social performance dataset	There is a negative relation between environmental risk management and cEC	USA 2001-2002
Ghoul et al, 2011	Corporate social responsibility	4 models: CT,2001 GLs, 2001 OJ, 2005 ES,2004	Corporate social responsibility index	Corporate social responsibility leads to lower CEC Investment in improving responsible employee relations, environmental policies, and product strategies reduces cost of equity capital.	North America 1992-2007
Choi, 2012	Corporate ethic	Reverse –engineered residual earnings model by Ohlson and Juettner –Nautoth (2005)	Corporate ethic commitment index	There is a negative relation between corporate ethic and CEC	Korea 2004-2007
Himme and Fischer, 2014	Customer satisfaction, brand value and corporate reputation	Stock market beta as a proxy of CEC	American Customer Satisfaction Index ratings as a proxy for customer satisfaction	Only high satisfaction ratings reduce the cost of equity capital	1991-2006
Dhaliwal et al ,2015	Corporate social responsibility disclosure and CEC	3 models: Gebhardt et al (2001). CT 2001 and Easton 2004	CSR reporting indicator (dummy)	There is a negative relation between Corporate social responsibility disclosure and CEC, where the association is stronger for stakeholder –oriented countries	1995-2007 31 countries
Feng et al, 2015	Corporate Social	4 models	CSR: Environmental	Greater Corporate Social Responsibility is	North America

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	Responsibility		performance, Social performance, Corporate governance performance	associated with lower cost of equity capital in North America and Europe But in Asia better CSR performance lead to higher cost of capital	Europe Asia 2002-2010
Lui et al, 2015	Disruptive information technology innovations		The disruptive technology for supply chain process innovation is measured by the usage of radio frequency identification	The adoption of radio frequency identification significantly reduces the CEC. Moreover, the influence is stronger for companies with stronger CEO incentive-based compensation and coercive pressure	USA
Ng and Rezaee, 2015	Economic sustainability performance	1. Industry adjusted earnings-price ratios 2. finite horizon expected return model by Gordon and Gordon (1997)	Economic sustainability performance that measures short-term and long-term profitability taking into consideration account investment for future growth	Economic sustainability disclosure negatively influences CEC, however only environmental performance and corporate governance contribute into relation.	1991-2013

Indexes of financial stability and their elements

Index of financial instability	Variables	Country
Monthly FSI by the Bank Credit Analyst	✓ Bank shares to the whole stock market ✓ Credit spreads ✓ The slope of the yield curve ✓ New issues of stock ✓ New issues of bonds ✓ Consumer confidence	*USA*
Liquidity, Credit and Volatility Index by JP Morgan	✓ The US Treasure curve error ✓ The 10-year US swap spread ✓ US high-yield spread ✓ JP Morgan's Emerging Markets Bond Index ✓ Foreign exchange volatility ✓ The Chicago Board of Exchange VIX equity volatility index ✓ JP Morgan Global Risk Appetite Index	USA
FSI by Bank of Canada	✓ Equity - return volatility for bank share prices ✓ A hybrid volatility-loss measure of interest rate ✓ The covered Canada U.S. 90-day treasury bill spread ✓ The bid-offer spread on 90-day Government of Canada treasury bills ✓ The inverted long-term yield curve on government bond ✓ Equity risk premium	Canada
Stress index by Swiss Central bank	Symptoms of stress n banking sector: ✓ a fall in the banks stock price index; ✓ and increase in the banks' bond yield spreads; ✓ a fall in interbank deposits; ✓ a decrease in the banks' profitability; ✓ a decrease in the banks' capital; ✓ an increase in the banks' provisioning rate; ✓ the share of total assets held by banks listed on the regulator's watch list; ✓ a decrease in the number of banks' branches	Switzerland
FSI by International Monetary Fund	Deposit takers: Core set ✓ Regulatory capital to risk-weighted assets; ✓ Regulatory Tier 1 capital to risk-weighted assets; ✓ Nonperforming loans (NPLs) net of provisions to capital; ✓ NPLs to total gross loans; ✓ Sectoral distribution of loans to total loans; ✓ Return on Assets; ✓ Return on Equity; ✓ Interest margin to gross income; ✓ Noninterest expenses to gross income; ✓ Liquid assets to total assets (liquid asset ratio); ✓ Liquid assets to short-term liabilities; ✓ Net open position in foreign exchange to capital; ✓ Capital to assets;	all countries

	✓ Solvency indicator;
	✓ Ne stable funding ratio;
	✓ Provisions to NPLs.
	
	Deposit takers: Additional set
	    ✓ Large exposures to capital;
	    ✓ Geographical distribution of loans to total loans;
	    ✓ Gross asset position in financial derivatives to capital;
	    ✓ Gross liability position in financial derivatives to capital;
	    ✓ Trading income to total income;
	    ✓ Personnel expenses to noninterest expenses;
	    ✓ Spread between reference lending and deposit rates;
	    ✓ Spread between highest and lowest interbank rate;
	    ✓ Customer deposits to total (non-interbank) loans;
	    ✓ Foreign-currency-denominated loans to total loans;
	    ✓ Foreign-currency-denominated liabilities to total liabilities;
	    ✓ Net open position in equities to capital;
	    ✓ Credit growth to private sector.
	
