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MASTER THESIS

IFRS Adoption and Its Influence on Capital Markets in Transition Countries: The Case of Russia

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Declaration of Authorship

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Abstract

Capital markets' development is an integral part of overall economic growth of any country. Accounting harmonization is aimed to increase the attractiveness of capital markets by creation of synchronized financial reporting environment globally so that the capital is effectively allocated with the lowest costs and increased liquidity. To the date, more than a hundred of countries implemented IFRS into the national accounting frameworks, therefore the need for the assessment of the real impacts on capital markets is obvious.

The main goal of this study is to identify whether there is statistical evidence of the relationship between decreased/increased cost of equity capital among Russian listed companies and mandatory adoption of IFRS. Theoretical part includes an overview of the relevant theory, reasons of accounting harmonization as well as potential challenges. There are also described the main findings and real evidences of adoption impacts on the main capital and financial markets. Practical part of this paper is aimed to investigate whether the proposed benefits of IFRS adoption may be similarly observed in an environment of transition economy.

The research method employs panel data analysis and multiple linear regression models. As it was expected, the results are not consistent with the previous studies. All firms in the sample experienced increase in the cost of equity by almost 6,5% during the years 2007-2015. However there is not enough statistical evidence to prove the relationship between cost of equity and official IFRS adoption. The results are discussed in the conclusion part of the thesis.

JEL Classification: M41, M49, G3

Keywords: International Financial Reporting Standards (IFRS), capital markets, transition economy, cost of equity capital, Russia

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1. INTRODUCTION

"The mission of the IFRS Foundation and the IASB is to develop IFRS Standards that bring transparency, accountability and efficiency to capital markets around the world. This is important to everybody, as it fosters trust, growth and long-term stability in the global economy" (IASB-Hoogervorst speech, 2016). The main idea of the international set of standards, apart from the increased transparency, comparability and enhanced quality, is the creation and maintenance of synchronized financial reporting environment globally so that the capital can move freely or with the lowest costs and increased liquidity. The overall benefits of IFRS adoption has been discussed extensively during the last few years. To the date, more than a hundred of countries implemented IFRS into the national accounting frameworks (IASB, 2016), therefore the need for the assessment of the real impacts on capital markets is obvious.

In general, positive impacts of IFRS adoption may be mainly attributed to those companies that are oriented to outside financing. Those firms interested in raising capital from external investors and having strong reporting incentives should benefit the most. Improved financial reporting quality, enhanced transparency and comparability of financial reports, caused by IFRS adoption, are the underlying reasons for more effective functioning of capital markets, subsequently for more investments at lower costs with diversified risks. In other words, if investment decisions of existing and potential investors are made based on high quality, accurate, timely disclosed and reliable accounting information, then the capital should be allocated in a more efficient way. All of these factors eventually would contribute to the increased market liquidity and lower cost of equity capital for companies.

Moreover, according to the IASB mission (IASB, n.d.) and main objectives of international financial reporting, IFRS should improve transparency, accountability and efficiency of financial and capital markets. Therefore one may conclude that IFRS adoption would lead to harmonized financial reporting in the country. Whereas harmonized financial statements contribute to enhanced transparency and comparability, and, thus, more efficient functioning of the capital market and decreased cost of equity. Extant literature (Daske, Hail, Leuz, & Verdi, 2008)(Li, 2010)(Daske, Hail, Leuz, & Verdi, 2013) and empirical studies based on the analysis of countries such as EU member states, Australia or Canada are mostly consistent with the proposed statements and found

statistically significant positive impacts on capital markets. At the same time the significant portion of other researches had completely opposite results.

Previous literature also suggests that results may be opposite and the cost of capital may not change or even increase in certain cases. One may clearly observe the lack of consensus regarding real effects of adoption on transparency and comparability, and overall positive effects on worldwide capital markets (Brüggemann, Hitz, & Sellhorn, 2013)(Gatsios, Silva, Ambrozini, Assaf Neto, & Lima, 2016). There are several factors that should be accounted for in the analysis of the effects. Overall level of development of Russian capital market, business environment as well as level of IFRS enforcement and institutional infrastructure may affect the results to a large extent. Heterogeneity in conditions among different countries and respective issues in the institutional setting may reduce expected potential benefits of adoption of the standards. Therefore there might be an alternative outcome in the form of not changed or increased cost of equity capital.

Also, any improvements resulting from the adoption of international financial reporting set of standards may significantly depend on firms' reporting objectives and overall institutional framework (Wang, 2014; Daske et al., 2008; Barth, Landsman, & Lang, 2006, 2008). Therefore, an analysis of the impacts, which takes into account varied specifics of assessed country or region is crucial. Overall findings of previous studies are rather mixed and, therefore, it is still difficult to derive a clear conclusion regarding IFRS adoption economic effects. Moreover the research findings in this paper may not be consistent with the previous studies, such as an analysis of the effects on EU market. Russia started to mandatory require the use of IFRS in 2012 and therefore it is vital to consider other macroeconomic factors such as financial crisis, significant changes in oil prices, current economy recession and even sanctions, which could significantly influence local capital market and, thus, contribute to the distortion of research results. Also, in general Russian capital market is perceived as less developed than majority of the EU countries and differences in accounting practices are significant.

Currently, it may seem that countries such as Russia, Kazakhstan, Belarus and others in this region, do not differ significantly from the western world in terms of democracy, legal systems, type of economy and overall institutional structure. The progress towards democracy, better functioning of market economy, enhanced corporate governance and transparency of institutional infrastructure has been made over the last

decades. However, there is still room for improvement, Russia's latest ranking in the global competitiveness report published by the World Economic Forum is on 43rd place out of 138 (Schwab, 2016). Ranking in *institutions* sector was 88, indicating weak auditing and reporting standards. The country was claimed to have high level of corruption, not so efficient institutional setting and legal framework.

Furthermore, different economy formation, cultural aspects, economic conditions and historical practices significantly affected accounting framework in this region. Previously the country had communist system and planned economy, what identified government, tax authorities and regulatory bodies as the main users of accounting information, rather than third parties outside, such as creditors and investors. All of the above-mentioned factors, including not so strong enforcement mechanisms and wide usage of local accounting standards may diminish the expected benefits. That is why one should be interested in the Russian experience of IFRS adoption.

The content of the thesis consists of the critical analysis of still ongoing process of financial reporting harmonization and implementation of international accounting standards or IFRSs and its influence on developed and emerging capital markets. Comparison of the reporting processes under IFRS and local GAAP, overview of the possible intended and unintended consequences and impacts resulted from the implementation of IFRS.

The objective of my master thesis is to explore the relationship of IFRS adoption and its impacts on the capital market in big, yet transition economy. In particular, there will be analyzed the Russian case of the use of international financial reporting standards by local listed firms in their consolidated reporting. An analysis will be focused on the impacts on the cost of equity capital among Russian listed firms caused by the adoption. The contribution of this paper to the previous researches and overall literature is added by addressing particular case of the economy in the post-communist area. Furthermore, mandatory application of IFRS for preparation of consolidated financial statements started in 2012 (IASB - Jurisdictional Profile, 2016), what makes the research relatively new and relevant to the up-to-date research on the Russian capital markets.

In addition in general there are few studies investigating impacts of IFRS adoption on the firm level in transition economies. Furthermore the relevance of this analysis will be improved by the original dataset of mandatory and voluntary IFRS-adopters during the

period of 2007-2015. Also the results of this research will be relevant not only to Russian capital market, but also to other post-soviet countries, currently forming the CIS, due to similar characteristics of accounting systems and relatively same level of economic development. Finally an empirical part of this paper would allow those interested in the topic to compare the results to the previous studies and realize if there are any inconsistencies between the regions.

The thesis is divided into the theoretical and practical part. The second chapter describes the process of accounting harmonization through the adoption of IFRS and briefly discusses the main national accounting differences and different accounting frameworks. It also explains the main reasons for IFRS implementation and potential challenges that might occur. In the end of the chapter the reader may find the general overview of current situation on application around the world. The third chapter is aimed to provide the relevant literature overview as well as existing empirical evidences of IFRS adoption impacts, such as improved transparency, comparability, reporting quality and capital market indicators. The practical part of this master thesis may be found in chapter four. It consists of the country's profile and detailed methodology used in the research. It further describes the main hypothesis; the development of research models, performed tests and results. In order to test the hypothesis there was used the panel data analysis and linear regression models. Finally the results and conclusions are summarized in the end of the empirical part of the study.

2. ACCOUNTING HARMONIZATION THROUGH THE ADOPTION OF IFRS

2.1 The Development of International Accounting Standards

The crisis of 1929 in global stock markets, which gave rise to a long-term economic crisis in the industrialized countries and regions, revealed the failure of applied accounting and financial reporting system (Riahi-Belkaoui, 2004). Conceptual basis of preparation of financial statements in different countries and even in different companies in one country differed significantly. Statements of different companies were not always understandable for users. It turns out to be non-comparable, unsuitable for serious business analysis, lead to erroneous and ambiguous conclusions about the results of operations and financial position of the companies.

In the early 1930s United States began to develop a system of national recognized standards of accounting and reporting, which were voluntarily applied by large companies on stock exchanges. On this basis, over time, a system of US GAAP has developed. US Securities and Exchange Commission[1], which has an authority power over accountancy in United States, requires the use of GAAP by all the major companies within the listing on US stock exchanges.

Recognized national accounting standards (GAAP), which originated in the United States, have proliferated in Canada, UK, Russia, Japan and other countries. GAAP in each of these countries had their own characteristics, but all provided a certain unity and stability of approaches to accounting and financial reporting. By the end of the twentieth century most of the countries had their own national set of standards and the next stop was the process of their harmonization[2] and unification.

One may say that worldwide internationalization of businesses and respective integration processes forced in some way the national accounting standards to harmonize. It was perceived that the processes of integration in the world economies, the globalization of financial markets and technological improvements have revealed the problem of incompatibility of financial information about companies whose activities are not limited to one country. The conceptual principles of financial reporting in different countries differed significantly from one another. It was realized that financial reports,

[1] US Securities and Exchange Commission – an independent regulatory body in United States dealing with financial markets and investors' protection matters.

[2] Harmonization in this context is meant as the process of reduction of accounting differences worldwide

compiled according to different rules, tend to hinder the conduct of a serious business analysis and can lead to erroneous and ambiguous conclusions about the results of operations and the financial situations of companies. Therefore, an indispensable condition for transparency of financial statements is their compilation according to a unified accounting methodology. Thus, the growth of business activity is impossible without the unification of accounting. Along with the globalization of business comes globalization of the language of business: accounting (Godfrey and Chalmers, 2007).

2.1.1 IFRS and IASB introduction

The development of international set of standards started with the formation of International Accounting Standards Committee in 1970s, the predecessor of International Accounting Standards Board, to which IASC was restructured in 2001, with the purpose of providing countries with substantial and high-quality accounting standards. Currently the absolute majority of countries in the world are presented in this organization. The board is designed in such a way that would represent different stakeholders in different countries. Moreover, "the IASB works in close cooperation with stakeholders around the world, including investors, national standard-setters, regulators, auditors, academics, and others who have an interest in the development of high-quality global standards" (Bohusova, 2014).

It comprises national regulators and standard-setters, financial markets' participants and other accountancy concerned committees and organizations all over the world. Members of the body are appointed through the open and rigorous selecting process. The structure of IASB consist of:

- *Monitoring Board*, which oversees "capital market authorities responsible for the form and content of financial reporting and IFRS foundation;
- *IFRS Foundation* with 21 individual trustees, who appoint oversee, review effectiveness and funding;
- *Board* – set technical agenda, approve standards, exposure drafts and interpretations (*IFRS in your pocket 2014*, 2014, p. 7).

Below one may see the structure including IFRS Interpretations Committee and Advisory Council (*Figure 1):*

Figure 1: The structure of IASB

Source : IASB websites

IFRS may be called as an ever-improving system of principles, according to which financial reporting should be prepared. The main idea of the international set of standards apart from the increased transparency, comparability and enhanced quality is the creation and maintenance of synchronized financial reporting environment globally so that the capital can move freely or with the lowest costs and increased liquidity. Concerning the application and nature of standards, "IFRSs are intended to be applied by profit-oriented entities. These entities' financial statements give information about performance, position and cash flow that is useful to a range of users in making financial decisions. These users include shareholders, creditors, employees and the general public. A complete set od financial statements includes a balance sheet, statement of comprehensive income, cash flow statement, statement of changes in equity, description of accounting policies and notes" (PWC, 2016). As of January 2016 there are currently 41 IASs and 16 IFRSs and interpretations issued and available for the use (IASB, 2016). It is also necessary to point out that some of the IASs are not effective anymore, these are for example IAS 3 to IAS 6, IAS 9, IAS 13 to IAS 15 and so on.

IASB states its mission as: "To develop IFRS Standards that bring transparency, accountability and efficiency to financial markets around the world. Our work serves the public interest by fostering trust, growth and long-term financial stability in the global economy.

- *IFRS Standards bring **transparency** by enhancing the international comparability and quality of financial information, enabling investors and other market participants to make informed economic decisions.*

- *IFRS Standards strengthen **accountability** by reducing the information gap between the providers of capital and the people to whom they have entrusted their money. Our Standards provide information that is needed to hold management to account. As a source of globally comparable information, IFRS Standards are also of vital importance to regulators around the world.*
- *IFRS Standards contribute to economic **efficiency** by helping investors to identify opportunities and risks across the world, thus improving capital allocation. For businesses, the use of a single, trusted accounting language lowers the cost of capital and reduces international reporting costs."* (IASB, n.d.)

In other words IASB focuses on the achievement of the following objectives: development in the public interest of a single set of high-quality, understandable and applicable global accounting standards that require the presentation of high-quality, transparent and comparable information in the accounting balance sheets and other financial statements that can help participants of international capital markets and other users to make economic decisions; promotion of the use and the strict implementation of these standard as well as achievement of maximum possible convergence of national and international accounting and reporting standards.

The IASB functions through the financial support from professional accounting and other organizations within the Board, the International Federation of Accountants (IFAC), and contributions from companies, financial institutions and accounting firms and other organizations. In addition, the IASB receives income from the sale of its publications. (IASB, 2015).

Many well-known leading organizations in the field of accounting and financial reporting, including the International Accounting Standards Board (IASB), the International Federation of Accountants (IFAC), the European Federation of Accountants (or Accountancy Europe since 2016), the US Financial Accounting Standards Board (FASB), the International Organization of Securities Commissions (IOSCO), have determined their positions on the development of international accounting standards. These organizations, expressing different views on specific mechanisms for the transition to international standards, definitely agree on one thing – a single set of international accounting standards is necessary; its absence may lead to disorientation of investors followed by unfavorable decisions, especially in countries with emerging markets. The problems of preparation and disclosure of financial information are extremely important, since the transparency and attractiveness of the capital markets depends to a large extent on their solution.

It is quite obvious that accounting standards harmonization has been one of the most complex and highly demanded topics of debates among international corporations, accounting firms and professionals, governments and regulators and other market participants in the world. As it was mentioned before international accounting standards are used for reporting and preparation of financial statements, including balance sheet, income statement, statement of changes in equity, statement of cash flows, explanations, as well as other reports and explanatory materials. (*IFRS in your pocket 2014*, 2014, p.58).

The process of globalization of economic relations that may be observed during the last 50 years objectively calls for a need for unification of norms and rules of accounting or, in other words, standardization of accounting. The complexity and novelty of the problems faced by various countries and individual market participants in the process of globalization evidently raises requirements for the regulatory framework governing the activities of companies and financial institutions. Among the serious problems arising from the globalization of financial markets is the incompatibility of financial information about companies that raise funds in the capital markets. In this connection, the development and adequate application of accounting and reporting standards, corresponding to international ones, becomes an urgent task.

It was claimed that harmonization of accounting standards would help the world economy in the following ways: by facilitating international transactions and minimizing exchange costs by providing increasingly "perfect" information; by standardizing information to world-wide economic policy-makers; by improving financial markets information; and by improving government accountability" (Shil, Das, & Pramanik, 2009).

One of the most significant and controversial recent trends in business is the commitment of countries to work towards adopting international accounting standards (Godfrey et al., 2007). During the first decade of the twenty first century many countries including European Union member states announced their adoption of International Financial Reporting Standards (IFRS) for the companies' financial reporting for the first time. It is obvious that globalization trends, increased economies of scale and technology advances had certain effects on the way of financial reporting. Godfrey et al (2007) stated in their book that, accounting standards globalization significantly changes the reported

earnings and the reported financial position of many firms and public sector entities. Accountants, managers, shareholders, politicians and financial statement users will all grapple with the consequences of the globalization movement in terms of potential effects on capital market, product pricing, wealth distribution and labor markets.

2.2. Main National Accounting Differences

Considerable diversity exists across countries with respect to the form and content of individual financial statements, the rules used to measure assets and liabilities and recognize and measure revenues and expenses, and the magnitude and nature of the disclosures provided in a set of financial statements (Doupnik & Perera, 2012). Various accounting frameworks used by different countries requiring inconsistent treatment and presentation of the same underlying economic transactions creates confusion for users of financial statements. This confusion leads to inefficiency in capital markets across the world (Gupta, 2012). The chairman of US SEC at the conference in 2002 stated: "High quality global accounting standards are needed to improve the ability of investors to make informed financial decisions. Companies must keep pace with this progress in order to promote and protect their business credibility in the international market place" (Shil et al., 2009). In other words international set of accounting standards may contribute to more valuable, well-informed and highly likely more efficient investments decision and therefore lead to better-allocated resources.

There may be situations when the variety or the diversity of accounting methods would result in dissimilar results and cause critical implications related to financial information disclosure. As an illustration of that there will be mentioned some of the most common and significant differences (mainly attributable to IFRS and US GAAP):

- For instance, when accounting for ***goodwill***, there used to be different approaches of its subsequent measurement. There were differences between the countries in the form of duration of periods of amortization of goodwill, or amortization was not allowed and instead it was required to perform annual impairment tests, as it is currently required under IFRS or US GAAP.
- One of the further possible examples refers to the subsequent measurement of ***PPE***[3], where the cost model (historical cost less accumulated depreciation and impairment loss) or revaluation model (reflecting the fair value) may be

[3] PPE – Property, Plant & Equipment, non-current tangible assets

used. According to the latter fixed assets may be revalued both upwards and downwards and respective surpluses are charged to the account in equity.