	Other financial corporations: Additional Set
	    ✓ Assets to total financial system assets;
	    ✓ Assets to GDP;
	    ✓ Capital adequacy Insurance Corporations (ICs);
	    ✓ Reinsurance issues ICs
	    ✓ Earnings and profitability ICs (ROE, ROA);
	    ✓ Liquidity ratio Pension Funds (PFs);
	    ✓ Earnings and profitability PFs;
	    ✓ Sectorial distribution of investments for MMFs
	    ✓ Maturity distributions of investment for MMFs
	
	Nonfinancial corporations: Additional set
	    ✓ Total debt to equity;
	    ✓ ROA
	    ✓ ROE
	    ✓ Earnings to interest and principal expenses;
	    ✓ Earnings to interest expenses;
	    ✓ Net foreign exchange exposure to equity;
	    ✓ Number of bankruptcy proceedings initiated;
	    ✓ Liquidity indicators;
	    ✓ NFC debt to GDP.
	
	Households: Additional Set
	    ✓ Household debt to GDP;
	    ✓ Household debt service and principal payments to income;
	    ✓ Household debt to household disposable income.
	
	Market liquidity: Additional Set
	    ✓ Average bid-ask spread in the securities market1;
	    ✓ Average daily turnover ratio in the securities market.
	
	Real Estate markets: Additional set
	    ✓ Average daily turnover ratio in the securities market;
	    ✓ Commercial real estate prices;	

	✓ Residential real estate loans to total loans; ✓ Commercial real estate loans to total loans.	
FSI by Balakrishnan et al., 2009	✓ Banking sector beta ✓ Stock market returns ✓ Stock market volatility ✓ Sovereign debt spreads ✓ Exchange rates depreciations and declines in international reserves	Emerging economies
Asian development bank macro-prudential indicators (MPIs)	67 commonly agreed indicators and 33 additional indicators Core set of leading MPIs: ✓ M1 growth ✓ M2 growth ✓ M3 growth ✓ Central bank credit to banking sector ✓ Domestic credit growth (percentage and percentage to GDP) ✓ Credit to private sector ✓ Net bank profits ✓ Total bank loans ✓ International borrowing with maturities one year or less ✓ Real estate loans ✓ Interbank rate ✓ Composite stock price index ✓ Market capitalization ✓ Stock price earnings ratio ✓ Real effective exchange rate ✓ International reserves ✓ Current business situation ✓ Stocks of finish products ✓ Employment ✓ Financial situation	Asia and Pacific

Macro prudential indicators (MPIs) by ECB	• Internal factors
	   ✓ Profitability (38 indicators represented income and cost developments and composition, efficiency, probability, income and costs as percentage of total asset), balance sheet quality (18 indicators represented balance sheet-coverage as share per the banking sector, asset and liability composition, off-balance sheet items) and capital adequacy (18 indicators represented capital adequacy, asset quality, provisions)
	   ✓ Demand and supply conditions (7 indicators represented interest receivable and interest payable, average margin and overall margin)
	   ✓ Risk concentrations (25 indicators represented credit growth and sectorial concentration, aggregate lending, aggregate new lending, lending to non-MFI private sectors, industry exposures; 18 indicators represented composition of other assets – aggregate fixed income securities holdings, aggregate equity holdings, aggregate balance sheet, currency and maturity structure of domestic lending, global credit exposure; 14 indicators represented liquidity risk, exposures of
		European Union

		EU-15 to new EU member countries, exposures towards merging and developing countries, market risk exposures)	
		✓ Market assessment of risks (8 indicators represented all bank share price index, yield spread, bank rating, distance to default of major EU banks)	
		• External factors	
		✓ Financial fragility (15 indicators represented total debt corporate sector, household total debt, household saving ratio, median expected default frequencies for key industries)	
		✓ Asset price developments (5 indicators represented stock indices, real estate prices)	
		✓ Cyclical and monetary conditions (10 indicators represented rate of growth of GDP and its components, developments in unemployment, interest rates, exchange rates, consumer price index)	
		• Contagion factors	
		✓ Interbank markets (3 indicators represented interbank liabilities, share of assets of 3 and 5 banks with the largest interbank exposures)	

Vážená paní, Vážený pane,

*dovoluji si požádat finančního ředitele (CFO) Vašeho podniku, případně jinou relevantní osobu z finančního úseku, o participaci na řešení výzkumného projektu „**Vliv externích a interních faktorů na náklady vlastního kapitálu podniku**", jehož cílem je zmapovat současnou podnikovou praxi v oblasti nákladů vlastního kapitálu, tj. zejména používaných metod jejich odhadu, a interních a externích faktorů ovlivňujících jejich výši. Výchozím nástrojem sběru dat je dotazník, o jehož vyplnění Vás tímto žádám.*

Vyplnění dotazníku by nemělo trvat vice než 15 minut. Zavazuji se, že data získaná v rámci řešení výzkumného projektu ve Vaší společnosti budou zpracována anonymně a využita výhradně za účelem naplnění výzkumných cílů. Žádný jiný způsob využití dat nepřichází v úvahu.