- Moreover US GAAP for example does not allow revaluation of assets to fair value and reversal of impairments, while it is acceptable under IFRS.
- Also there do still exist differences in ***inventory*** costing methods between IFRS and standards in USA. As a result of the use of different accounting methods such as FIFO (first-in first-out) and LIFO (last-in last-out) one would be able to manipulate with COGS and EBIT, and eventually cause an impact on tax obligations of the company (PWC, 2016).
- ***Revenue recognition.*** "Under US GAAP, revenue recognition is based on fixed or determinable pricing criterion, which results in contingent amounts generally not being recorded as revenue until the contingency is resolved" (PWC, 2016). In contrast, generally speaking under IFRS the revenue may be recognized earlier, if it is possible to reliably measure it. Nevertheless, the process of convergence is still ongoing and a new standard was approved, "Revenue from Contracts with Customers" applicable both IFRS and US GAAP from next year
- Other areas such as financial instruments, pension plans, leases or business combinations
- General format, terminology, level of details and disclosure of financial statements

Thus differing national accounting methods of initial recognition and subsequent measurements used for the similar transactions and items are highly likely to decrease the level of comparability of financial statements and produce contradicting results. Whereas it is supposed that the application of international standards is improving investors' assessment and comparison of companies' financial statements globally.

2.3 Reasons For International Set of Financial Reporting Standards and Potential Improvements

Enhanced comparability and transparency

Attempts to reduce differences in national accounting systems may be explained by various reasons. First of all I would like to mention that international accounting standards would help with meeting the needs of investors and various financial analysts.

Differences in the accounting and financial reporting practices can be one of the obstacles to the movements of cross-border investments into the national economies. Comparability of financial information is perceived as one of the greatest advantages in the process of decision-making regarding investments into foreign companies.

During the last decades there was a significant increase in the volume of cross-border investments and the number stock funds in general. "In 2003 alone, US investors bought and sold nearly $3 trillion worth of foreign stocks while foreign investors traded over $6 trillion in US equity securities" (Doupnik & Perera, 2012). Therefore investors and analysts around the world would have to compare financial data prepared under different sets of standards, if they decide to invest into the shares of foreign entity. This comparison and translation of financial statements in its turn would lead higher costs for the users. In certain cases it would require professional expertise in the area of national accounting methods and become rather complicated and even impossible for ordinary investors. At the same time it may also reduce the costs for companies. It will not be necessary to prepare several sets of financial information, in case they want to satisfy the international base of their investors.

An extreme example of incomparable financial information in the past would be the accounting in former communist countries, where the main distinctive factor was that the main user of the financial reports was the government, rather than investors and creditors (Doupnik & Perera, 2012). Such a difference made financial reports of these companies incomparable with reports of companies in capitalist countries.

Thus reporting under international standards would result in financial reports of companies from different countries that are consistent and easier to compare. It eventually would contribute to well-informed investment decisions. It is also claimed that IFRS contribute to the improved transparency and increased confidence of investors into the financial statements.

In general previous literature motivated the adoption of IFRS by the assumption that "increasing comparability and transparency of financial information and making accounting information more easily understood world-wide have far-reaching consequences where foreign activities are concerned" (Márquez-Ramos, 2011).

Better-informed cross-border investment decisions

Global IFRS adoption moves foreign stocks into the choice set of investors by replacing unfamiliar country-specific accounting rules with one single set of standards that investors can familiarize themselves with at lower cost (Brüggemann, Daske, Homburg, & Pope, 2012).

Along with the process of globalization, the awareness of investors in capital markets has increased manifold and the size of investors is multiplying. The need for harmonization of accounting standards has been strongly advocated globally in order to faster the economic decision-making process…Accounting has already bagged the status of the "language of the business" that requires reporting of the affairs in a commonly understandable way (Shil et al., 2009). It was assumed that the existence of internationally acceptable financial reporting standards would be able to provide investors operating in the capital markets with comparable financial information about the companies or the issuers of securities. Moreover standardization of financial reporting on an international scale would allow achieving information compatibility and comparability of economic entities in different countries. SEC[4] stated in its concept release: "The only way to achieve fair, liquid and efficient capital markets worldwide is by providing investors with information that is comparable, transparent and reliable" (SEC, 2000).

It was argued also by many researchers that "standards reduce information costs to an economy, particularly as capital flows and trade become more globalized: it is cheaper for capital market participants to become familiar with one set of global standards than with several local standards" (Leuz, 2003; Barth et al., 2008; Ramanna & Sletten, 2009). This statement relates to the information asymmetry between investors or other users, which arise when market participants are not in the "equal positions". Thus asymmetry leads to higher costs for the users. It is assumed that international standards contribute to higher transparency of financial statements and decreased information costs.

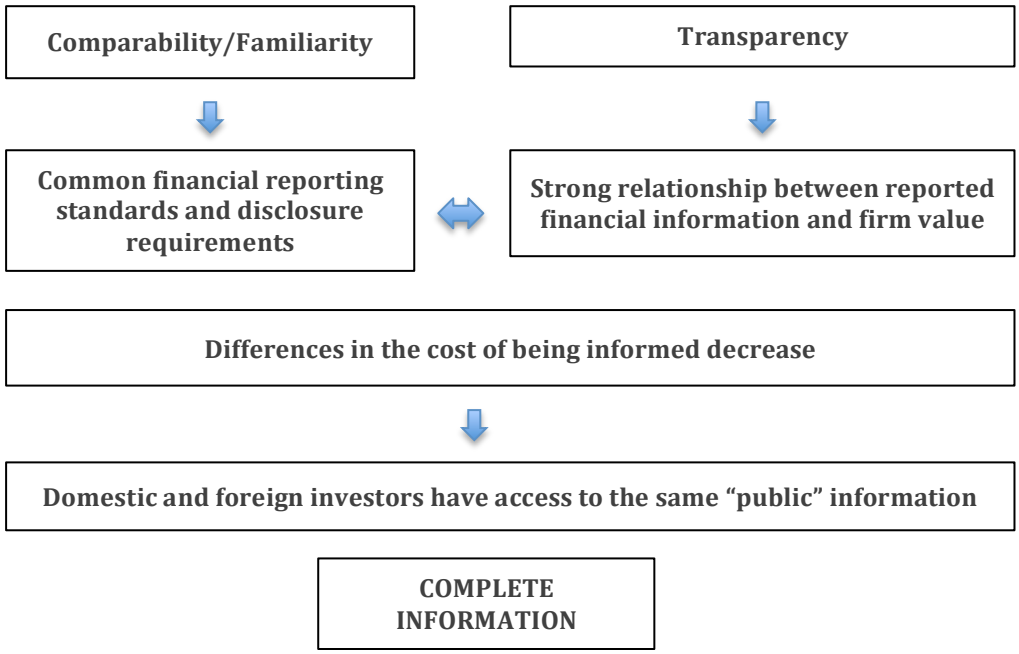
It was also expected by investors across the countries that "application of IFRS would result in higher quality financial reporting relative to application of domestic standards, thereby enhancing financial reporting transparency, and reducing information asymmetry and information risk and, thus, lowering cost of capital (Armstrong, Barth, Jagolinzer, & Riedl, 2010). The proponents also suggest that IFRS not only enhance

[4] Securities and Exchange Commission in the USA

comparability and credibility of financial statements, but also reduce uncertainty and information asymmetry (Zaidi & Paz, 2015). Thus, one of the crucial arguments in favor of IFRSs was the assumption that international standards would result in better investments decisions in the form of easier cross-border investments with lower cost of capital and greater liquidity. Moreover a country with high quality accounting system is highly likely to be more preferred by investors, and thus attract more capital and contribute to the economy growth (Soderstrom & Sun, 2007).

The Figure 2 below illustrate and explain the importance of transparency and comparability for investors' decision, especially cross-border, and for overall reduction of information asymmetry and respective costs incurring in the process of analyzing of companies. Improved transparency and comparability eventually let local and foreign investors allocate capital more effectively and under equal conditions concerning financial reporting.

Figure 2: The scheme for improved comparability and transparency of financial statements



Source: *International Accounting,* (Doupnik & Perera, 2012)

Expectations of investors and other stakeholders or the potential users of reported financial statements are also very important in overall reasoning of IFRS implementation around the world. The following are the main findings described in the paper written by Armstrong et al. (2010), who analyzed reactions of the market caused by the 16 adoption

related events, such as European regulation requiring all listed companies to apply IFRS in 2005, supporting recommendations from ECOFIN, EFRAG or ARC and events announcing endorsement of particular standards (IAS 39). Subsequently they came to a conclusion that in general expectations of investors are positively related with the adoption or the likelihood of adoption. Investors expect decrease in information asymmetry and increase in information quality, especially in countries with low pre-adoption information quality. Also they perceive Code Law countries as countries with weak enforcement mechanisms and reporting incentives, and as a result expect negative impacts on the market (Armstrong et al., 2010).

Foreign/International capital markets

Next quite important reason would be the improved ability of companies to raise capital in foreign markets. Companies from the countries with rather weak equity markets and that are willing to expand internationally would definitely try to raise the required capital abroad. In order to have their shares traded in the greatest capital markets it may be reasonable for them to register in largest stock exchanges such as New York Stock Exchange, London Stock Exchange or even Euronext. It means that the company will be asked to prepare their financial reports using accounting standards of the country where the capital is obtained (Doupnik & Perera, 2012). It also would lead to increased costs for the firms. "In preparing for a New York Stock Exchange (NYSE) listing in 1993, the German automaker Daimler-Benz estimated it spent $60 million to initially prepare US GAAP financial statements; it is expected to spend $15 million to $20 million each year thereafter" (Doupnik & Perera, 2012).

It is worth mentioning that in 2008 SEC announced that it would no longer require providing reconciliations with US GAAP from the foreign companies reporting under IFRS and registered in US stock exchanges. "The Commission adopted rules that allow foreign private issuers to make filings with the Commission using financial statements prepared in accordance with IFRS, as issued by the IASB, and without reconciliation to U.S. GAAP" (SEC, 2010, p. 6). The decision contributed to the elimination of reconciliation costs for many firms. Nevertheless this change in law does not relate to the companies reporting under the standards other than IFRS.

Multinational corporations

The adoption of IFRS can be very advantageous for the companies considering listing their shares in foreign markets to gain equity at a lower cost. This is because high quality, transparent standard, accompanied by converging corporate governance standards, can cease added costs of compliance with different jurisdictions (Tóth & Darabos, 2016). That is extremely relevant to the multinational corporations that are used to have the requirements to prepare consolidated financial reports, have operations in several countries or listed on two or more foreign stock exchanges. Let's take as an example the German automobile company Volkswagen group, which consists of 12 brands and operates in the majority European countries and further 11 countries in Asia, Africa and Americas (Volkswagen AG Annual Report, 2016). Thus, before the implementation of IFR, its subsidiaries, apart from the currency translations, had to report under the local accounting rules and provide reconciliations to the standards used by the parent company, in our case German GAAP. Such practices tended to incur higher costs and require technical expertise in the form of the knowledge of several national accounting standards.

In many cases subsidiaries, partner companies and other controlled entities operating in several countries may be required to adhere the national accounting principles and follow the local reporting rules. Therefore the preparation of consolidated financial statements and respective reconciliations would become more complicated with the existence of different national accounting systems and standards. This kind of problems is possible to resolve with the introduction of IFRS, international reporting basis would contribute to the decrease in the reporting costs for the companies operating in several countries and obtaining most of their revenues abroad.

In addition to that Doupnik and Perrera (2012) summarize that among the advantages of the use international standards for multinational corporations would be:

- Cheaper preparation of the consolidated reports
- Higher mobility of the accounting personnel across the different countries
- Improved analysis and overall M&A activity
- And finally more straightforward comparison with the core foreign competitors.

Sharing of knowledge

The next argument in favor of international use of IFRS would be the sharing of accounting knowledge. One of the benefits of unification of accounting systems is the possibility to use more widely in national markets accountants from different countries. It relates to the preparation, consolidation and audit of financial statements of companies from different countries by international accounting and auditing firms. In addition, accounting professionals can provide significant assistance in the process of development of national standards in developing countries, while using internationally recognized approaches.

Cost of statutory reporting

The use of internationally recognized set of standards may also be beneficial in terms of the costs of financial reporting for the firms. IFRS would be able to reduce cost of statutory reporting since all training programs for personnel would be in accordance with the standardized single set of standards.

Alternative to other commonly GAAPs

Also the international accounting standards may serve as an alternative to the potential dominant position other widely accepted sets of standards. For example this may be the case of United States. One may claim that influential economic position of American MNCs may require the use of US GAAP as a global accounting language. However, differences in the cultural environment lead to different requirements for the accounting system. In addition, American standards cannot take into account the specific functioning of national economies of other countries.

US stock markets accounts for approximately 40% of the total market capitalization with over $30 trillion (World Bank, 2017). Therefore US GAAP plays an important role in the development of international accounting standards. Moreover an ongoing process of convergence of two sets standards IFRS and US GAAP, which was agreed and signed by FASB and IASB in the beginning of twenty first century order to eliminate the differences and aggregate the practices from both set of standards

Market efficiency

"Some scholars have argued that international harmonization in accounting can improve capital-market efficiency: a common set of international accounting standards can reduce the information processing and auditing costs to market participants" (Ramanna & Sletten, 2009). Inability of investors to compare financial statements prepared under national and differing accounting standards lead to the investment of most of the capital in their home countries, or limited to the countries with accounting systems they are familiar with. In other words investors will be limited by the borders of only one country and deprived of an opportunity to invest abroad at possibly lower costs and with diversified risks. Thus the funds are not allocated efficiently, capital market is not functioning efficiently and cost of capital increased (Zaidi & Paz, 2015).

One may argue that implementation of IFRS is costly and would negatively impact the performance of the company. However it is more important to look at it in the long run, preparation of financial reports under the single set of standards is highly likely to reduce preparation costs, especially for MNCs; again the cost of capital will be reduced since the capital on the market is allocated more efficiently. These benefits may outweigh the possible negative impacts related to high implementation costs, which would incur only during the transition phase.

Corporate governance level (internal control mechanisms)

In general public entities are funded outside or operate with outside capital received from investors. This is the main cause of "agency problem" and increased agency costs. The main idea of this theory is that different incentives or aversion to the risk of management may lead to a confrontation with the interests of shareholders, who are in most of the cases more interested in continuously increasing returns (Eisenhardt, 1989). Along with the internationalization and capital markets integration the conflict of interests between the management and shareholders' may become more complicated since the distance between the parties is increased. As everyone knows salaries and bonuses of the management are quite often tied to the companies' earnings. Therefore there might be an incentive for management for questionable accounting practices in order to achieve or maximize short-term profits.

IFRS is aimed to increase the transparency of financial reporting and, thus, improve the quality of corporate governance in the companies. Hans Hoogervorst stated on the IOSCO conference that high-quality accounting standards in the form of IFRS are needed for the strengthening of corporate governance in the capital markets (IASB, 2014). Whereas some researches conclude that implementation of international standards lead to the enhanced accounting quality measured by earnings management, timely loss recognition and value relevance metrics. They assume that IAS earnings are less managed than domestic GAAP because IAS limits management's discretion to report earnings that are less reflective of the firm's economic performance (Barth, Landsman, & Lang, 2006, 2008).

Other stakeholders' interests

Meeting the needs of other user groups. For governments of different countries, international banks, trade unions whose activities go beyond the national economy, tax national systems it may become easier to understand and control the transactions reflected in the reports of foreign companies using data based on common accounting approaches.

All these reasons cause the need for an international convergence of the principles and procedures for financial accounting and predetermine the harmonization of financial reporting.

2.4 Challenges of IFRS Implementation

Apart from all the benefits arising from the implementation and use of IFRS there are certainly a number of potential obstacles and challenges preventing the smooth and favorable adoption of the standards. The challenges reflect various important institutional and firm-specific aspects that are necessary to take into account in order to guarantee comparability and transparency promised by IFRS.

Researchers (Nobes, 2011; Kvaal & Nobes, 2010) claim that one of the first factors is the fact that IFRS may not be able to ensure absolute comparability of company's financial reports from different countries even if all of them are using IFRS. According to the ACCA[5] report (2011) the national patterns of accounting practices tend to remain even after the implementation of IFRS. This assumption is explained by the existence of

[5] The Association of Chartered Certified Accountants

so-called dissimilar versions of IFRS (e.g. IFRS as adopted by EU with IAS 39 modifications or "Venezuelan version of IFRS without dozens of amendments to IFRS of the last six years" (Nobes, 2011)), different translations as well as potential differences within the IFRS, such as accounting method options and estimations for the accounting of particular economic events that are allowed in some of the standards. Among the policy options used to be: measurement of PPE, costing of inventory (FIFO or weighted-average), choice of classification for interest and dividend flows, asset grants can be shown either as a deduction from the asset or as deferred income (Nobes, 2011) and others. As an illustration the full list of overt and covert options as of the year 2010 may be found in Appendix 1.

Furthermore accountants from different countries might differently interpret the principles in areas such as indication and measurement of impairments, contract accounting, deferred tax assets or recognizing development assets (Nobes, 2011). In other words dissimilar interpretation and accounting of cases that require judgments or depend on the level of prudence and conservatism of accountants cause biases of accountants in different countries. Also different national historical accounting practices would definitely affect the way how IFRS is applied.

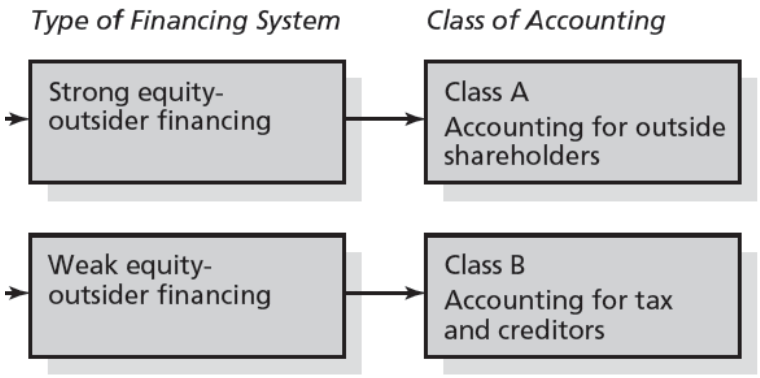
Cultural and institutional factors

Nobes (2011) conclude that financing systems, legal systems and tax systems influence country's accounting practices and further IFRS adoption. Regarding the tax systems for example the company would not be interested in earnings managements, or overstatement of financial results, in a situation when the company tends to follow the tax rules and tax system regulate that income in financial statements is same as tax income. From a different viewpoint there might be an incentive for accounting frauds in order to reduce taxable income, by for example expensing some of the investments. Also, "for example, suppose that German companies under German GAAP tend to choose weighted average cost (AVCO) for inventory valuation because tax law restricts the use of LIFO and FIFO. It would then be likely that AVCO will flow through to the IFRS consolidated statements, given that it is acceptable under IAS 2" (Nobes, 2011).

Consistent application of IFRS may be also constrained by varied financing systems. The Figure 3 below briefly describes the reasons for differences in accounting across the countries. It is argued that type of culture and the way the company is financed

impact the choice of accounting systems. The authors differentiate between weak equity-outsider and strong equity-outsider financing systems, where the funds mostly come from outside shareholders. Countries with weak equity market tend to have class B accounting for tax and creditors purposes, while the others have class A (assume IFRS) accounting oriented to outside shareholders. Thus underlying national patterns of reporting systems are caused by the different purposes of reporting (Doupnik & Perera, 2012).

Figure 3: Model of the reasons for international differences in financial reporting developed by C. Nobes



Source: *International Accounting*. Doupnik & Perera (2012).

While reasons for IFRS as a mean of accounting harmonization described above in the paper have more general nature and applicable to most of companies, the challenges may be divided into the ones more typical to emerging countries and to developed. It is also worth mentioning the level of enforcement, which plays a crucial role in the process of IFRS implementation (Wang, 2014)(Daske et al., 2008). This is a kind of process of implementation of IFRS into the legal framework of particular jurisdiction. IASB has not such a power to enforce the application of standards, and each country's regulatory and enforcement bodies bear the responsibility. Barth et al. (2008) argue that weak level of enforcement may negatively impact an increased quality of financial reporting caused by IFRS. Therefore the compliance with the standards should be controlled in order to maintain high quality accounting standards. Moreover it may be important for emerging and transition economies to a greater extent, since there might be a lack of infrastructure to ensure strong enforcement mechanisms.

Furthermore previous literature suggest that the use of fair value approaches common to IFRS may contribute to the increased volatility in reported values of earnings and assets (Jermakowicz & Gornik-Tomaszewski, 2006; Zaidi & Paz, 2015). According to the research it is one of the main obstacles in IFRS adoption.

There is a further obvious challenge concerning the high costs and required time to completely switch to the new set of standards. Apparently the complexity even increases for companies in developing countries, where the costs become the main problem. Also the costs may be increased due to the need of implementation of respective IFRS trainings of accounting staff in order to achieve the required technical capacity. Nevertheless it is assumed that in the long run the potential benefits may outweigh the transition costs that would occur only once. Therefore it is quite important to differentiate between the cost that are just one-time, such as implementation and trainings, and those that are more persistent in nature, for example the perceived complexity of IFRS.

As a summary of this part there will be mentioned results of one of the researches. It was based on the survey among companies listed on EU stock exchanges and that were implementing IFRS in 2004. Authors found out about the main challenges faced by those companies. Table 1 lists findings regarding IFRS adoption and impacts of implementation on companies' financial statements:

Table 1: Challenges of IFRS implementation (survey among EU listed companies)

Major challenges to implementing IFRS as listed by respondents
• Complex nature of IFRS, which is made for big companies • Lack of IFRS implementation guidance • Lack of uniform interpretation of IFRS • Impact on profit and loss account • Continuing debate of IAS 39 • Running of parallel accounting systems • Constant change of IFRS • Preparation of comparative financial statements for the past years • Lack of IFRS knowledge among employees and auditors • Respective training of accounting staff and management • To change the mindset of finance personnel • Change of the IT structure

Source: Jermakowicz, E. K., & Gornik-Tomaszewski, S. (2006). Implementing IFRS from the perspective of EU publicly traded companies

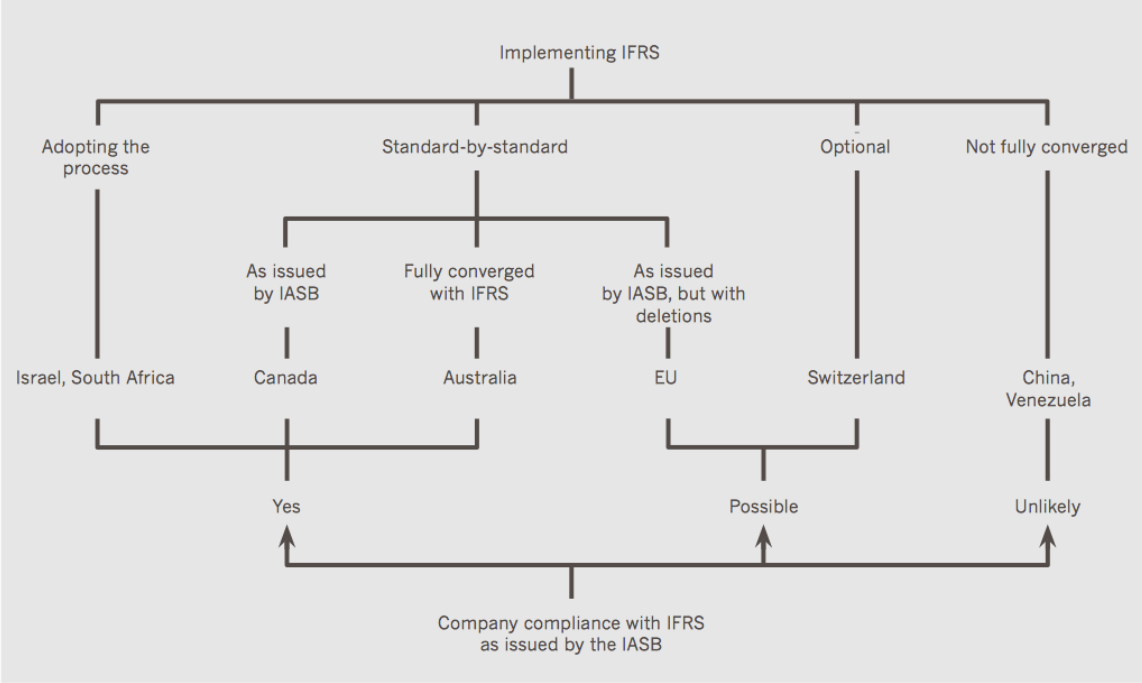
In my opinion, national patterns in the use of IFRS should be considered as an expected consequence, sort of inherent feature since national cultural and historical differences are inevitable. Though the purpose of worldwide accounting harmonization may be still achieved in full by the implementation of IFRS.

2.5 Current Situation on IFRS application

According to recent report published by IASB (2016) "nearly 120 countries require the use of IFRS Standards by public companies, while most other jurisdictions permit the use of IFRS Standards in at least some circumstances". "IFRS Standards provide the financial information for capital markets covering nearly 60 per cent of the world's GDP".

The Figure 4 below illustrates the different possible forms of transition or implementation of IFRS into the national accounting systems. The possibilities are to fully adopt the set of standards issued by IASB; inserting IFRS (unchanged in substance) into law (Canada, South Africa); endorsing (EU); fully converging with IFRS (and intending compliance) (Australia); adapting (China) and allowing (Switzerland) (Nobes, 2011).

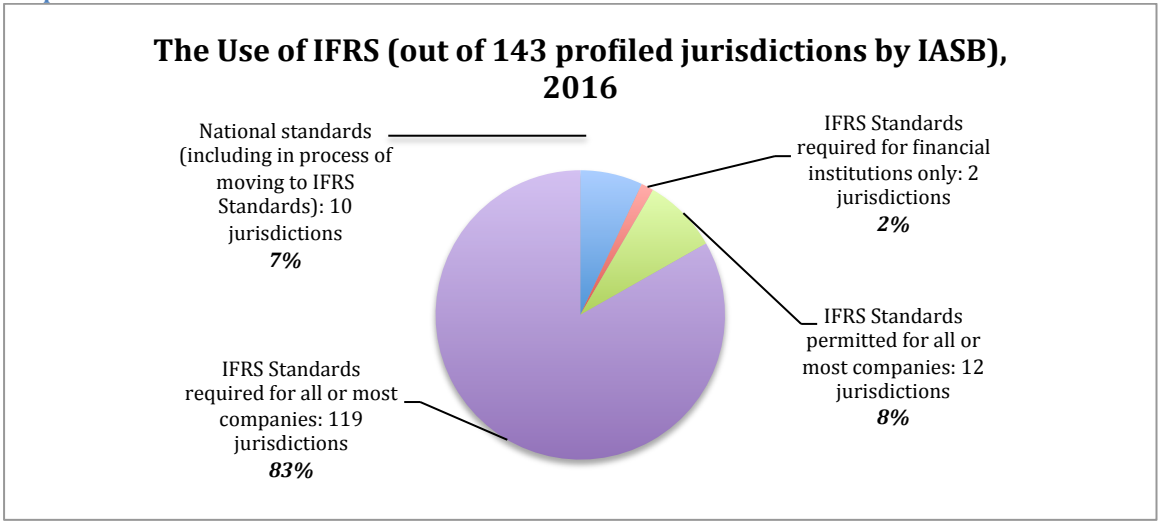
Figure 4: Different methods of IFRS implementation



Source: Nobes, C. International Variations in IFRS Adoption and Practice/Christopher Nobes. *The Association of Chartered Certified Accountants.–2011.–38 pp.*

Furthermore the use of IFRS is different from country to country depending on the level of coverage. The country may require IFRS for all domestic companies, only for consolidated reports, for all listed companies in local stock exchanges, only for foreign companies listed in local stock exchanges or just allow the use of international standards instead of local GAAP (IASB, 2016).

Graph 1: The use of IFRS in the world



Source 1: IASB. *The Global Financial Reporting Language* (Publication). (2016, May). Retrieved April 9, 2017, from IASB website.

Graph 1 above shows that as of the year 2016 119 countries require IFRS for public companies, while 12 permit the use for all or most companies. 10 jurisdictions out of 143 that are reported by IASB still require the use of national GAAPs (or in the process of transition) for domestic public companies (IASB, 2016). Among them are Bolivia, India, Egypt, US, Vietnam and China. While Japan, Switzerland and US permit for defined situations. As it was previously mentioned in the paper US allow the use of IFRS to foreign entities registered in US stock exchanges and reporting to SEC. The situation in Japan is somewhat different. Mainly local largest listed companies, on a voluntary basis, whose market capitalization accounts for one third of Tokyo stock exchange adopted IFRS for financial reporting purposes. Companies, including small and medium sized businesses, may also opt to use local GAAP, US GAAP and IFRS. Two countries, Saudi Arabia and Uzbekistan, require the use of IFRS only for financial institutions, such as banks and insurance companies (IASB, 2016).

It is worth mentioning that IFRS is currently required in the largest capital markets and majority of all countries, more than 80%. The statistics is relevant for advanced and emerging economies. Since 2005 all the member states of EU had been had been required to prepare consolidated financial statements under IFRS and became the biggest jurisdiction using this framework. Another recent report of IASB shows the spread of IFRS usage among 143 jurisdictions reported by the board (Table 2). Based on this statistics the least covered regions are Asia-Oceania, Americas and Africa. About 27% out of countries in Americas do not require IFRS for publicly accountable entities, what presumably may be partially explained by the dominance of US GAAP in that region.

Table 2: Use of IFRS by region 2016

Region	Number of jurisdictions profiled				
	In the region	That require IFRS Standards for all or most domestic publicly accountable entities	That require IFRS Standards as % of total jurisdictions in the region	That permit or require IFRS Standards for at least some (but not all or most) domestic publicly accountable entities	That neither require nor permit IFRS Standards for any domestic publicly accountable entities
Europe	43	42	98%	1	0
Africa	20	16	80%	1	3
Middle East	12	11	92%	1	0
Asia-Oceania	31	23	74%	3	5
Americas	37	27	73%	8	2
Totals	**143**	**119**	**83%**	**14**	**10**
As%of143	**100%**	**83%**		**10%**	**7%**

Source: "Pocket Guide to IFRS Standards: the global financial reporting language". IASB. 2016

One may also notice particular patterns in processes of IFRS adoption among less-developed countries. In many cases developing jurisdictions strictly either fully adopt IFRS or prohibit for all domestic companies. The reasons for full adoptions may be different, from the absence of national GAAP, and therefore acceptance of predominant standards (Pricope, 2016), to the enormous cost pressures, it sometimes may be cheaper to adopt the set of standards rather than put any attempts to converge or adapt. The next argument may be that "low and middle low income countries depend in international organizations to receive financial aid which is vital for their economic development. As a result these nations need to embrace IFRS standards and practices in order to fulfill the criteria necessary to receive funding (Pricope, 2016). Historically different development of institutional structures and accounting principles in many emerging economies may be one of the reasons why country is not willing to switch to IFRS. Non-adoption is also partially may be explained by the complex nature of IFRS and lack of preparedness of emerging economies. In other words overall lack of technical expertise required for the transition of accounting standards and, obviously, inability to implement sophisticated training programs for local accounting specialists.

In case of former British colonies accounting policies there tend to be similar to UK's, which in its turn similar to IFRS. This is first of all due to economic, cultural and political pressures of dominating country and general closeness of institutional structures, including accounting framework (Pricope, 2016)(Doupnik & Perera, 2012).

In accordance to the PWC report (2016) on the worldwide IFRS adoption, application of IFRS among transition countries including the post-soviet region, particularly the members of CIS (Commonwealth of Independent States)[6], has quite identical patterns as the majority. Almost all of the members of CIS, except Uzbekistan, require the use of IFRS by listed entities for consolidated reporting or even standalone financial statements. Since 2011 IFRS is the only allowed set of reporting standards in Armenia. Kyrgyzstan also requires reporting under IFRS for all companies, including small and medium sized. The situation in China is opposite, only Chinese accounting standards (CAS) are allowed for financial reporting purposes. CAS, however, according to IASB and PWC reports are already substantively converged to IFRS.

[6] As of the year 2017: Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, and Uzbekistan. Also Ukraine and Turkmenistan,

3. ACTUAL ECONOMIC IMPACTS OF IFRS ADOPTION

3.1 Comparability and Transparency

(Yip & Young, 2012) investigated potential impacts of IFRS adoption in regards of information comparability. An analysis was done on several European countries for the period before and after the official year of adoption (2005) by EU listed companies. The results suggest that IFRS does contribute to the higher comparability of financial statements between countries, however not completely. More precisely, authors assessed "similarity with which two firms translate economic events into financial statements, the degree of information transfer, and the similarity of the information content of earnings and of the book value of equity". They also found out that adoption of IFRS improve the financial information comparability among firms from the same industry, while leading to no change to the comparability of firms with differing business activities. Authors considered the last statement as an overall improvement as well, since "an overemphasis on uniformity may reduce comparability by making unlike things look alike" (Yip & Young, 2012). The findings were explained by the implied higher quality of IFRS and accounting convergence.

The next research paper dealing with comparability (Wang, 2014) analyzed the relationship between accounting harmonization, in the form of convergence to IFRS, and the extent to which the firm, or the firm's valuation, reacts to the foreign firms' earnings' announcement. It was claimed that greater convergence of national accounting frameworks to IFRS improve comparability and reactions tend to be stronger if both firms report their financial statements under similar set of standards. The study was done on around 600 companies from different countries for a period 2001-2008. Author measured the overall comparability based on the correlation between accounting methods for earnings and conclude that with enhanced comparability "investors can extract additional value-relevant information embedded in the foreign firm's earnings signal" (Wang, 2014). Relying on the above-described findings one may conclude that the IFRS improved comparability and the ability of investors to find value-relevant information, while valuing the company. Additionally the paper confirm the previous studies (Barth et al., 2008) that improvements may be noticed only with countries possessing sophisticated enforcement mechanisms.

(Cai & Wong, 2010) analyzed the effect of adoption on global capital market integration. They found out that there is a higher correlation of stock market indexes in the post-adoption period among G8 [7] countries and, thus, higher integration on international level. It was also stated that IFRS adopters are better integrated with each other that non-adopters (Cai & Wong, 2010). The authors of this finding prove that IFRS lead to better comparability by investors and more efficient capital allocation.