S výsledky výzkumu Vás seznámím prostřednictvím článků v relevantních vědeckých časopisech v průběhu roku 2015. Byla bych Vám zavázána, pakliže byste si našla/našel čas na vyplnění dotazníku. Příslušný dokument prosím vyplňte.

Za Vaši účast na řešení výzkumného projektu Vám předem děkuji.

S pozdravem

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Výzkum
Vliv externích a interních faktorů na náklady vlastního kapitálu podnik

I. Náklady vlastního kapitálu a přístupy k jejich odhadu

1. Jaký je podíl následujících složek kapitálu na celkových aktivech Vašeho podniku?

vlastní kapitál	
dlouhodobý cizí kapitál	
krátkodobý cizí kapitál	

2. Odhadujete náklady vlastního kapitálu?

Ano, v jakých situacích?	
Ne, z jakého důvodu?	
Někdy, v jakých situacích?	

3. Kterou metodu odhadu nákladů vlastního kapitálu Váš podnik používá?

Metoda	nikdy	občas	často	velmi často	vždy
CAPM					
Model arbitrážního oceňování					
Fama-French model se třemi faktory					
Multi-beta CAPM model					
Dividendový model					
Průměrná rentabilita vlastního kapitálu					
Jiný přistup: Jaký?					

Interní faktory ovlivňující náklady vlastního kapitálu

4. Vyjádřete míru souhlasu s níže uvedenými tvrzeními. Zohledněte, prosím, svoje osobní zkušenosti a poznatky z podnikové praxe.

Interní faktory	1 zcela nesouhlasím	2	3	4	5 – zcela souhlasím
S růstem velikosti podniku mají náklady na vlastní kapitál sklon klesat					
Velmi dobré finanční výsledky podniku indikují nižší náklady na vlastní kapitál					
Kapitálová struktura ovlivňuje náklady vlastního kapitálu – s růstem zadluženosti mají náklady vlastního kapitálu tendenci růst					
Vysoký podíl likvidních aktiv na podnikovém majetku náklady vlastního kapitálu snižuje					
Flexibilita při získávání externích zdrojů financování náklady vlastního kapitálu snižuje					
Stabilita podnikových zisků náklady vlastního kapitálu snižuje					
Schopnost plánovat finanční výsledky v delším časovém horizontu náklady vlastního kapitálu snižuje					
Vysoká kvalita externího auditu náklady vlastního kapitálu snižuje					
Vysoká transparentnost vykazování výsledků hospodaření náklady vlastního kapitálu snižuje					
Vysoká kvalita Corporate Governance náklady vlastního kapitálu snižuje					
Vlastnická struktura ovlivňuje náklady vlastního kapitálu					
Posílení akcionářských práv náklady vlastního kapitálu zvyšuje					
Dividendová politika ovlivňuje náklady kapitálu					
Vysoká ochrana investorů náklady vlastního kapitálu snižuje					
Větší nezávislost správní rady náklady vlastního kapitálu snižuje					
Struktura správní rady ovlivňuje náklady vlastního kapitálu					
Nižší míra informační asymetrie mezi managementem podniku a investory náklady vlastního kapitálu snižuje					
Etické faktory mají vliv na náklady vlastního kapitálu					
Jiné (jaké?) faktory ovlivňují náklady vlastního kapitálu					

Externí faktory ovlivňující náklady vlastního kapitálu

5. Jak ovlivňuje vývoj následujících externích faktorů náklady vlastního kapitálu a v jaké míře? Zohledněte, prosím, svoje osobní zkušenosti a poznatky z podnikové praxe.

Externí faktory	Klesnou výrazně	Klesnou středně	Klesnou nepatrně	Žádný efekt	Vzrostou nepatrně	Vzrostou středně	Vzrostou výrazně
Růst hrubého domácího produktu							
Růst míry nezaměstnanosti							
Zhodnocení (parcelace) domácí měny							
Růst přímých zahraničních investic							
Růst pravděpodobnosti platební neschopnosti státu							
Růst míry inflace (měřeno Consumer Price Index)							
Růst cen surovin (ropy)							
Růst peněžní zásoby							
Růst dlouhodobé úrokové sazby							
Růst krátkodobé úrokové sazby							
Růst státního dluhu							
Zlepšení investičního ratingu země							
Růst sazby korporátní daně							
Růst vládních výdajů							
Růst volatility akciového trhu							
Rozvoj finančního trhu							
Snižování bezrizikové úrokové sazby (tj. úročení státních dluhopisů)							
Růst požadavků na kapitálovou přiměřenost bank							
Likvidita bank							
Růst bankovních úvěrů směrem k nefinančnímu soukromému sektoru							
Růst pravděpodobnosti bankovních krachů							
Zvyšující se míra korupce							
Politická stabilita							
Jiné (jaké?) faktory ovlivňují náklady vlastního kapitálu							

6. Která z následujících *rizik* ovlivňují náklady vlastního kapitálu? Význam rizikové kategorie vyznačte na škále od 1 (žádný vliv) do 5 (maximální vliv). Zohledněte, prosím, svoje osobní zkušenosti a poznatky z podnikové praxe.