3.2 Accounting Quality

Legenzova (2016) understands the term accounting quality as the quality of financial statements, properties of financial information as well as the quality of accounting and reporting processes, in the form of technical expertise and competences of accounting staff, attitudes to reporting and regulation and supervision. My thesis research paper describes an overview of the IFRS' impacts on the accounting quality based on three main empirical evidences: Ahmed, Neel, and Wang (2013) analyzed firms adopted IFRS in 2005 in 20 countries[8] and compared to the benchmark from countries non-adopters in order to control for changed in overall economic environment; Chen, Tang, Jiang, and Lin (2010) research on 15 EU member states; and Barth et al. (2008) research on companies using IAS in 21 countries. The studies measure the quality by the level of manager's discretion given by implemented standards. The summary of their finding may be found in Table 3:

Table 3: Comparison of IFRS adoption impacts on accounting quality

	Proxies used for measurement of accounting quality	Main findings
Chen et al. (2010)	**Income smoothing** – *Volatility of net income* **Earnings management** **Timeliness of loss recognition** **Magnitude of accruals** – *Total accruals minus estimated normal accruals* **Accruals quality**	– ***Increased*** *income smoothing* – ***Decreased*** *earnings management* – ***Decreased*** *timeliness of loss recognition* – ***Smaller*** *magnitude* – ***Higher*** *quality of accruals*
Barth et al. (2008)	**Earnings management** – *Volatility of net income, correlation between cash flows and accruals, frequency of small positive net income* **Timeliness of loss recognition**	– ***Decreased*** *earnings management*

[7] Canada, France, Germany, Italy, Japan, Russia, UK and US

[8] Several EU member states plus Philippines, Australia, South Africa, Hong Kong

	Value-relevance	– ***Improved*** *timeliness of loss recognition* – ***Enhanced*** *value-relevance*
Ahmed et al. (2013)	**Income smoothing**[9] – *Volatility of net income, correlation between cash flows and accruals* **Reporting aggressiveness** – *Magnitude of signed accruals and timeliness of loss recognition* **Earnings management** *Likelihood*	– ***Increased*** *income smoothing* – ***Increased*** *reporting aggressiveness* – ***No evidence*** *of increased likelihood of earnings management*

Source: (Ahmed et al., 2013), (Chen, Tang, Jiang, & Lin, 2010), (Barth et al., 2008)

To summarize, one may notice that the findings of above mentioned studies are controversial. Chen and Barth are consistent in their conclusions, and connect IFRS implementation with the increase in accounting quality. Ahmed et al. (2013) found out that IFRS lead to decreased reporting quality and partially explained their differed results by the fact that their sample consisted of mandatory adopters, whereas Barth (2008) considered only voluntary adopters. It was assumed that previous results may not be generalized and voluntary adopters are more intended to produce higher quality financial statements. Daske et al. (2008) confirm that economic consequences for voluntary adopters are higher than for those forced by mandate. The latter statement was criticized later; Horton et al. (2013) claimed that mandatory adopters are the first who should benefit from the adoption, rather than non-adopters and firms using the standards on a voluntary basis. Also according to authors the main reason for this negative result was the principles-based nature of IFRS and, thus, higher discretion given to the management. The main limitation of the study was a short assessed post-adoption period.

Findings described by Ahmed et al. are consistent with another research conducted on Italian market (Cameran, Campa, & Pettinicchio, 2014). Authors came to the same conclusions that adoption of a international set of standards decreased the accounting quality, in terms of higher abnormal accruals, less timely loss recognition and no change in the quality of reported earnings. Significant limitation of this research is the analysis of only private group of companies.

In addition research made on emerging Malaysian market claim that IFRS adoption contribute to improved earnings quality, in terms of increased value-relevance of

[9] B. Trueman and S. Titman (1988) define income smoothing as managers' actions to reduce fluctuations in company's net income in order to influence how the company is valued by investors

accounting information and decreased earnings management (Adibah Wan Ismail, Anuar Kamarudin, van Zijl, & Dunstan, 2013). German companies, adopted IFRS, demonstrated less information asymmetry, increased liquidity, and more volatile share price (Gassen & Sellhorn, 2006).

3.3 Other Impacts

Significant number of studies realizes that increased accounting quality and improved cross-country comparability are the underlying for a several further consequences of IFRS adoption (Yip, 2012; Wang, 2014; Barth et al. 2008; Daske et al. 2008,2013). Among those are increased liquidity (Daske et al., 2008,2013; Li, 2010), decreased cost of capital (Li, 2010)(Daske et al., 2013), better analyst forecast (Horton et al., 2013), improved trade in goods and FDI (Márquez-Ramos, 2011) etc. All of the papers agree on the importance of enforcement mechanisms in the analysis of the effects. Overall, stronger enforcement and mandatory adoption conditions lead to more pronounced economic effects.

For instance, Marquez-Ramos found out that the use of single set of standards among EU countries resulted in improved transparency and comparability, as well as reduction of information asymmetry among foreign investors. Thus, she concluded that IFRS boost country's FDI and international trade in goods, especially in Eastern-European transition countries. Another empirical research (Horton, Serafeim, & Serafeim, 2013) supporting rather beneficial nature of IFRS suggested that its adoption lead to better firm's information environment in terms of more accurate analysts forecasts. The main finding is the following: IFRS adoption is associated with higher information quality and increased comparative benefits. Horton et al. also realized that the forecast accuracy is increased for analysts that used to specialize on countries with different accounting frameworks before the adoption. The next positive impact of mandatory adoption would be an increased trading volume of individual cross-border equity investments in Germany (Brüggemann et al., 2012).

Somewhat different analysis of the real consequences was done in Finland (Lantto & Sahlström, 2009). Authors examined the changes in company's financial ratios caused by transition from Finnish accounting standards to IFRS. As a result there was a

meaningful increase in the profitability ratios (OPM, ROE and ROIC)[10] and decrease in PE (price to earnings) by more than 10% due to higher reported income results. According to the paper the results are driven by fair-value accounting feature of IFRS. Consequently the transition of accounting numbers to IFRS result in the production of different information to capital markets.

The next research was done on UK capital market analyzing local listed companies and their abnormal returns to insider purchases (Brochet, Jagolinzer, & Riedl, 2013). Authors wrote about decreased insider equity trading due to decreased information asymmetry between insiders and outsiders (lower use of private information). Thus, authors may conclude that comparability was improved with the use of the standards, and resulted in overall benefits to capital market.

"Research in Korea has found that smaller listed companies have seen an increase in foreign investment after five years of IFRS use" (IASB, 2016). Another study analyzed an impact of particular IFRS standard, rather than overall adoption, and realized that it is highly likely to change company's capital structure, in the form of decreased diversity (Zaidi & Paz, 2015).

Bova and Pereira (2012) evaluated the relationship between the level of compliance to IFRS and its impact on the capital market in Kenya, the country with relatively weak enforcement system. They conclude that firms with higher proportion of foreign investments tend to comply better to IFRS, where higher compliance lead to improved information environment, increase in the stock liquidity, measured by turnover (Bova & Pereira, 2012).

According to the survey performed by ICAEW (2007) among investors, auditors and preparers of financial statements an overall effect and IFRS implementation in EU was successful straight after official adoption. The majority of investors and preparers that took part in the survey admitted that IFRS adoption improved the quality of financial reporting, increased comparability and contributed to the overall development among EU member states. They also pointed out the complexity of the standards as well as expressed concerns regarding increased disclosure requirements. "Success tended to be expressed more in terms of recognition and measurement, rather than disclosure, and the value of the significantly increased disclosure requirements was contested. 63% of investors

[10] Operating Profit Margin, Return on Equity and Return on Invested Capital

thought that IFRS had improved the quality of consolidated financial statements against 24% who thought that IFRS had made it worse. The corresponding figures for preparers were 60% and 14% respectively and for auditors 80% and 8%" (ICAEW, 2007). Finally the respondents agreed that adoption significantly influenced investment decision-making in Europe.

While all of the impacts mentioned in this chapter were to a certain degree described in the objectives of IASB and expected by companies and regulators, some of the papers also mention several unintended consequences on financial markets caused by IFRS adoption. For instance, one of them is the switch from the "dynamic provisioning" to an incurred "loan-loss provisioning", and further respective impact on regulatory capital requirements for Spanish banks (Brüggemann et al., 2013). In general "unintended consequences, i.e. effects absent from the IAS Regulation' explicitly stated objectives, relate to the contracting uses of IFRS financial statements and have received little research attention" (Bruggemann et al., 2013).

3.4 Cost Of Capital And Market Liquidity

Overall there is quite limited number of studies that are able to empirically analyze and demonstrate the real effects of IFRS adoption on the capital markets, particularly the cost of equity capital. Researchers confirm above-mentioned assumption in their research on intended and untended consequences. Authors claim that extant literature demonstrates conflicting results regarding IFRS adoption effects. They discussed lack of consensus regarding real effects on transparency and comparability, and overall positive effects on worldwide capital markets (Brüggemann et al., 2013). Below one may find the most cited works and their results in a chronological order.

Daske et al. (2008) analyzed an impact on capital market based indicators, such as stock market liquidity, cost of equity capital and value of the firm. The proportion of zero returns, bid ask spread, trading costs and price impact of trade, measured the liquidity indicator; while Tobin's Q ratio was used for value (Daske et al., 2008). Authors found that adoption is associated with the decrease in zero returns, lower costs, lower bid-ask spread and no price impact on trade. Overall the results suggest improved liquidity when the companies start to use IFRS. Also based on the findings, there was an increase in cost of capital and decrease of valuation measure the first year of adoption, but decrease and increase respectively a year before the mandatory adoption. The results regarding cost of

capital and Tobin's q measure are rather inconclusive and may not be explicitly interpreted. Such results are most likely driven by other transitional actions (first time adoption: IFRS 1) undertaken during the early period of adoption as well as overall changes in institutional environment. Another important result of this paper is that countries with stronger enforcement show more pronounced improvements.

S. Li (2010) conducted a study aimed to analyze the impact of IFRS adoption on cost of equity capital in EU member states after the mandatory adoption date. According to this research paper, there is a statically significant decrease in the cost of capital among companies, mandatory adopters, in the post-adoption period. Voluntary adopters do not experience any significant change in the cost of capital. Also the paper is consistent with Daske et al. (2008) concerning improvements in market liquidity, measured by bid-ask spread, and an importance of enforcement mechanisms. Li concluded that increased disclosure, caused by IFRS application, and improved comparability, measured by the number the differences between IFRS and local GAAP, are the main underlying reasons for the decrease in the firm's equity cost (Li, 2010).

Unlike the previous researches, Daske, Hail, Leuz and Verdi (2013) in their study took into account the difference between firms' incentives to implement IFRS, as well as reporting incentives, and analyzed potential impacts, as well as differences in the impacts, on cost of capital and liquidity. Daske et al. said that it is necessary to differentiate between companies that choice for IFRS in order to improve transparency and reporting quality and companies adopting just a label. Reporting incentives in this paper were measured using three proxies: overall characteristics of the company, magnitude of accruals relative to the cash flow from the operations and the number of analysts following the company. Leverage was measured by bid-ask spread and price impact. Based on the results, only firms with strong reporting incentives experience statistically significant decrease in the cost of capital and increase in the market liquidity. Companies that are less likely to implement changes in their accounting policies tend to have no significant economic consequences, in the form of increased or decreased cost of capital or liquidity. The results were further compared to the non-IFRS sample and showed relatively weak effects. The results are applicable to both sample groups, voluntary and mandatory adopters (Daske et al., 2013).

Empirical analysis of Brazilian capital market described opposing results. Authors of this paper realized no significant decrease in the cost of equity capital for Brazilian

listed companies in the post-adoption period. Subsequently they conclude that IFRS adoption did not contributed to the assumed increase in the information quality of financial reporting. It was also mentioned that the results may be driven by the relatively low enforcement regime in Brazil (Gatsios et al., 2016).

4. PRACTICAL PART – RUSSIA

4.1 Russian Profile

4.1.1 Current situation on IFRS

During the last decade Russia was moving towards adoption of international reporting standards. To the date, all firms listed on Russian stock exchanges are required to prepare their consolidated financial statements under IFRS (PWC, 2016). Since 2016 the full list of entities reporting under IFRS include listed companies and defined financial organizations:

- Credit institutions
- Insurance companies
- Companies whose securities are admitted for organized trading by inclusion in a quotation list
- Non-state pension funds
- Managing companies of investment funds, unit investment funds and non-state pension funds
- Clearing organizations
- Joint Stock company's shares of which are held in the federal property, determined by the Government of the Russian Federation
- State Federal Unitary Enterprises determined by the Government of Russian Federation
- Companies that are otherwise obliged by federal laws or constitutive documents to prepare consolidated financial statements (PWC, 2016).

As it was mentioned earlier in the paper companies officially started to report under the new set of standards in 2012. Companies, reporting under internationally recognized set of standards, other than IFRS (mostly US GAAP), before the mandatory adoption had the option to postpone the application until 2015. According to PWC report the version of IFRS corresponds to that published by IASB, with no evidence of further endorsements. "Currently, two federal laws, 208-FZ "On consolidated financial statements" and 402-FZ "On accounting," stipulate the application of IFRS in Russia" (*Doing Business in Russia,* 2016). The law clearly define what entities are obliged to apply IFRS and for what purposes. Standalone financial statements continue to be prepared using Russian Accounting Standards (RAS). All of the statements must be reported and submitted to the Central Bank of Russia, which is the main regulatory body in the local financial markets.

Ministry of Finance is responsible for the financial reporting standard setting, as well IFRS endorsement.

Foreign companies listed locally also report under IFRS. Moreover foreign subsidiaries listed on local stock exchange and that are not legally registered in agreement with Russian legislation may be allowed to use other national GAAP commonly used in worldwide capital market (for example US GAAP).

4.1.2 Development of accounting practices

At present time Russia may be characterized as a transition economy, mainly due to its move from soviet structure to democracy and market economy, which started in the end of twentieth century (90s) (Borker, 2012a). Therefore one may conclude that IFRS adoption played a crucial role in the overall process of transition and capital markets integration. As it was mentioned earlier in the paper the development of Russian accounting practices was heavily influenced by different cultural and historical factors. Previously the country had communist system and planned economy, what identified government, tax authorities and regulatory bodies as the main users of accounting information, rather than third parties outside, such as creditors and investors.

According to Gray's theory cultural aspects affected accounting in Russia in terms of statutory control, uniformity, conservatism in measurement and secrecy. This is assumed as a profile distant from the IFRS values (Borker, 2012b)(Delvaille, 2011). Also there is most likely not so strong outside-equity financing what also affect the purpose of reporting. However the tax regime is independent and the respective set of tax rules is applied.

Currently, it may seem that Russia does not differ significantly from the western world in terms of democracy, legal systems, type of economy and overall institutional structure. Nevertheless, accounting framework in this region was significantly affected by different way of economy formation, cultural aspects, economic conditions and historical practices. Russian reporting system mainly tends to be oriented towards the needs of tax authorities or other regulatory bodies, and therefore be presented in a format suitable for taxation, industry supervision and statistical data collection. Thus, such reporting may not allow the assessment of company's real financial situation as well its prospects by a wider range of users.

4.1.3 Equity market

Market capitalization of companies listed on country's stock exchanges accounts for nearly 30% of the GDP. While stock market capitalization forms almost 1% of total capitalization worldwide (World Bank, 2016). It is worth mentioning that there was a huge decrease in 2014 and 2015 mainly caused by the sanctions applied by EU and US. The unique features of Russian equity markets lay in the difference in ownership structure and dominance of large firms in the market. Ownership is highly concentrated, and shares are owned in most cases by government or small number of individuals (Pollner, 2012).

4.1.4 Main differences of RAS

Russian Accounting Standards have been converging to IFRS during the last decade within the framework of accounting harmonization and cooperation with IASB and promoting IFRS as a global set of standards. Moreover, "in May 2016 the Ministry of Finance approved the Program of development of new statutory Federal accounting standards for the period of 2016-2020. The new (IFRS based) accounting standards will gradually replace existing local accounting standards during the period of 2017-2020" (PWC, 2016).

Nevertheless the differences in accounting treatments do exist and below one may find only main of them, according to author's opinion:

- Revenues and expenses are recognized strictly when all the respective documentation is received, what may lead to the differences in the period of reporting
- Non-existence of the guidance on impairment testing of non-current assets. PBU 14/2007 of RAS allows referring to IFRS 36 (Impairment of Assets) for impairment testing of intangibles.
- No fair value measurement for most of the cases
- Useful lives of fixed assets are often in line with the useful lives applied for tax purposes
- Non-quoted financial assets are accounted for at cost or amortized cost (less impairment provision)
- Finance leases may be capitalized or expensed by agreement of the parties to the lease contract (IASPlus, 2012; EY 2013).

The higher the differences in accounting practices before the adoption, the higher is the extent of expected benefits to capital markets (Barth et al., 2008)(Brochet et al., 2013). Therefore I do assume the difference of RAS may also have significant impact on the results of given research.

4.1.5 Enforcement mechanisms

The next important aspect in the process of adoption is the level of enforcement in Russia. It is crucial for the effective implementation that all the relevant standard-setters and professional organizations ensure the real usage of standards in a proper way. Enforcement mechanisms are strong, in terms of sophisticated process of endorsement of the standards. IFRS is incorporated into the federal law "on accounting" and "on consolidated financial statements". There is official system of standards' endorsement by Ministry of Finance with the consultation from Central Bank and technical analysis from the National Organization for Financial Accounting and Reporting Standards (IASB, 2016).

However, according to competitiveness report published by World Economic Forum, Russia shows relatively high levels of corruption, inefficient bureaucracy and quite low efficiency of legal frameworks (Schwab, 2016), what may eventually lower the quality of enforcement mechanisms. The respective issues in the overall institutional infrastructure are highly likely to diminish the expected potential benefits of adoption of the standards. In other words, overall lack of democracy, high levels of corruption and lack of transparency significantly undermine the development and effectiveness of country's institutional setting. Therefore, financial reporting, being the part of the whole institutional infrastructure, as well as potential positive impacts of accounting harmonization are quite questionable.

Considering all of the specifics of described above country profile this research paper analysis may bring unique set of results. The relevance of the research may be explained by the fact that it is different from previous research, it is addressing former communist (regulated market) country, there are differing economic conditions, different legal and regulatory requirements, different accounting objectives. IFRS adoption in Russia may be seen as an important milestone in the country's transition process. Finally, an analysis of the impacts on Russian capital markets and its results will be relevant not only to Russia, but also to other post-soviet countries, currently forming the CIS, due to

similar characteristics of accounting systems and relatively same level of economic development.

4.2 Methodology

4.2.1 Development of research model and hypothesis development

Empirical part of this master thesis will be focused on the analysis of IFRS adoption in the firm level. In particular, there will be assessed the relationship between mandatory or voluntary IFRS adoption and capital market indicator such as cost of equity capital. Extant literature overview described in the theoretical part suggest that improved financial reporting quality, enhanced transparency and comparability of financial reports, caused by IFRS adoption, are the underlying reasons for more effective functioning of capital markets, subsequently for more investments at lower costs with diversified risks. In other words if investment decision are made based on a high-quality reliable accounting information, then the capital is allocated in a more efficient way. All of these factors eventually would contribute to the increased market liquidity and lower cost of equity capital for companies.