Rizika	1- žádný vliv	2	3	4	5 - max. vliv
Systematické (tržní) riziko; z toho:					
riziko změny úrokové sazby					
měnové riziko					
inflace					
riziko bankrotu státu					
korupce					
jiná forma systematického rizika (jaká?)					
Jedinečné riziko (riziko podniku/projektu); z toho:					
informační riziko (riziko informační asymetrie)					
morální hazard					
riziko obchodního partnera					
riziko likvidity					
riziko spojené s podnikovým vedením (managementem)					
riziko konkurence					
jiná forma jedinečného rizika (jaká?)					

7. Za jakých makroekonomických podmínek dosahují náklady vlastního kapitálu svého minima? Zohledněte, prosím, svoje osobní zkušenosti a poznatky z podnikové praxe.

Makroekonomické podmínky	1 - zcela nesouhlasím	2	3	4	5 – zcela souhlasím
Recese/deprese ekonomiky					
Stagnace ekonomiky					
Stabilizovaná ekonomika					
Expanze					
„Přehřátá" ekonomika					

8. Jaká je velikost Vašeho podniku?

◆ Velký   (> 250 zaměstnanců)

◆ Střední   (50 - 249 zaměstnanců)

◆ Malý   (10 - 49 zaměstnanců)

◆ Mikro   (< 10 zaměstnanců)

9. Obchoduje se na kapitálovém trhu s akciemi Vaší podniku?

◆ Ano

◆ Ne

10. Jaký je klíčový obor podnikání Vaší podniku?

◆ Zemědělství, lesnictví a rybářství
◆ Těžba a dobývání
◆ Zpracovatelský průmysl
◆ Výroba a rozvod elektřiny, plynu, tepla a klimatizovaného vzduchu
◆ Zásobování vodou; činnosti související odpadními vodami, odpady a sanacemi
◆ Stavebnictví
◆ Velkoobchod a maloobchod; opravy a údržba motorových vozidel
◆ Doprava a skladování
◆ Ubytování, stravování a pohostinství
◆ Informační a komunikační činnosti
◆ Peněžnictví a pojišťovnictví
◆ Činnosti v oblasti nemovitostí

◆ Profesní, vědecké a technické činnosti
◆ Administrativní a podpůrné činnosti
◆ Veřejná správa a obrana; povinné sociální zabezpečení
◆ Vzdělávání
◆ Zdravotní a sociální péče
◆ Ostatní činnosti

11. Jste exportujícím podnikem?

◆ **Ano**

◆ **Ne**

12. Komentář k dotazníkovému šetření:

Pěkně dekuji vám za Vaši spolupráci!

Spearman Correlation between Internal factors

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Size	Correlation Coefficient	1.000																	
2 Financial perfromance	Correlation Coefficient	.265	1.000																
	Sig. (2-tailed)	.200																	
3 Capital structure	Correlation Coefficient	.210	.235	1.000															
	Sig. (2-tailed)	.315	.259																
4 Liquidity	Correlation Coefficient	.050	.264	.205	1.000														
	Sig. (2-tailed)	.813	.203	.326															
5 Flexibility in internal financing	Correlation Coefficient	-.286	.556**	.031	.314	1.000													
	Sig. (2-tailed)	.166	.004	.885	.126														
6 Earnings smoothness	Correlation Coefficient	-.126	.386	.279	.153	.256	1.000												
	Sig. (2-tailed)	.548	.057	.176	.466	.218													
7 Financial planning	Correlation Coefficient	.107	.380	.138	.238	.191	.698**	1.000											
	Sig. (2-tailed)	.610	.061	.510	.251	.361	.000												
8 Audit quality	Correlation Coefficient	-.062	.349	.243	-.169	.168	.364	.230	1.000										
	Sig. (2-tailed)	.768	.087	.241	.421	.423	.074	.268											
9 Disclosure	Correlation Coefficient	-.004	.317	.061	-.177	.356	.455*	.341	.493*	1.000									
	Sig. (2-tailed)	.985	.123	.771	.399	.081	.022	.095	.012										
10 Corporate governance	Correlation Coefficient	.209	.368	.087	-.121	.305	.392	.313	.546**	.886**	1.000								
	Sig. (2-tailed)	.316	.070	.681	.565	.138	.053	.127	.005	.000									
11 Ownership structure	Correlation Coefficient	.081	-.177	.021	.061	-.178	.030	-.362	.017	.010	.119	1.000							
	Sig. (2-tailed)	.700	.398	.922	.771	.394	.885	.075	.935	.962	.571								
12 Shareholder rights	Correlation Coefficient	.153	.125	-.019	.183	.297	-.252	.043	-.033	.269	.369	.070	1.000						
	Sig. (2-tailed)	.467	.550	.928	.381	.150	.224	.837	.876	.194	.070	.741							
13 Dividend policy	Correlation Coefficient	.174	-.009	.048	.457*	.117	-.018	-.118	-.181	-.321	-.202	.521**	.103	1.000					
	Sig. (2-tailed)	.406	.967	.818	.022	.576	.933	.575	.385	.117	.332	.008	.623						
14 Investors' protection	Correlation Coefficient	-.159	.129	.130	.390	.218	.346	.059	.211	.226	.242	.316	-.116	.232	1.000				
	Sig. (2-tailed)	.447	.539	.534	.054	.296	.091	.780	.311	.277	.243	.124	.581	.265					
15 Board independence	Correlation Coefficient	0.000	.314	.435*	.188	.021	.188	.026	.382	-.091	-.061	.208	-.218	.047	.391	1.000			
	Sig. (2-tailed)	1.000	.145	.038	.391	.925	.390	.905	.072	.681	.781	.342	.317	.832	.065				
16 Board of directors' structure	Correlation Coefficient	.172	.510*	.485*	.252	.183	.355	.334	.400	.058	.111	.177	.103	.195	.264	.732**	1.000		
	Sig. (2-tailed)	.432	.013	.019	.246	.402	.096	.119	.059	.794	.615	.420	.641	.373	.223	.000			
17 Information assyemtry	Correlation Coefficient	-.175	.343	.355	.060	.335	.310	.049	.584**	.394	.248	.104	-.116	-.188	.173	.428*	.358	1.000	
	Sig. (2-tailed)	.402	.093	.082	.776	.102	.131	.816	.002	.051	.232	.622	.580	.368	.408	.041	.094		
18 Corporate ethics	Correlation Coefficient	.060	.001	-.082	-.341	-.233	-.144	-.029	.066	.228	.070	-.081	-.036	-.288	-.615**	-.109	-.191	.251	1.000
	Sig. (2-tailed)	.782	.997	.704	.103	.274	.502	.893	.761	.284	.745	.708	.868	.172	.001	.630	.395	.236	