However, as it was mentioned before the results of previous empirical research are still inconclusive and further analysis is required. Relying on the mission of IASB, which states that IFRS are developed in a way to improve transparency, accountability and efficiency of financial and capital markets, one may conclude IFRS adoption would lead to harmonized financial reporting in the country. Whereas harmonized financial statements contribute to enhanced transparency and comparability, and, thus, more efficient functioning of the capital market and decreased cost of equity. Moreover, based on the literature, one may expect decreased cost of capital in countries with type A accounting, common law and outside investors-oriented type of financing. Empirical studies based on the analysis of countries such as EU member states, Australia or Canada are mostly consistent with the literature and proposed results. At the same time the significant portion of other researches had completely opposite results.

Although, previous studies produced mixed results of adoption impacts on costs of equity, all of them agree on the fact that reporting incentives, enforcement regimes and economic conditions were among the main reasons for the differences in the findings. Such heterogeneity in conditions and non-compliance with the standards in the real practice would result in having only harmonized set of official rules, but different

application. Therefore in case of Russia the question of whether adoption contributed to decreased or increased cost of equity will also depend on several important factors such as enforcement regime and compliance, reporting incentives, purpose of accounting and institutional setting. Obviously, negative impact, apart from the other reasons, may depend on the origin of the main shareholder. Locally listed companies with mostly local shareholdings may face unfavorable impacts. Russian investors may struggle with understanding and react in a negative way to a new and rather complex set of reporting standards.

There also might be no impact at all. Due to lack of transparency and disclosure requirements financial statements may not serve as the main source of information for investment-decision making. Therefore the effects of IFRS adoption may be negligible.

Moreover, since the focus of this master thesis is on the region of transition economies, the need for deeper analysis is even more pronounced due to limited evidence of the effects. Relying on the whole theoretical part, above-mentioned arguments I derived the following hypothesis:

Hypothesis: There is a relationship between the cost of company equity capital and the mandatory adoption of IFRS for consolidation reporting among listed companies in Russia

Outcome a) the cost of equity capital will decrease/increase with the IFRS adoption

Outcome b) no impact or it is not significant

It is not completely possible to clearly state the expected outcome of the research; therefore the statement of the main hypothesis is to rather test if there is a relationship between adoption and change in the cost of equity.

4.2.2 Sample selection

It was decided to randomly select the sample of 63 listed Russian companies in order to perform the analysis. Financial institutions will be excluded from the sample due to complexity and differences in accounting treatments typical to the industry. Moreover

the transition from RAS to IFRS among the majority of financial institutions took place considerably earlier than among the other types of entities. For example all banks in Russia were obliged to report under IFRS already since 2004 (Directive of the Central Bank of Russia №1363-U, 2003). This particular analysis is aimed to investigate potential impacts for the period 2007-2015.

There are two reasons explaining the number of firms in the sample. The main requirement was for the company to be listed on Moscow Stock exchange. Other decisive factor was the availability of the complete set of financial statements during the whole period of time 2007-2015. It was necessary for obtaining firm-specific information. Information such as size of the firm, performance ratios, basis of financial reporting, type of auditor, ownership structure, companies listing, date of the first IFRS application and industry was obtained from Amadeus database. In order to increase the reliability of data, I manually double-checked if all of the data is consistent with the financial report of each company. The companies' stock prices were collected from both Amadeus database and Russian resource, which is publishing stock quotes for companies listed on main local stock exchanges (FINAM investment company).

Basically the lack of financial disclosure among Russian listed companies was the main limitation of collecting the data. That is why the sample was decreased to 63 companies out of 176 available in the database. Finally, the next limitation of the data is that the sample may be not fully random, what is crucial for obtaining unbiased results and being able to further generalize the results to the larger population.

All of the firms were listed on Moscow stock exchange during the whole analyzed period. In order to receive consistent results, it was checked that all companies went public before the official date of mandatory adoption. Russia is highly dependent on the mining industry, natural resources and heavy manufacturing and engineering industries. 12 out of 63 companies operate in the oil, gas and power extraction, while 28 firms operate in production of metals, chemical products, machinery manufacture and construction. The rest of the companies in the sample belong to utilities, retail trade, electricity, communication and transportation areas.

During the process of data collection it was realized that 5 firms in the sample (Novolipetsk Steel, MTS, Detsky Mir, Cherkizovo Group and Novorossyisk Grain Plaint) were allowed to postpone the adoption till 2015. The respective IFRS financial data for

the given period of time is not available for these companies, and therefore it was decided to remove them from the sample in order to eliminate the distortion of the results. In the end the sample of firms was decreased to 58. Again, it is also necessary to point out that many observed listed firms do not disclose all of their financial information to the public, what impose significant limitation to the research.

For the results, I will test adoption effects on cost of equity capital and market liquidity using sample of 58 mandatory and voluntary adopters in Russia during the period of 2007-2015. The sample of mandatory adopters will form the treatment group, whereas voluntary adopters would belong to the control group in this analysis. It is assumed that the control group will tell us what would have happened to the group of mandatory adopters in the absence of IFRS implementation. The data on firms' financial statements and ratios, as well as IFRS-related information will be retrieved from the Bureau Van Dijk (Amadeus) database and company's individual annual reports. The sources of data used for the calculation of cost of equity capital are described in detail further in the text (Equation 2).

It is important that data downloaded from the databases refer to the companies' particular stocks that are issued on Russian stock exchange (MOEX). Respective descriptive statistics and regression analyses will be done using *SPSS* and *R* statistical tools. Elementary calculation will be performed in *Excel* program.

Moscow exchange

Moscow Exchange, or MOEX, currently is the largest national stock exchange in the market for trading stocks, bonds, derivatives, money market instruments and commodities. It was formed in December 2011 as a result of the merger of two major Russian exchange groups - the MICEX Group (the year of foundation 1992) and the RTS Group (the year of foundation 1995). "Securities of over 700 issuers are admitted to trading on the equity and bond markets of Moscow Exchange" (MOEX, 2017). It is one of the largest stock exchanges in the world based on its total market capitalization (MOEX).

4.2.3 Panel data models

Since the data is characterized as being cross-sectional and time-series there will be used panel data analysis using multiple linear regression models. In particular, I will employ pooled OLS, fixed and random effect models. It is required for the panel data

analysis first to apply all three models and then perform relevant tests, which would allow to select the best one. Hausman test will be used in order to compare fixed and random effect models, while Lagrange Multiplier (LM) test is used to compare pooled OLS and random effect model. The latter requires the results of both by employing the analysis of residuals. This is logically required in the panel data analysis (Maddala and Lahiri, 1992; Park, 2015). All relevant assumptions as well as the tests are described in the results chapter.

Pooled OLS (Difference-in-difference estimation)

In order to perform the test I will regress the capital market indicator on the explanatory variable for the type of adopter (mandatory vs. voluntary), second explanatory variable for the time period (pre-adoption vs. post-adoption), the interaction term, and selected set of control variables. The model is similar to one used by Li (2010), but uses different measurement proxies for the variables computation. This model will allow me to assess the change in the cost of equity and market liquidity associated with the mandatory adoption of IFRS. Also I will be able to compare the change to the group of voluntary adopters and see whether the results produce any differences. Thus, the main hypothesis of this research will be tested using the following model (Equation 1):

Equation 1: Main linear regression model

$$\textbf{Capital Market Indicator}_{i,t} = \beta 0 + \delta 1 * \text{TypeOfAdopter} + \delta 2 * \text{TimePeriod} + \gamma * (X1 * X2) + \beta 1 * (\text{Controls})_t + \varepsilon_t \text{ (Error Term)}$$

Source: Author

Capital Market indicator $_{i,t}$ – cost of equity capital of 58 sample companies for the period 2007-2015
β0 - regression function intercept
β1 - set of regression parameters for the set of control variables
δ1, δ1 - regression parameters for two main independent variables
γ - parameter for the interaction term
ε – error term of the model

Assumptions:

- Non-linearity among the main explanatory variables. There is a non-additive relationship between variables TypeofAdopter and TimePeriod. As one can see from the model there was introduced an interaction term **γ *** (X1*X2) to illustrate this type of relationship. By X1 I mean *type of adopter* and by X2 – *time period.* In other words I assume that the change in the response variable (cost of equity)

associated with the adoption may be different for mandatory and voluntary adopters. It will allow me to analyze the change among mandatory adopters and voluntary adopters.

- Linearity in quantitative independent variables (set of control variables described in table 4)
- This model is the most restrictive of the possible ones, since it prescribes the same behavior for all sampling objects at all times. If these assumptions are fulfilled, the model parameters can be consistently estimated using the least squares (OLS) method. Therefore the "weak" set of assumption on the error term should be satisfied: zero mean, constant variance and zero covariance (Maddala nad Lahiri, 1992). This is necessary to obtain unbiased linear estimators.

$$E(\varepsilon) = 0$$

$$D(\varepsilon) = \sigma 2$$

$$C(\varepsilon j; \varepsilon i) = 0$$

The reason for the error terms is explained by the inability to include all the possible explanatory variables related to dependent variable in the model.

Fixed/Random effect models

In order to improve the overall performance of the analysis there will be introduced two additional linear regression models, in particular fixed and random effect models. Fixed effect model will treat the heterogeneity effect, while random effect model may be seen as a compromise between the two previous ones, because it is less restrictive than the first model, and allows getting more statistically significant estimates than the second.

Selected Variables:

Table 4: Selected regression model variables

Variable name	Measurement proxy	Type	Source of data
Cost of Equity Capital	CAPM	DEPENDENT	Described further in the text
IFRS Adoption Type. The dummy variable will take the form of either a firm mandatory adopter (value of 1) or voluntary (0).	n/a	INDEPENDENT	Individual financial statements

Time Period. The dummy variable will take the form of either observed pre-adoption period 2007-2011 (value 0) or post-mandatory adoption 2012-2015 (value 1)	n/a	INDEPENDENT	IASB
Size of the Company	Log (Total Assets)	INDEPENDENT (Control)	Amadeus database; Individual FS
Leverage	Total debt/ Total equity	INDEPENDENT (Control)	Amadeus database; Individual FS
VIX index	Implied volatility of S&P 500 option prices	INDEPENDENT (Control)	Chicago Board Options Exchange
ROE	Net income/ Equity	INDEPENDENT (Control)	Amadeus database; Individual FS
Industry effects	Based on industry classification	INDEPENDENT (Control)	Amadeus database
US or EU cross-listing. The variable take the value of 1 in case the company is cross-listed in US or European stock exchange	n/a	INDEPENDENT (Control)	Individual financial reports
Ownership structure. The dummy variable will take the value of 1 for government owned firms and 0 otherwise.	The proportion of federally-owned shares is 50% and higher	INDEPENDENT (Control)	Individual financial reports
Big-4 auditor. The dummy variable will take the value of 1 in case the firm is audited by one of the Big-4 companies and 0 in case of others.	n/a	INDEPENDENT (Control)	Individual financial reports

Source: Author

4.2.4 Explanations on the set of selected variables:

Response variable - Cost of equity (CAPM)

Unlike Li (2010), Daske (2008), I will measure the cost of equity using capital asset pricing model (CAPM, Sharpe 1964)(Womack & Zhang, 2003) adapted to Russian capital market (analogous approach was used by Gatsios et al., 2016). This CAPM model applies US measurements of risk-free rate and market risk premium and further adds factors to adjust the results to Russian capital market environment reflecting additional risks and macroeconomic factors. However, beta coefficients are specific to the firm. Moreover

cost of equity capital for each company will be calculated using two-step approach. First I will identify beta coefficient for each firm in the sample. Beta coefficient represents here the systematic risk of the asset or the volatility of the asset compared to the market. In the next step I will compute the cost of equity, directly applying estimated beta coefficients to the CAPM model with adjustments. From this analysis I expect decreased cost of equity in the post-adoption period for the group of mandatory adopters. Below one may find the general formula used during the calculations (Equation 2):

Equation 2

$$Re = Rf + \beta * MRP + CRP + Inflation\ Differential$$

Source: *Impact of adopting IFRS standard on the equity cost of Brazilian open capital market companies.* Gatsios et al. 2016.

Re - cost of equity capital of the company

Rf - risk-free rate (US , annually), measured by US 3-months Treasury-Bill rates (retrieved from *Federal reserve)*

β - beta coefficient of the company representing systematic risk

MRP - market risk premium or the difference between market return and risk-free rate (annually). I use S&P 500 index returns as a market representative (retrieved from *K.R. French* online data library)

CRP - country risk premium representing the additional risk of investing in Russia over USA (sourced from *Damodaran* online database). Calculated using country default spread according to rating agencies and adjusted to additional volatility of equity market (A. Damodaran, 2003)

Inflation Differential – represents the difference between Russian and US inflation rates. Both US and Russian inflation rates are measured by consumer price indices (CPI) on annual basis (data retrieved from *Eurostat* database)

Beta coefficients will be estimated using regression analyses. With the help of this method I will analyze the relationship between companies stocks' means of returns and market returns during the period of 2007-2015. As the next step I will extract estimated beta coefficients from the resulted regression functions. Therefore I will run 58 simple linear regressions in order to find beta coefficient for each company. Respective linear regression model may be found in Equation 3:

Equation 3: Regression model for estimation of beta

$$E(R) - Rf = \beta 0 + \beta^*(Rm - Rf) + \varepsilon$$

Source: Womack, K. L., & Zhang, Y. (2003). Understanding risk and return, the CAPM, and the Fama-French three-factor model.

β0 – represents intercept of the function

Rf – risk-free rate, Russian government bond yield with 3-months maturity (data from Central Bank of Russia)

Rm – monthly MICEX index returns (denominated in local currency, obtained from MOEX)

E(R) – monthly stock returns of the company (denominated in local currency, data retrieved manually for each company from Russian resource *FINAM*)

Explanatory variables

Mandatory adopters are the firms that adopted IFRS after 2012 when it became legally required. Voluntary adopters are the firms that adopted IFRS before the year 2012. It was decided to set the pre-adoption period from 2007 to 2011, while post-adoption from 2012 to 2015. Additionally, I will also try to mitigate the potential transition effect on the capital market indicators, by removing the time period of transition from the analysis. In particular observations for 2 years will not be taken into account: the year before the mandatory adoption (2011) and first year of adoption (2012).

Table 5: Companies' breakdown based on the type of IFRS adoption

Mandatory Adopters 2012	Mandatory Adopters (postponed till 2015)	Voluntary Adopters
15	5	43

Source: Author

As one may notice from the Table 5 the number of voluntary adopters is more than 2 times higher than of mandatory. The main reason for that may be data limitations in the process of sample selection. This might be also explained by the fact that Russian firms, mainly in oil and gas industry, are heavily seeking for the additional, in some cases cheaper, foreign capital and are trying to expand internationally. In other words the companies probably want to be more oriented to a wider range of investors from different countries. The use of international reporting standards is helping to raise that foreign capital. Furthermore about 30% of voluntary adopters in the sample are cross-listed in foreign stock exchanges. For them IFRS is an essential tool for meeting the needs of all

segments of shareholders. The tendency of Russian companies to be cross-listed, or listed only abroad, may be also partially explained by the relatively young Russian capital market. Also the debt financing in foreign (ex. European) banks may be more favorable than in Russian banks. In order to obtain a loan on favorable terms, Russian companies need IFRS reporting. For the same reasons, companies to deal with foreign suppliers and customers may use IFRS reporting.

The relationship will be controlled for the size of the firm, measured by logarithm transformation of total assets, leverage ratio, ROE ratio, capital market volatility index, industry effects, auditor type, ownership structure and cross-listing on Russian and US or EU stock exchanges. The choice of all variables is justified by the assumption of potential direct or indirect impact of those variables on the cost of equity. The reason for cross-listing control is an assumption that company listed internationally would have higher commitment to transparency of financial statements and therefore interested in delivering of higher quality reports (Li, 2010). According to the data (Table 6), almost every third company in the sample is cross-listed on Moscow Stock Exchange and abroad. Foreign stock exchanges with listed shares of selected Russian companies include New-York Stock Exchange, London Stock Exchange and stock exchange in Frankfurt. Similarly, I will assume that companies audited by one of the Big-4[11] companies may have higher transparency in their financial statements, timely disclosure and better-inspected accounting. 41 out of 58 companies use the services of one of the Big-4 auditors.

The results may be also affected by the ownership structure, particularly, if the company is government-owned, its financial reporting may driven by differing purposes and be less oriented to external users. For this analysis I will define companies as government-owned if at least 50% of their shares belong to the state. The sample consists of 17 companies with state-owned shares.

Table 6: Distribution of firms based on cross-listing, ownership and auditor type criteria

	Yes/No	Number of firms	Adoption Type	Number of firms	Total
Cross-listing	Yes	16	Mandatory	4	58
			Voluntary	12	
	No	42	Mandatory	11	
			Voluntary	31	

[11] Big-4 stands for KPMG, E&Y, PWC and Deloitte, the four companies providing consulting, accounting, auditing and other related services.

State-owned shares	Yes	17	Mandatory Voluntary	4 13	58
	No	41	Mandatory Voluntary	11 30	
Big-4-auditor	Yes	41	Mandatory Voluntary	9 32	58
	No	17	Mandatory Voluntary	6 11	

Source: author

Furthermore, the results will be controlled for the industry effect. Due to relatively small set of companies I decided to differentiate only between three groups of industries. These are: mining and energy; manufacturing and construction; and services and other industry types. Further it is expected that larger companies may experience cheaper equity, ROE and leverage may also have certain influence, therefore the model will control for size, leverage ratio and return on equity ratio. Finally I will try to control for the overall changes in worldwide economic environment with the use of average of Chicago Board Options Exchange stock market volatility index (VIX index), measured by the S&P 500 options prices and representing market expectation of volatility (Gatsios et al., 2016). In this case increase in in VIX would mean higher investors' uncertainty in the market.

Table 7: Descriptive Statistics for variables: Size, Leverage, VIX index and ROE

Descriptive Statistics							
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Size (mil, RUB)	513	17052002.8	37178	17052040	473656.5	1683622.7	2834585382437347
Leverage (%)	513	982.480	0.000	982.48	111.34469	149.122900	22237.639
ROE (%)	513	617.518	-414.678	202.87	6.89200	47.264236	2233.908
VIX (%)	513	17.245	14.548	31.793	21.49861	6.267561	39.282

Source: author

Table 7 above represents the descriptive statistics analysis for explanatory variables: size (measured in thousands in local currency RUB), leverage ratio, return on equity ratio and VIX index. It is clear from the table that size variable varies significantly. The largest company's (Gazprom) total assets accounts for approximately 17 trillion rubles, while total assets of the smallest company accounts for only 37 million rubles. The average size

of all companies is around 473 billion rubles. Concerning leverage ratio the range is also quite meaningful. Zero results for leverage ratio refer mainly to company (Rusgrain Holding) with negative total equity in years 2011-2015. About 25% of companies have this ratio of more than 127% with the maximum of 982% (Phamacy Chain 36,6). However the majority of firms, about 75%, have leverage ratio lower than 127%. Standard deviation of ROE is also considerably high, 47.26, meaning that the values are spread out over the quite wide range. Negative values for ROE are most associated with negative equity results among sample companies. The highest value for VIX index, about 31,8%, was mainly during the crisis period in years 2008-2009, whereas the lowest values in 2013-2015. In 2015 VIX index started to increase again.

4.3 Performed Tests, Results And Discussion

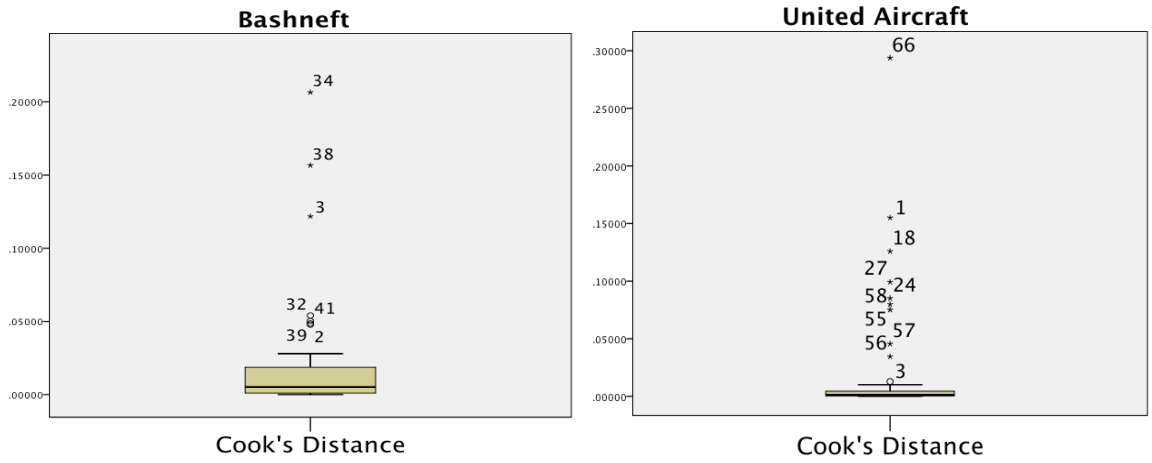
4.3.1 Step 1 – Beta coefficients

Before conducting the main hypothesis test, it is necessary to calculate the values of model's response variable – firms' costs of equity capital. Regression function described in Equation 3 is used to estimate the beta coefficients for all companies in the sample. Beta coefficients here show the relationship between means stock returns of sample firms and average return on the stock market. Market portfolio here is represented by MICEX index monthly returns. Typically, beta, which is equal to one, shows that the company is moving in the same direction as the market, that is, the growth of the stock market leads to an increase in the profitability of the shares and vice versa. If the beta exceeds the value of one, then the return on the stock may be assumed as risky and more volatile than the overall market return fluctuates. Such actions are usually called aggressive. If the beta is less than one, then the company's shares change insignificantly in response to a change in the market's yield. Sometimes companies have a negative beta factor (for example, gold mining companies), which means that the security return moves in the opposite direction relative to the market. A beta coefficient of zero indicates that there is no link between the return on the company's shares and the stock market.

The results of regression analyses show that there are no betas that are either negative or equal to 0. In Appendix 2 one may find the results for all companies including coefficients of determination (R squared), which explain the strength of explanatory power of the mode, p-value indicating the significance of the relationship between firms' historical returns and market risk premium, and respective beta coefficients.

The following ANOVA tests of 57 firms resulted in p-value close to 0, what proofs the significance of the models and give statistically strong evidence. The regression analysis of the company Gazkon showed no significant relationship with extremely low R squared value of 0.074 and p-value of 0.392. Therefore this company will not be used further in the analysis. The sample decreased to 57 companies in total. The R squared coefficients of 49 companies was relatively high and varied from 0.4 to 0.9 (or 40%-90%), therefore further improvements were not necessary and results of beta coefficients were taken as final. However, 8 firms with low coefficients of determination were inspected for possible regression outliers. The method of Cook's distance was used in order to identify the most influential observations and potential outliers, which may negatively affect the models. In general, Cook's distance shows the difference between calculated B-coefficients and the values that would result if the corresponding observation was excluded.

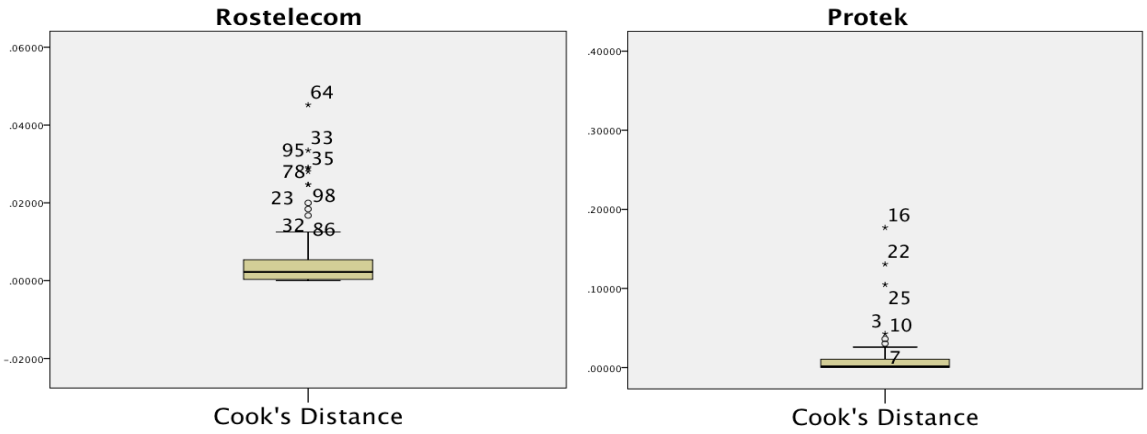
Graph 2, 3: Box-plot for Cook's distance: Bashneft and United Aircraft



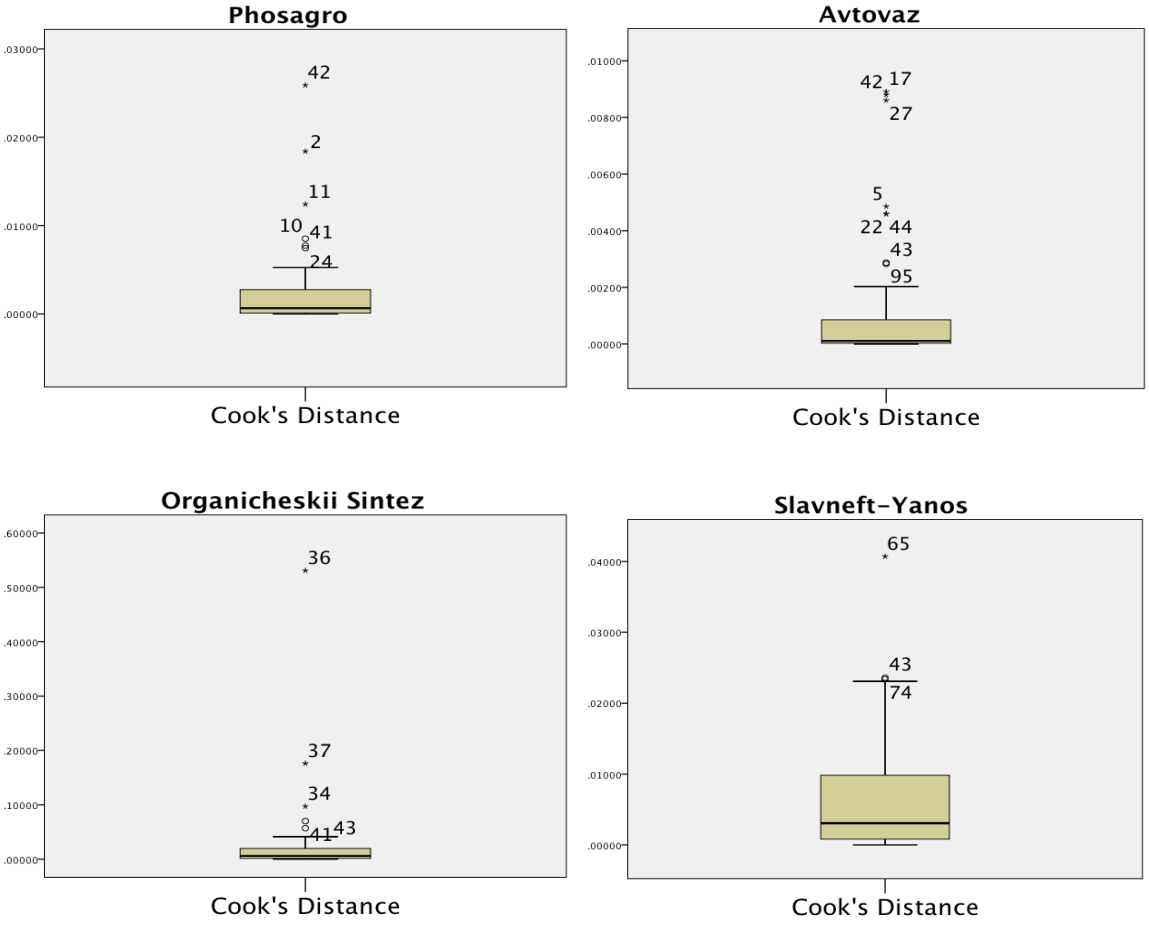
The graphs 2 and 3 above illustrate the most influential observations or extreme outliers. In case of Bashneft company there was removed 3 extreme outliers, in particular the returns for February 2012, Septermber 2014 and January 2015. In other words these are extreme values, low or high, of Bashneft's stock returns, which are usually the results of some firm specific events. For united aircraft there was also removed returns for 3 months: March 2010, August 2011 and December 2015.

The following Graphs 4, 5, 6, 7, 8 and 9 shows the data points that were also removed from the regressions in order to improve accuracy of the models for Rostelecom, Protek, Phosagro, Avtovaz, Organicheskii Sintez and Slavneft Yunos.

Graph 4,5: Box-plot for Cook's distance: Rostelecom and Protek



Graph 6,7,8,9: Box-plot for Cook's distance: Phosagro, Avtovaz, Organicheskii Sintez and Slavneft-Yanos



Beta coefficients were estimated from the regression models described above. Descriptive statistics analysis (Table8) demonstrates that coefficients vary from the minimum value of 0.404 (manufacturing company Organicheskii sintez) to the maximum of 1.776 (RAO UES energy company). Mean and median values are almost identical and

slightly exceed the value of 1. It means that slightly more than 50% of firms have beta coefficients higher than 1 and are in general more volatile than market portfolio. The other 50% or 25 companies had estimated betas lower than 1 meaning less risky stocks that are less volatile than the overall stock market. No clear patterns were observed neither among betas of different industries nor among different types of adopters.

Table 8: Descriptive statistics for companies' beta coefficients

Descriptive Statistics		
Beta Coefficients		
N	Valid	57
	Missing	0
Mean		1.036
Median		1.052
Variance		0.079
Std. Deviation		0.281
Range		1.372
Minimum		0.404
Maximum		1.776

Source: author

4.3.2 Step 2 – Cost of equity

The next table 9 describe the development of the components of equation 2 used to calculate the cost of equity: US MRP, US risk-free rate, CRP and inflation differential between countries. It is clear from the table market risk premium was quite unstable with the lowest point in 2008, which was probably caused by the financial crisis, during which stock market was highly volatile, S&P 500 index experienced nearly 37% loss of its value. Therefore, from the mathematical viewpoint the value of MRP would result in negative 38.3% (return of S&P 500 minus risk-free rate). I would like to point out, that the results for MICEX were also negative in 2008. Moreover I used historical prices in this particular case. This may be assumed as one of the limitations of using CAPM, which assumes expected returns and mainly positive MRP. In order to try to mitigate this impact, I run additional test without time period 2007-2008. The results may be found in Appendix 4. The highest MRP can be observed in 2009 and 2013. The rate of 3-months Treasury bond was higher than 1% in 2007 and 2008, and further decreased to values close to 0 in the rest of the analyzed period of time. Country risk premium for Russia was roughly around 2% for the whole period. Finally one may notice that inflation differential,

similarly to MRP, significantly influenced the results of calculation of cost of equity. Obviously, the difference was mainly due to high inflation rates in Russia during the crisis as well as the period starting at the end of 2014 probably related to imposed sanctions.

Table 9: Breakdown of the CAPM for the cost of equity calculation

	MRP (Rm-Rf) US	Rf (3-months) US	CRP (Russia)	Inflation Differential (Russia-US)
2007	1.04	4.48	1.73	6.13
2008	-38.34	1.4	1.73	10.25
2009	28.26	0.15	3	11.42
2010	17.37	0.14	2.4	5.23
2011	0.44	0.05	2.25	5.31
2012	16.28	0.09	2.25	3
2013	35.2	0.06	2.25	5.28
2014	11.7	0.03	2.4	6.17
2015	0.07	0.05	2.85	15.43

Source: author

Similarly, the descriptive statistics analysis for the calculated cost of equity (Table 10) shows that the range was the highest in the years 2008, 2009 and 2013 (52, 38 and 48 percentage pints respectively). The results are mainly driven by extreme values of MRP and inflation differential. Negative MRP in 2008 resulted in negative results for cost of equity for all companies in the sample. Also, obviously, the reaction of companies with large beta coefficients was even more pronounced. For example, in 2008 the lowest cost of equity -54,7% had the firm RAO UES with the highest beta coefficient, while company with the lowest beta, Organizheskii Sintez, had the highest value of cost of equity in that year -2,098. Identical situation was in 2013 with the range of more than 48 percentage points. RAO UES had the maximum rate of approximately 70% and Organichskii sintez had the minimum among all firms 21,8%.

In relatively stable years the difference between companies' costs of equity was not so significant and in some cases even almost identical (2007, 2011, 2015). The results for the cost of equity for each company may be found in Appendix 3.

Table 10: Descriptive statistics for the calculated costs of equity

Descriptive Statistics							
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Year2007	57	1.427	12.755	14.182	13.41308	0.291830	0.085

Year2008	57	52.620	-54.718	-2.098	-26.36389	10.758419	115.744
Year2009	57	38.785	25.975	64.761	43.86146	7.929914	62.884
Year2010	57	23.839	14.786	38.625	25.77937	4.874119	23.757
Year2011	57	0.604	7.786	8.390	8.06444	0.123466	0.015
Year2012	57	22.343	11.912	34.256	22.21612	4.568259	20.869
Year2013	57	48.310	21.795	70.105	44.07391	9.877317	97.561
Year2014	57	16.058	13.320	29.378	20.72508	3.283086	10.779
Year2015	57	0.096	18.353	18.449	18.39756	0.019642	0.000

Source: author

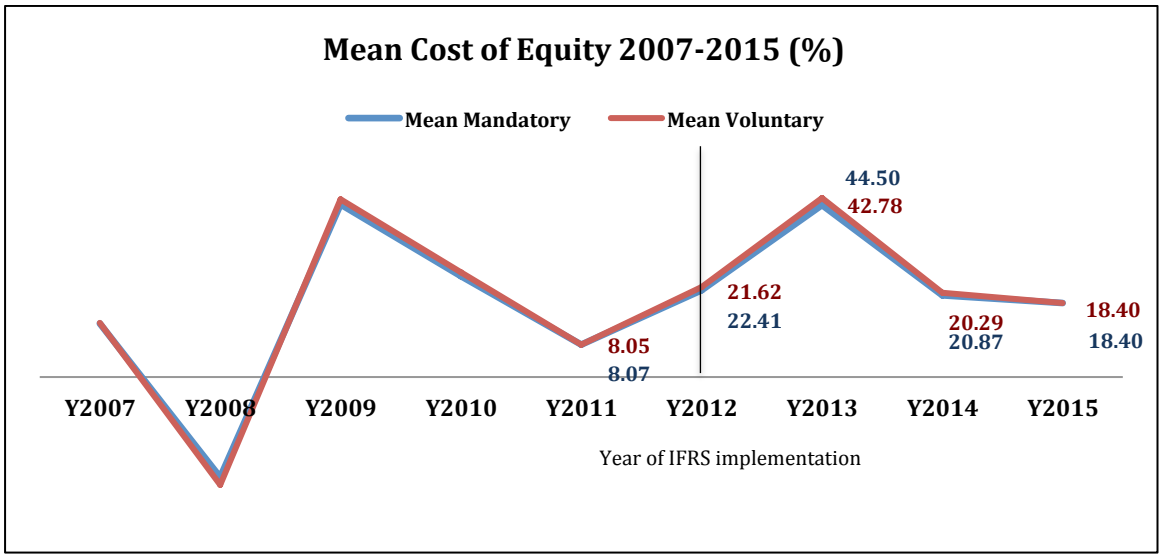
The separate calculation of companies' costs of equity also shows that the mean rate increased in 2012 and 2013, the first two years of IFRS adoption (Graph 3). After that it started to decrease in the next years. Table 11 represents descriptive statistics separately for mandatory adopters and voluntary adopters to see if there are any differences among different types of groups. As one may notice the relative increase in 2012 and 2013 is slightly higher for the voluntary groups, 169% and 178% respectively. Similarly, the further decrease in 2015 is also larger among voluntary adopters by 3 p.p. Whereas relative change in 2014 looks to be the same for both groups. I would like to also notice that the variance is relatively higher in the voluntary adopters group of companies.