Source: Author's composition

Spearman Correlation between External factors

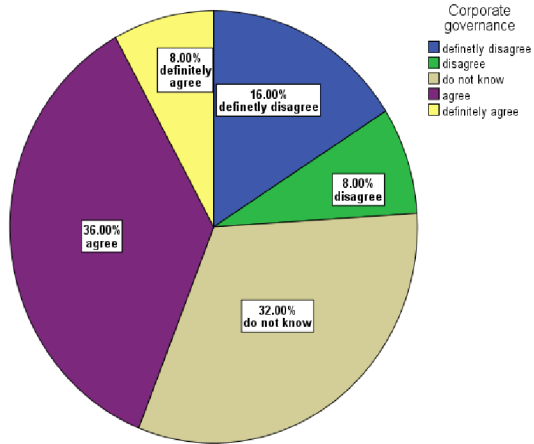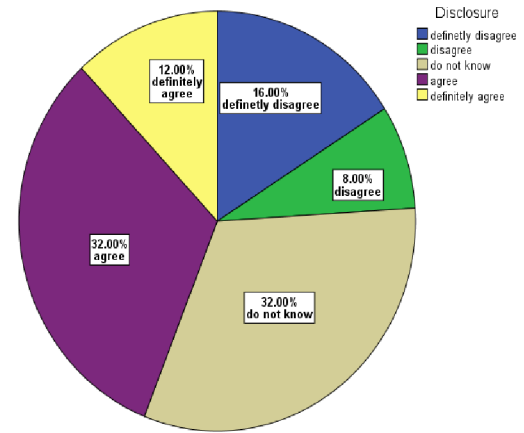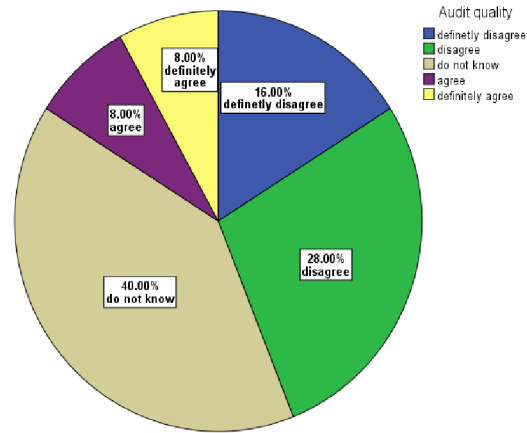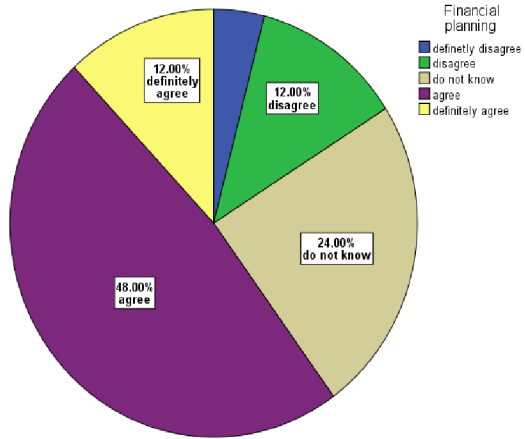|		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1 GDP	Correlation Coefficient	1.000																						
	Sig. (2-tailed)																							
2 Unemployement rate	Correlation Coefficient	.060	1.000																					
	Sig. (2-tailed)	.782																						
3 Apprecuation of domestic currency	Correlation Coefficient	-.008	-.025	1.000																				
	Sig. (2-tailed)	.971	.908																					
4 Foreign Direct Investment	Correlation Coefficient	.382	-.135	.085	1.000																			
	Sig. (2-tailed)	.065	.530	.693																				
5 Soverign default probability	Correlation Coefficient	.088	.099	-.042	-.010	1.000																		
	Sig. (2-tailed)	.682	.646	.845	.964																			
6 Inflation	Correlation Coefficient	.108	.230	-.086	.105	.243	1.000																	
	Sig. (2-tailed)	.615	.279	.691	.627	.253																		
7 Raw materials infaltion (oil)	Correlation Coefficient	.068	.406*	-.223	.085	.078	.264	1.000																
	Sig. (2-tailed)	.752	.049	.294	.694	.716	.212																	
8 Money supply	Correlation Coefficient	-.030	-.094	.051	.123	.085	.138	-.185	1.000															
	Sig. (2-tailed)	.889	.662	.814	.567	.694	.520	.387																
9 Long-term interest rate	Correlation Coefficient	.302	-.089	-.121	.290	.111	.133	.118	-.119	1.000														
	Sig. (2-tailed)	.151	.679	.573	.170	.606	.536	.583	.579															
10 Short-term interest rate	Correlation Coefficient	.067	-.459*	.288	.139	-.221	.156	-.165	.071	.568**	1.000													
	Sig. (2-tailed)	.755	.024	.173	.517	.299	.465	.440	.741	.004														
11 Sovereign debt	Correlation Coefficient	-.290	.282	-.038	.053	-.116	.018	.138	-.196	.357	.065	1.000												
	Sig. (2-tailed)	.170	.182	.861	.805	.589	.934	.521	.358	.087	.763													
12 Sovereign rating	Correlation Coefficient	-.279	-.645**	-.175	.080	-.234	-.383	-.185	.063	-.304	-.048	-.213	1.000											
	Sig. (2-tailed)	.186	.001	.413	.710	.271	.065	.386	.769	.148	.824	.318												
13 Corporate tax rate	Correlation Coefficient	.144	-.072	-.161	.398	.076	.068	.179	.166	.050	-.161	.091	.021	1.000										
	Sig. (2-tailed)	.501	.739	.451	.054	.723	.752	.403	.440	.817	.453	.672	.923											
14 Government expenditures	Correlation Coefficient	.131	-.262	-.112	.300	-.096	-.303	-.101	-.325	.273	.275	.133	.157	.110	1.000									