Table 11: Descriptive statistics of cost equity during 2007-2015 for mandatory and voluntary

	N	Mean Mandatory	% Change	Variance	N	Mean Voluntary	% Change	Variance
Y2007	14	13.3748		0.061	43	13.4255		0.094
Y2008	14	-24.9541	-287%	82.865	43	-26.8229	-300%	127.798
Y2009	14	42.8223	-272%	45.02	43	44.1998	-265%	69.433
Y2010	14	25.1407	-41%	17.008	43	25.9873	-41%	26.231
Y2011	14	8.0483	-68%	0.011	43	8.0697	-69%	0.017
Y2012	14	21.6175	169%	14.941	43	22.411	178%	23.042
Y2013	14	42.7796	98%	69.847	43	44.4953	99%	107.722
Y2014	14	20.2949	-53%	7.717	43	20.8652	-53%	11.901
Y2015	14	18.395	-9%	0	43	18.3984	-12%	0
Valid N	14				43			

Source: author

Graph 10: Development of mean costs of equity 2007-2015 (%)



Source: author

The results support the need for the analysis of relationship between increased and further decreased mean in the costs of equity among companies and IFRS official implementation. The main analysis model will prove if there may be any association and adoption effects.

4.3.3 Step 3 – Panel data analysis

Difference-in-Difference estimation

I will use panel data approach since the data is cross-sectional and time series, there is in total 57 entities and the set of variables is measured at different time periods (Park, 2015). Total number of observations accounts for 513, number of firms multiplied by the number analyzed years (57 times 9), 126 observations for mandatory adopters group and 387 for voluntary adopters group. There is a balanced panel data since the sample of companies is the same in each analyzed year throughout the whole period. Pooled OLS (ordinary least squares) method will be used in order to estimate the regression parameters in my model. The method estimates the regression function parameters by minimizing the sum of residual squares.

There are 5 time-invariant variables in total: adoption type, ownership, industry, cross-listing and auditor type. These are variable that do not change over time for particular company. In contrast, other 3 variables do vary over time for each individual

company in the period 2007-2015. These are: size, leverage and ROE. VIX and time period variables change over time, but are the same for each company.

There is a combination of cross-section and time series analysis using difference-in-differences method. At the same time, parameters for this difference-in-differences analysis will be estimated in multiple linear regression model with panel data structure (Equation 1). The main hypothesis is tested using F-test. Thus, I estimate the mean difference of cost of equity between mandatory and voluntary adopters after IFRS official implementation.

Multicollinearity test

One of the assumptions that are needed to be satisfied in panel data analysis is the absence of high correlation between the explanatory variables. In order to do this test I performed Pearson's correlation matrix representing the level of correlations for all pairs of explanatory variables (Table 12). According to the results there are 3 pairs of variables with correlation level higher than 50%. In particular, size variable is correlated with listing and auditor variable, with the levels of 0,56 and 0,60 respectively. This lead to an assumption that bigger firms usually tend to have more opportunities or able to meet the requirements of being cross-listed on foreign stock exchange and have one of the Big-4 firms as an auditor. The third pair is VIX index variable and time period correlating at approximately 55%. In this case it just indicates that VIX had either decreasing or increasing tendency over the analyzed period. Using the rule of thumb it was decided to leave all of the variables, since they are not likely to significantly influence the model. Concerning the rest of the variables one may assume no significant correlation or no relationship.

Table 12: Multicollinearity test for the set of explanatory variables

	Adoption type	Time period	Size	Leverage	VIX	ROE	Industry	Listing	Ownership	Auditor
Adopt.type	1.00	0.00	0.08	-0.06	0.00	-0.05	0.06	-0.01	0.02	0.10
Timeperiod	0.00	1.00	-0.13	-0.03	0.55	0.04	0.00	0.00	0.00	0.00
Sizelog	0.08	-0.13	1.00	-0.21	-0.09	0.02	0.16	0.56	0.34	0.60
Leverage	-0.06	-0.03	-0.21	1.00	-0.01	-0.20	-0.19	-0.06	-0.13	-0.20
VIX	0.00	0.55	-0.09	-0.01	1.00 -	-0.04	0.00	0.00	0.00	0.00
ROE	-0.05	0.04	0.02	-0.20	0.04	1.00	-0.07	0.05	0.02	0.08
Industry	0.06	0.00	0.16	-0.19	0.00	-0.07	1.00	0.08	0.21	0.01

Listing	-0.01	0.00	0.56	-0.06	0.00	0.05	0.08	1.00	0.10	0.30
Ownership	0.02	0.00	0.34	-0.13	0.00	0.02	0.21	0.10	1.00	-0.10
Auditor	0.10	0.00	0.60	-0.20	0.00	0.08	0.01	0.30	-0.10	1.00

Source: author

Analysis of residuals

In the following step I will remove regression outliers in order to improve the explanatory power of the model. For this purpose I used the visual method of outliers detection, by plotting the externally studentized residuals against fitted values and against values of certain explanatory variables. With the help of this graphical illustration I identified the largest residuals in the absolute values (Figures 5, 6, 7, 8). Based on the graphs and variation of the observation there was detected 10 critical values, which will be removed from the analysis. These are the observations number 236, 299, 390, 103, 124, 383, 201, 117, 251, 498.

Figure 5,6: Plot of externally studentized residuals against fitted values and explanatory variables

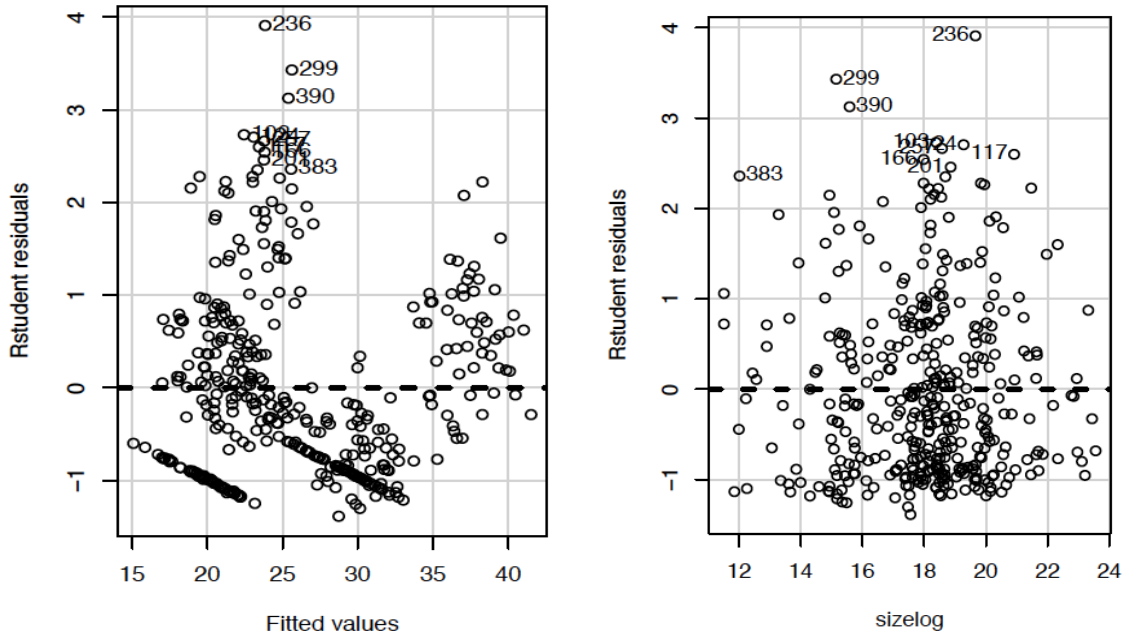
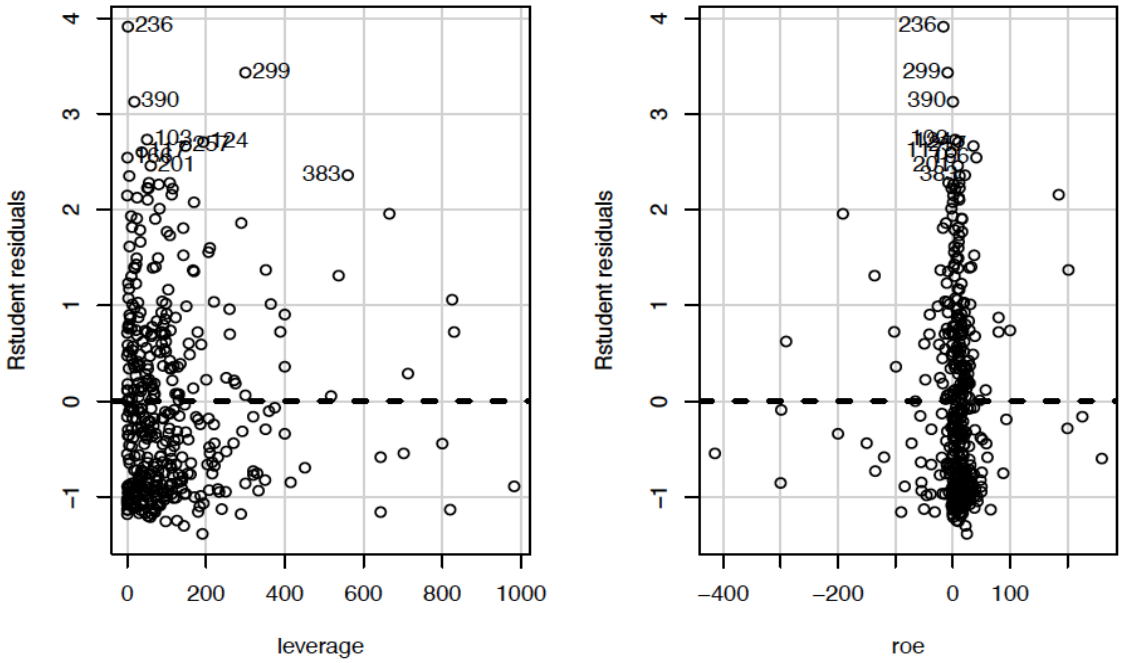


Figure 7,8: Plot of externally studentized residuals against fitted values and explanatory variables



Summary of the model

The results of the panel data analysis using pooled OLS method may be found in Table 13. The F-statistic **5.67547** and p-value **3.5007e-09,** which is close to zero, tells that the overall model is statistically significant at 5% significance level. In other words the relationship between response variable (cost of equity) and explanatory variables is statistically significant. However, according to the value of the coefficient of determination (R squared) only approximately 12.2% of variation in the cost of equity is explained by the variations in explanatory variables. There is not so strong explanatory power of the model.

When we look at the coefficients table, it is clear that only 2 out of 10 explanatory variables are statistically significant. These are the time period and VIX index, with significance levels of 0.1 and 0.001 respectively. Also according to the coefficients table the cost of equity increases by 6.9% in the post-adoption period compared to the pre-adoption period. The main interest variables, interaction of voluntary:preadoption, as well type of adoption variable, are not statistically significant. Therefore one may conclude that there is no association between increased cost of equity and IFRS official adoption. The mean change in the companies' cost of equity was not impacted by the adoption. It is clear that cost of equity increased for both mandatory and voluntary adopters, however

there is not enough statistical evidence to associate the change with the adoption. Lagrange Multiplier test will further test the appropriateness of the model by comparing it with fixed/random effect model.

Table 13: Model summary (R)

Pooling Model				
Call:				
plm(formula = y ~ adoptiontype + timeperiod + adoptiontype * timeperiod + sizelog + leverage + roe + vix + industry + listing + ownership + auditor, data = pdata, model = "pooling")				
Unbalanced Panel: n=57, T=6-9, N=503				
Residuals:				
Min.	**1st Qu.**	**Median**	**3rd Qu.**	**Max.**
-49.90	-6.69	-4.23	11.10	43.20

COEFFICIENTS	Estimate	Std. Error	t-value	Pr(>|t|)
(Intercept)	37.258	10.854	3.4327	**0.0006482 *** **
Adoption type-voluntary	0.256	2.866	0.0894	**0.9287865**
Time period –pre-adoption	-6.939	3.860	-1.797	**0.0728 .**
Size (log)	-0.134	0.660	-0.203	**0.839**
Leverage	-0.0016	0.0059	-0.279	**0.780**
ROE	-0.027	0.018	-1.499	**0.0135**
VIX	-0.575	0.200	-2.865	**0.004****
Industry – mining, energy	-0.528	2.594	-0.2035	**0.838**
Industry – services, construction	0.1585243	1.947	0.0814	**0.935**
Listing	1.6833477	2.249	0.7482	**0.455**
Ownership	-0.0203	2.159	-0.0094	**0.992**
Auditor	0.0858	2.588	0.0331	**0.974**
Voluntary:Preadoption	-0.2524	3.830	-0.0659	**0.947**
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Total Sum of Squares: 188610

Residual Sum of Squares: 165600

R-Squared: **0.12203**

Adj. R-Squared: **0.10053**

F-statistic: 5.67547 on 12 and 490 DF, **p-value: 3.5007e-09**

Limitations of the performed model:

- May produce biased estimates

- Individual homogeneity
- Omit time effect

4.3.4 Step 4 - Additional tests to improve the model

The main model test was performed using difference in difference estimation and pooled OLS. For the purpose of improvement of the model I will perform additional tests, particularly fixed or random effect panel data models. I will further compare all of the models and choose the one that better fits the data.

Fixed effect panel data was introduced in order to treat the individual heterogeneity effect. In other words the model will differentiate between individual companies by considering company specific variables. Limitation of the model in this analysis is that every time-invariant variable is dropped out. Random effect model will consider all variables including time-invariant.

Assumptions of these panel data models are:

- Heteroscedasticity, meaning that the variance of the error term is not constant. Heteroscedasticity is accepted since I assume it is inevitable in the real life data
- No serial correlation of the error terms. This assumption will be tested further in the text

The model will be transformed to the following structure:

Cost of equity = Bo + D1*post-adoption+ B1*controls (time-invariant) + (a*(time-variant variables) + e)

Fixed-effect model summary:

Table 14: Summary of fixed-effect panel data analysis

FIxed Effect Model
Call:
plm(formula = y ~ adoptiontype + timeperiod + sizelog + leverage + roe + vix + industry + listing + ownership + auditor, data = pdata, model = "within")
Unbalanced Panel: n=57, T=6-9, N=503

COEFFICIENTS:				
	Estimate	**Std. Error**	**t-value**	**Pr(>|t|)**
Time period –pre-	-23.3387080	2.5347323	-9.2076	**< 2.2e-16*****

adoption				
Sizelog	-10.8901016	2.0250620	-5.3777	**1.413e-07*****
Leverage	0.0029392	0.0073186	0.4016	**0.6882**
VIX	1.7909145	0.2254500	7.9437	**2.965e-14*****
Roe	-0.0088544	0.0141810	-0.6244	**0.5328**
Signif. codes: 0 '*' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1**				

R-Squared: **0.12191**

Adj. R-Squared: **0.013334**

F-statistic: **5.49039** on 11 and 435 DF**, p-value: 3.1479e-08**

The overall model (Table 14) is significant with the p-value of 1.2704e-08 and identical coefficient of determination of 12%. The model is slightly improved with decreased standards errors. In addition to that one more control variable became statistically significant compared to the previous model. According to the results bigger companies experienced lower cost of equity by approximately 11%. This is consistent with my expectations that larger firms may have more power and easier access to cheaper capital, for example by being able to meet the criteria of being listed on the stock exchange at home or even abroad. The results for time-period variable and VIX index are similar to the pooling model: cost of capital increased in the post-adoption period, while higher volatility of stock market is associated with higher cost of equity capital by 1.79%. Also there is increased significance level for the time period variable and VIX index variable.

Nevertheless one may notice that all time-invariant variables such as adoption type, listing, auditor, industry and ownership have been removed. This is the main limitation of this model, and therefore it is required to test whether such an assumption holds true. It will be checked further in the Hausman test. Finally, based on the results of this model, however, the main hypothesis had to be rejected. There is no statistically significant evidence of relationship between cost of equity and IFRS adoption.

Durbin-Watson test

The Durbin-Watson test (Table 15) is used in order to handle the assumption of no autocorrelation of error terms. In this case the null hypothesis is that errors are independent and one may assume no serial correlation. The resulting DW value, which

equals to 2.227, and p-value of 0.9845 mean that the null hypothesis is not rejected and one may assume no autocorrelation in the model.

Results:

Table 15: Durbin-Watson test

Durbin-Watson test for serial correlation in panel models
data: y ~ adoptiontype + timeperiod + sizelog + leverage + roe + vix + industry + listing + ownership + auditor
DW = 2.2274, p-value = 0.9845
Alternative hypothesis: serial correlation in idiosyncratic errors.

Random-effect model summary:

Table 16: Summary of random-effect panel data analysis

Random Effect Model
Call:
plm(formula = y ~ adoptiontype + timeperiod + sizelog + leverage + roe + vix + industry + listing + ownership + auditor, data = pdata, model = "random")
Unbalanced Panel: n=57, T=6-9, N=503

COEFFICIENTS:				
	Estimate	Std. Error	t-value	Pr(>|t|)
(Intercept)	43.5781166	5.3293616	8.1770	**2.504e-15 *** **
Adoption type-voluntary	0.3380882	0.8452183	0.4000	**0.6893297**
Time period –pre-adoption	-6.4767212	2.5948258	-2.4960	**0.0128867 ***
Sizelog	-0.3927363	0.2625293	-1.4960	**0.0135303 ***
Leverage	-0.0014400	0.0030768	-0.4680	**0.6399869**
VIX	0.7040596	0.2061206	3.4158	**0.0006888 *** **
ROE	-0.0260683	0.0123221	-2.1156	**0.0348839 ***
Industry - Mining, Energy	-0.1459576	1.0388249	-0.1405	**0.8883205**
Industry - Services, Construction	0.3692319	0.7887825	0.4681	**0.6399182**
Listing1	1.7779538	0.9880496	1.7995	**0.0725601 .**
Ownership1	-0.2191373	0.9467839	-0.2315	**0.8170583**
Auditor1	0.9214917	1.0456830	0.8812	**0.3786222**
Signif. codes: 0 '*' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1**				

R-Squared: **0.24518**
Adj. R-Squared: **0.22827**
F-statistic: **14.3809** on 11 and 491 DF, **p-value: < 2.22e-16**

According to the results (Table 16) of F-statistic and p-value 2.22e-16, which is smaller compared to all previous models, the random-effect panel data model is statistically significant and proves the relationship between cost of equity and explanatory variables. The coefficient of determination (R squared) accounts for 24.5 %, which is considerably higher than in the main model (pooled OLS). Thus the strength of explanatory power is improved. The value of adjusted R squared was also increased to 22.8% and therefore the predictive power of the model improved as well.