	Sig. (2-tailed)	.541	.216	.603	.155	.654	.151	.639	.121	.197	.193	.535	.465	.609										
15 Stock market volatility	Correlation Coefficient	.544**	-.002	-.247	.199	.499*	.001	-.302	-.111	.203	-.247	-.302	-.196	.106	.091	1.000								
	Sig. (2-tailed)	.006	.994	.245	.351	.013	.995	.152	.605	.341	.245	.151	.359	.621	.673									
16 Financial market development	Correlation Coefficient	.066	.094	.084	.525**	.017	.204	.321	.348	.221	-.036	.258	-.196	.344	.128	-.118	1.000							
	Sig. (2-tailed)	.758	.663	.697	.008	.938	.340	.127	.096	.300	.866	.224	.358	.100	.551	.582								
17 Risk free rate	Correlation Coefficient	-.131	-.216	-.012	.207	-.450*	-.435*	.140	-.058	-.391	-.244	-.038	.524**	.003	.184	-.194	.243	1.000						
	Sig. (2-tailed)	.541	.311	.957	.333	.027	.034	.514	.786	.059	.251	.859	.009	.988	.390	.364	.253							
18 Banks capital adequacy	Correlation Coefficient	-.605**	.046	-.056	-.065	.192	-.044	.303	-.032	.282	.153	.382	.047	.237	.189	-.311	.143	-.071	1.000					
	Sig. (2-tailed)	.002	.830	.794	.764	.369	.839	.150	.882	.182	.476	.065	.827	.264	.376	.139	.505	.741						
19 Banking system liquidity	Correlation Coefficient	-.444*	.132	.127	-.146	-.144	-.369	.113	.024	.130	.154	.292	-.014	-.028	.191	-.522**	.009	-.163	.585**	1.000				
	Sig. (2-tailed)	.030	.538	.554	.496	.501	.076	.599	.911	.546	.473	.167	.947	.898	.372	.009	.966	.447	.003					
20 Bank landing	Correlation Coefficient	-.237	-.354	.026	-.055	-.077	-.350	-.103	-.117	-.103	.083	.142	.167	-.012	.192	-.178	-.048	.168	.041	.297	1.000			
	Sig. (2-tailed)	.265	.090	.905	.798	.719	.093	.631	.587	.633	.699	.509	.435	.954	.368	.405	.823	.434	.851	.158				
21 Probability of banking system default	Correlation Coefficient	-.347	.129	.260	-.139	.211	-.020	.030	.068	.129	.182	.374	-.343	.324	.019	-.124	.071	-.270	.600**	.402	.360	1.000		
	Sig. (2-tailed)	.097	.548	.220	.518	.322	.927	.888	.753	.549	.395	.072	.101	.122	.929	.565	.743	.202	.002	.051	.084			
22 corruption	Correlation Coefficient	-.464*	.097	.012	-.255	.248	-.155	.106	.127	.168	.041	.390	-.189	.087	.173	-.139	.215	.076	.691**	.347	.128	.577**	1.000	
	Sig. (2-tailed)	.022	.651	.955	.230	.243	.469	.623	.554	.432	.851	.060	.376	.686	.419	.518	.312	.724	.000	.097	.550	.003		
23 Political stability	Correlation Coefficient	-.323	-.056	-.246	.116	-.336	.060	.095	-.003	-.050	-.246	.302	.243	.393	-.153	-.114	.264	.399	.261	-.093	.044	.056	.117	1.000
	Sig. (2-tailed)	.124	.797	.247	.588	.109	.782	.657	.987	.816	.247	.152	.253	.057	.476	.597	.213	.053	.218	.666	.838	.795	.586	

Source: Author's composition

Survey: Internal Factors

Size
- definitely disagree
- disagree
- do not know
- agree
- definitely agree

28.00% agree
28.00% disagree
44.00% do not know

Financial perfromance
- definitely disagree
- disagree
- do not know
- agree
- definitely agree

16.00% definitely agree
20.00% definetly disagree
20.00% agree
28.00% disagree
16.00% do not know

Capital structure
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

4.00% definetly disagree
24.00% definitely agree
24.00% disagree
24.00% agree
24.00% do not know

Liquidity
- definitely disagree
- disagree
- do not know
- agree
- definitely agree

12.00% definitely agree
20.00% disagree
28.00% agree
36.00% do not know

Flexibility in internal financing
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

4.00% definetly disagree
16.00% disagree
24.00% definitely agree
28.00% agree
28.00% do not know

Earnings smoothness
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

4.00% definetly disagree
20.00% definitely agree
20.00% disagree
32.00% agree
24.00% do not know

Financial planning
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

12.00% disagree
24.00% do not know
48.00% agree
12.00% definitely agree

Audit quality
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

16.00% definetly disagree
28.00% disagree
40.00% do not know
8.00% agree
8.00% definitely agree

Disclosure
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

16.00% definetly disagree
8.00% disagree
32.00% do not know
32.00% agree
12.00% definitely agree

Corporate governance
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

16.00% definetly disagree
8.00% disagree
32.00% do not know
36.00% agree
8.00% definitely agree

Ownership structure
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

12.00% disagree
8.00% do not know
28.00% agree
52.00% definitely agree

Shareholder rights
- definetly disagree
- disagree
- do not know
- agree
- definitely agree

8.00% definetly disagree
28.00% disagree
28.00% do not know
16.00% agree
20.00% definitely agree

Survey: External factors

GDP
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

12.50% Decrease significantly
12.50% Medium decrease
16.67% Decrease slightly
25.00% No impact
16.67% Increase slightly
16.67% Medium increase

2Unemployement rate
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

4.17% Increase slightly
12.50% Medium decrease
16.67% Decrease slightly
62.50% No impact

Appreciation of domestic currency
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

12.50% Decrease significantly
8.33% Medium decrease
8.33% Decrease slightly
33.33% No impact
16.67% Increase slightly
16.67% Medium increase

Foreign Direct Investment
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

4.17% Increase significantly
4.17% Medium increase
4.17% Increase slightly
8.33% Decrease significantly
12.50% Medium decrease
12.50% Decrease slightly
54.17% No impact

Soverign default probability
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

4.17% Medium decrease
20.83% Increase significantly
25.00% No impact
33.33% Medium increase
12.50% Increase slightly

Inflation
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

4.17% Decrease significantly
4.17% Decrease slightly
12.50% No impact
8.33% Increase significantly
41.67% Medium increase
29.17% Increase slightly

Raw materials infaltion (oil)

- 4.17% Decrease significantly
- 8.33% Decrease slightly
- 33.33% No impact
- 20.83% Increase slightly
- 25.00% Medium increase
- 8.33% Increase significantly

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

Money supply

- 8.33% Medium decrease
- 8.33% Medium increase
- 12.50% Increase slightly
- 25.00% Decrease slightly
- 45.83% No impact

Long-term interest rate

- 4.17% Medium decrease
- 8.33% Decrease slightly
- 16.67% Increase significantly
- 29.17% Increase slightly
- 41.67% Medium increase

Short-term interest rate

- 8.33% Decrease slightly
- 12.50% No impact
- 16.67% Increase significantly
- 29.17% Increase slightly
- 33.33% Medium increase

Sovereign debt

- 4.17% Medium increase
- 4.17% Medium decrease
- 25.00% Increase slightly
- 66.67% No impact

Sovereign rating

- 4.17% Decrease significantly
- 8.33% Medium increase
- 8.33% Increase slightly
- 25.00% No impact
- 25.00% Medium decrease
- 29.17% Decrease slightly

Corporate tax rate

- 4.17% Increase significantly
- 8.33% Medium decrease
- 8.33% Decrease slightly
- 25.00% Medium increase
- 12.50% Increase slightly
- 41.67% No impact

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

Government expenditures

- 4.17% Medium increase
- 20.83% Increase slightly
- 20.83% Decrease slightly
- 54.17% No impact

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

Stock market volatility

- 8.33% Increase significant
- 8.33% Medium decrease
- 12.50% Decrease slightly
- 25.00% Medium increase
- 4.17% Increase slightly
- 37.50% No impact

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

Financial market development

- 8.33% Medium increase
- 12.50% Medium decrease
- 12.50% Increase slightly
- 16.67% No impact
- 50.00% Decrease slightly

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

Risk free rate

- 8.33% Medium increase
- 8.33% Decrease significantly
- 4.17% Increase slightly
- 20.83% Medium decrease
- 25.00% No impact
- 33.33% Decrease slightly

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

Banks capital adequacy

- 12.50% Decrease slightly
- 20.83% Medium increase
- 20.83% Increase slightly
- 45.83% No impact

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

Banking system liquidity

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

16.67% Medium increase
20.83% Decrease slightly
16.67% Increase slightly
45.83% No impact

Bank landing

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

4.17% Increase significantly
29.17% Decrease slightly
20.83% Increase slightly
37.50% No impact

Probability of banking system default

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

8.33% Decrease slightly
20.83% Increase significantly
29.17% No impact
25.00% Medium increase
16.67% Increase slightly

corruption

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

8.33% Increase significantly
25.00% Medium increase
45.83% No impact
20.83% Increase slightly

Political stability

Legend:
- Decrease significantly
- Medium decrease
- Decrease slightly
- No impact
- Increase slightly
- Medium increase
- Increase significantly

16.67% Medium decrease
8.33% Decrease slightly
16.67% Medium increase
4.17% Increase slightly
50.00% No impact

Survey: States of economy

Recession

- Definitely disagree
- Disagree
- Neutral
- Agree
- Definitely agree

5.56% Definitely disagree
33.33% Disagree
11.11% Neutral
33.33% Agree
16.67% Definitely agree

Stagnation

- Definitely disagree
- Disagree
- Neutral
- Agree
- Definitely agree

11.11% Definitely disagree
11.11% Disagree
38.89% Neutral
33.33% Agree
5.56% Definitely agree

Stability

- Definitely disagree
- Disagree
- Neutral
- Agree
- Definitely agree

5.26% Definitely disagree
15.79% Disagree
47.37% Neutral
15.79% Agree
15.79% Definitely agree

Expansion

- Definitely disagree
- Disagree
- Neutral
- Agree
- Definitely agree

11.11% Definitely disagree
33.33% Disagree
16.67% Neutral
38.89% Agree

Over heated (boom)

- Definitely disagree
- Disagree
- Neutral
- Agree
- Definitely agree

27.78% Definitely disagree
16.67% Disagree
27.78% Neutral
16.67% Agree
11.11% Definitely agree

Biography

Education

Specialist Degree (Diploma)	2004-2009	Economics (Public finance)	Izhevsk State Technical University Russian Federation
Specialist Degree (Diploma)	2006-2009	Translation in professional sphere (English)	Izhevsk State Technical University Russian Federation
Secondary and high level degree	1994-2004	Secondary education	Lynguistic lyceoum N25, Russian Federation

Research stays

ISC Paris (September 2011 – January 2012)
Long-term study and research stay

WU University of Business and Management, Vienna (March 2013)
Short-term research stay

Employement

✓ 02.2015 - current
   Fabory Group/ Statistical analyst
Accomplishments:
- conduct analysis of financial and non-financila performance
- create, promote nad improve the pricing strategy of the Holding
- monitor and report the financial perfromance

✓ 01.2009 - 05.2009
   CSI / teacher of English
Accomplishments:
● create the teaching plan;
● teach students in groups and individually.

✓ 01.07.2008 - 31.07.2008
   Ministry of Economy, Department of Investment / Internship
Accomplishments:
● write diploma thesis based on the analysis of the investment projects

✓ 01.07.2006 - 31.07.2006
   Local Tax Office / Internship
Accomplishments:
● help with daily duties of the department
● assist in the documentation process

Publication list

MOKHOVA, N.; ZINECKER, M. Corporate Negative Equity: The Evidence from the European Union. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 2016, roč. 64, č. 3, s. 1021-1036. ISSN 1211-8516

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MOKHOVA, N. The internal factors influencing the cost of equity capital, Ekonomika a management, Muni press, 2010, s" 364-369

MOKHOVA, N. The correlation between the life cycle of the enterprise and the cost of capital, Mezinárodni doktorandký workshop, VUT FP v Brne, 2009, s"25-30