Moreover the coefficients table shows that there are 2 more statistically significant independent variables. These are ROE and cross-listing variable with significance levels 0.05% and 0.1%. The results of this model may be interpreted in the following way:

- The main interest variable coded as adoptionvoluntary resulted to be insignificant, meaning that change in the cost of equity was not associated with adoption from the statistical viewpoint
- Mean cost of equity is by 6.47% lower in the pre-adoption period compared to the post-adoption period
- Larger firms experienced cheaper cost of equity by almost 0.4%
- Increase in the VIX index by 1 percentage point results in decreased cost of equity by 0.7 percentage points
- Increase in the ROE by 1 percentage point results in decreased cost of equity by 0.026 percentage points
- Cross-listed companies have approximately by 1.77 percentage points higher mean cost of equity than companies listed only at local stock exchange (MOEX)

Similar to the previous models I conclude that there was no difference between mandatory and voluntary adopters in terms of the change in the cost of equity capital. Both types of adopters experienced increase in the cost of equity by almost 6.5%. However there is not enough statistical evidence to prove the relationship between cost of equity and official IFRS adoption.

Hausman Test

The next test is needed in order to assess both fixed and random model and choose the one that fits better. This the necessary step in the panel data model analysis. The null hypothesis assumes that fixed model perform better and there is no need for random effect model. The results (Table 17) show that the null hypothesis is rejected since the p-value equals to **7.04e-07,** which is close to 0. Therefore random effect model should be used in the analysis.

Table 17: Hausman Test for fixed/random effect models

Hausman Test
Data: y ~ x (independent variables)
Chisq = 47.7, df = 10, p-value = 7.04e-07
Alternative hypothesis: one model is inconsistent

Lagrange Multiplier test (Breusch-Pagan)

The final logical test for this analysis will be Lagrange multiplier test. This test will allow me to choose between pooled OLS model, the main model, and random effect model resulted from the Step 4 – additional test. As it was mentioned earlier the main limitation of pooled OLS is that it does not differentiate between company-specific effects and treat them as similar to each other. Subsequently, in the following test I will inspect whether there is statistical evidence of differences between companies. The null hypothesis stands for the appropriateness of pooled OLS model.

Based on the results (Table 18) I do reject the null hypothesis, the p-value here equals to **5.687e-07** and is lower than 0.05. Thus, there is statistically significant evidence of company-specific and time effects, and, therefore, the random-effects model should be applied. I conclude that it is the best model for given panel data. Consequently, final results of the analysis should be interpreted based on this model.

Table 18: Breusch-Pagan Lagrange Multiplier test for pooled OLS and random effect model

Lagrange Multiplier Test - (Breusch-Pagan) for unbalanced panels
Data: y ~ x (independent variables)
Chisq = 25.015, df = 1, p-value = 5.687e-07
Alternative hypothesis: significant effects

4.3.5 Control for potential transition effect

All of the models described above were additionally tested using restricted set of data with removed transition period 2011-2012 in order to mitigate potential negative impacts. However the results did not detect any significant changes or improvements.

An exclusion of the most volatile years 2007-2008 from analyzed period of time did not produce any improvements as well. The results of the additional test may be found in the Appendix 4 and 5.

4.3.6 Summary of the results

In order to test the main hypothesis of IFRS official implementation impacts on the decreased cost of equity among listed companies there was performed three multiple linear regression models. Pooled OLS, fixed and random effect models were applied for the given panel data analysis. All of the assumptions and supportive tests, in particular multicollinearity test, analysis of residuals and outliers detection, Durbin-Watson for autocorrelation, Hausman test for fixed and random effect models, and finally Breusch-Pagan Lagrange Multiplier test for pooled OLS and random effect model, were implemented and the results were explained.

Based on the values of coefficients of determination and p-values, as well as on the executed appropriateness tests, Hausman and Lagrange Multiplier, it was decided to select the **random effect panel data model**. Moreover this model appeared to have the highest strength of explanatory power, R squared of almost 25%.

All of the performed models resulted to be statistically significant, however the main hypothesis had to be rejected. I found no proof of association between cost of equity and IFRS related variables employed in the models in the period 2007-2015. The main interest variables adoption type and interaction of adoption type and time period variables, representing change in the mean cost of equity in the post-adoption period among mandatory adopters are not statistically significant with respectively high p-values. Based on the selected model I conclude that there was no difference between mandatory and voluntary adopters in terms of the change in the cost of equity capital. Both types of adopters experienced increase in the cost of equity by almost 6.5%. However there is not enough statistical evidence to prove the relationship between cost of equity and official

IFRS adoption. The mean change in the companies' cost of equity was not impacted by the adoption.

Nevertheless, the analysis revealed statistically significant relationship between some of the control variables. Specifically, higher VIX index was associated with increased cost of equity by 0.7 pp., firms with higher ROE tended to have lower cost of equity by 0.026 pp., and, finally, cross-listed firms had higher mean cost of equity by 1.77 pp. One of the models also found the relationship between company size and the response variable; particularly, larger firms had lower cost of equity by almost 11%. As I said, this is consistent with my expectations that larger firms may have more power and easier access to cheaper capital, for example by being able to meet the criteria of being listed on the stock exchange at home or even abroad. Lower cost of equity due to increased ROE was also expected and this assumption was proved in the model. The results for VIX are mixed; VIX estimate in pooled OLS model had negative sign. However according to the selected model higher stock market volatility index resulted in increased cost of equity and the relationship is statistically significant.

The result for the listing variable with positive estimate is quite odd. It was expected cross-listed firms would experience lower cost of equity, however the analysis proves the opposite. The main reason for that may be the omission of some important variables; the so-called omitted variable bias, which distorted the final result. One may also assume that cross-listed firms could have some additional costs related to foreign listing, such as higher disclosure or higher investors protection requirements, which locally listed companies did not incur. It may be also that the amount of cross-listed shares of those companies was insignificant. Lower cost of equity of locally listed firms may be also associated with certain incentives from local stock market.

5. CONCLUSION

The theory and the main mission of accounting harmonization suggests that with the adoption of IFRS one may observe higher financial reporting quality, and companies' financial statements, once harmonized, became more transparent and comparable. Thus, there is decreased information asymmetry and decreased costs of being informed about firm's financial performance for existing and potential investors. Also common set of accounting standards creates equal conditions for decision-making of both local and foreign types of investors. Reliable, accurate, timely disclosed, comparable and transparent information create opportunities to extract value relevant information and take better-informed investment decisions for all market participants. This is crucial for more effective allocation of resources on capital markets. As a result there is increased market liquidity and decreased costs of raising capital.

According to the empirical studies, which analyzed the economic impacts of IFRS adoption, such an improvement depends also on variety of other factors, which may be divided to firm-specific and country-specific. Firm-specific factors include mainly reporting incentives of the company, shareholders structure and types of financing, in other words whether the company is oriented to the outside-equity financing. At the same time country-specific factors presume overall conditions of IFRS implementation. These are first of all the effectiveness of enforcement mechanisms, the effectiveness of institutional setting and business environment, as well as overall level of development of capital market. All of this factors influence the resulting impacts to a large extent.

The main goal of this paper was to investigate whether the proposed benefits of IFRS adoption may be similarly observed in an environment of transition country with somewhat historically different accounting framework and economic conditions. Although it is obvious that implementation of IFRS should contribute to the growth and development of capital markets in Russia, overall economic development and increase its attractiveness to foreign investments, there are certain obstacles that are necessary to consider. In case of Russia one can observe certain imperfections in terms of enforcement mechanisms and compliance, problems with disclosure of financial information and wide usage of local accounting standards. The economy is heavily based on the traditional industries, such as mining, natural resources, energy, heavy manufacturing and engineering industries. There is also the dominance of firms with the majority of state-owned shares. All of it, eventually, tends to determine the purpose of reporting, as well as

to challenge the adoption of the standards and probably even diminished its potential benefits.

The practical part of my thesis was aimed to empirically analyze the impacts of adoption. The main purpose was to identify whether there is statistical evidence of the relationship of decreased/increased cost of equity capital among listed companies and mandatory adoption of IFRS. In order to test the hypothesis I performed the panel data analysis and multiple linear regression models. I analyzed whether the change in the cost (if any) could be associated with the implementation, while controlling for firm-specific variables, representing the economic differences between companies as well differences in initial incentives for higher quality, transparent and timely disclosed financial reporting. The test of control variables identified that higher VIX and cross listing are associated with increased cost of equity, while firms with higher ROE and of larger size experienced decrease in the costs.

All of the performed models resulted to be statistically significant, however the main hypothesis had to be rejected. I found no proof of association between cost of equity and IFRS related variables employed in the models in the period 2007-2015. Thus, based on the results I have to conclude that there was no difference between mandatory and voluntary adopters in terms of the change in the cost of equity capital. Both types of adopters experienced increase in the cost of equity by almost 6,5%. However there is not enough statistical evidence to prove the relationship between cost of equity and official IFRS adoption. From the statistical viewpoint, the mean change in the companies' cost of equity was not impacted by the adoption.

A number of reasons may explain the results of the research. Brief analysis characterized Russia as the country with not so strong reporting incentives and weak enforcement mechanisms and compliance to the standards. As it was mentioned earlier, there is a significant amount of companies with state ownership, mining and heavy manufacturing industries are prevailing, regulatory and tax authorities are among the main users of financial statements, there is imperfect disclosure and lack of transparency. All of it may serve as a reason why the results are not inline with the theory and experience of for example European countries.

There might be also a time lag effect meaning that the effect of adoption could require some period of time. It is may be too early to collect evidences and expect any impacts of adoption. Although the date of official implementation was in 2012, many

companies were allowed to postpone the adoption to 2015. It is possible that companies were not ready for the change. Lack of preparatory actions in terms of education and sophisticated training programs could be the reason why companies failed to absorb the benefits.

25 or 44% of companies in the sample are blue chips, 41 out of 58 are audited by one of the Big-4, and 30% of firms are cross-listed, 43 are voluntary adopters of IFRS. Based on this information one may not exclude the possibility that companies were already motivated for transparent and comparable reporting, and therefore experienced the benefits of the use of international standards gradually during the last decade.

Results could be also affected by the different type or origin of investors. Foreign investors definitely benefited from the transition, in terms of decreased information asymmetry. Therefore with the higher share of foreign investments, one may expect higher benefits. However, these benefits of adoption could be offset by negative perception of local investors, as a reaction to a new, different and rather complex set of standards. This may be typical to the companies with prevailing portion of local investments in their shareholders structure. Local investors that are used to analyze the RAS-based financial statements could have negative reaction, at least from the short-term point of view.

Thus, complexity and lack of complete understanding among local investors might explain the absence of relationship between cost of equity and adoption. Although there is a rapid process of convergence between RAS and IFRS, still existing differences may be one of reason why official implementation failed to positively impact Russian capital market. The large amount of companies in Russia reported under US GAAP before the official IFRS implementation. Therefore if an investor wants to do any retrospective analysis and extract valuable information from the firm's financial statements now, he would have to be familiar with three set of standards, IFRS, US GAAP and RAS, which is still legally required.

In case the lack of transparency and disclosure requirements are persistent problems in Russian financial reporting practices, one may assume that financial statements may not serve as the main source of information for investment-decision making. Therefore the effects of IFRS adoption could be negligible.

Significance of macroeconomic factor, such as VIX index variable, indicate the importance of the analysis of other global and country economy's level indicators, which,

eventually, may have had higher influence on the companies' costs of equity capital. Considering this assumption, one may conclude that inability to find any relationship between cost of equity and IFRS adoption was influenced by stronger effects of capital market factors and overall economic situation.

Limitations:

The main limitation relates to the sample, choice and construction of the research model:

- The choice of the model itself
- Omitted variables bias
- Limitation of data, for instance during the process of sample selection I faced the problem of lack of disclosure of financial information; therefore the sample of companies was mainly selected based on the availability of respective financial statements. Therefore the sample could be not fully random
- Relatively small number of mandatory adopters in the sample may not reflect the real situation
- Industry classification is too broad

The next important limitation is that there was used only one approach for cost of equity calculation. Some of the previous studies suggested the use of analysts' forecasts models. Therefore in order to improve the research and obtain more reliable estimates, it might be useful to apply additional approaches for cost of equity calculation.

Obviously the results may not be caused solely by the IFRS application and may also reflect other important factors, which are rather complex and difficult to measure. Among them are the changing economic environment (crisis), changes in particular reporting incentives or changes in the strategy company' reporting framework. An analysis of real impacts may be improved with the use of more sophisticated model and the set of control variables allowing to consider all the possible company-wide and macroeconomic factors to better reflect possible changes in the economy that influence firm's cost of capital.

Further research:

Instead of average effects one may analyze the impacts based on the level of reporting incentives and level of enforcement in particular company. An assumption of varied consequences is based on the study (Daske et al., 2013). They empirically proved that

only firms with strong reporting practices are able to experience any economic improvements that follow after the IFRS adoption. Therefore it makes sense to do the analysis including objective measures of enforcement mechanisms and measures of reporting incentives in order to link the results with underlying reasons.

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Appendix 1

Appendix 1: Examples of overt and covert options in IFRS

Overt options in IFRS 2010		Covert options in IFRS 2010	
IAS 1	No format requirements for statements of financial position or comprehensive income (paras 79 and 82).	IAS 1	Determination of whether a liability is current on the basis of the expected date of settlement or purpose of holding (para. 60).
IAS 2	Either FIFO or weighted average for the determination of the cost of inventories (para. 25).	IAS 8	The determination of materiality for various purposes (para. 5).
IAS 2	Marking to market allowed for inventories of commodity broker-traders (para. 3).	IAS 11	Use of percentage of completion method only if the outcome of a contract can be estimated reliably (para. 22).
IAS 7	Net basis allowed for cash flow statements (para. 21).	IAS 12	Recognition of a deferred tax asset for a loss carry forward only if future taxable profit is probable (para. 34).
IAS 7	Choice of classification for interest and dividend flows (para. 31).	IAS 12	Recognition of a deferred tax liability on unremitted profits from subsidiaries only if dividends are probable in the foreseeable future (para. 39).
IAS 16	Either cost or fair value measurement basis for classes of property, plant and equipment (para. 29).	IAS 17	Lease classification based on 'substantially all the risks and rewards' with no numerical criteria (para. 8).
IAS 19	Actuarial gains and losses can be taken (a) immediately in full to the statement of recognised income and expense (SORIE), (b) immediately in full to the income statement, (c) in full to income over the remaining useful lives of employees in the plan, (d) in full to income over a shorter period (paras 92–93A).	IAS 21	Determination of functional currency based on a mixture of criteria (paras 9–12).
IAS 20	Asset grants can be shown either as a deduction from the asset or as deferred income (para. 24).	IAS 23	Cessation of capitalisation of borrowing costs when 'substantially all' the activities to prepare the asset are complete (para. 22).
IAS 27	In parent statements, subsidiaries can be shown either at cost or as available-for-sale investments (para. 37).	IAS 27	Identification of a subsidiary on the basis of 'power to control' (para. 4).
IAS 28	In investor statements, associates can be shown either at cost or as available-for-sale investments (para. 38).	IAS 28	Identification of an associate on the basis of 'significant influence' (para. 2).
IAS 31	In group statements, there is a choice of either proportional consolidation or equity accounting for joint venture entities (para. 30).	IAS 31	Identification of a joint venture on the basis of joint control of 'strategic financial and operating decisions' (para. 3).
IAS 31	In venturer statements, joint ventures can be shown either at cost or as available-for-sale investments (para. 46).	IAS 36	Identification of an indication of impairment based on a mixture of criteria (paras. 12–14).
IAS 38	Either cost or fair value measurement for some types of intangible asset (para. 72).	IAS 37	Recognition of a provision based on probability of outflow of resources (para. 14).
IAS 39	Choice of either cost basis or marking to market for some financial assets and liabilities (para. 9). (Other choices are also available within para. 9.)	IAS 38	Capitalisation of development costs when all criteria are met (para. 57).
IAS 40	Permission to classify a property held under an operating lease as an investment property (para. 6).	IAS 38	Amortisation of intangible assets only if useful life is assessed as finite (para. 88).
IAS 40	Entity-wide choice of either cost or fair value as the measurement basis for investment property (para. 30).	IAS 39	Use of cost basis where equity instruments cannot be measured reliably (para. 46).
IFRS 3	Choice on the calculation of goodwill in the context of non-controlling interests (para. 19).	IAS 39	Estimation of hedge effectiveness as a condition for use of hedge accounting (para. 88).
		IAS 40	Use of cost basis, despite entity-wide choice of fair value, for an investment property whose fair value cannot be measured reliably (para. 53).
		IAS 41	Use of cost basis for a biological asset whose fair value cannot be measured reliably (para. 30).
		IFRS 3	Identifying the acquirer in a business combination presented as a merger of equals (para. 20).
		IFRS 5	Treatment of assets as held-for-sale if expected to be sold within one year (para. 8).
		IFRS 8	The determination of reportable segments based on a mixture of factors (para. 11).

Source: Nobes, C. International Variations in IFRS Adoption and Practice/Christopher Nobes. *The Association of Chartered Certified Accountants.–2011.–38 pp.*

Appendix 2

Appendix 2: Summary of simple linear regressions for beta coefficients

JSC Gazprom		United Aircraft Corporation	
R squared	0,794	R squared	0,460
p-value	0,000	p-value	0,000
Beta	0,683	Beta	1,004
Neftyanaya Kompaniya Lukoil		Rostelecom	
R squared	0,827	R squared	0,396
p-value	0,000	p-value	0,000
Beta	0,932	Beta	0,831
Rosneft Oil Company		Joint Stock Company Megafon (Jsc Megafon)	
R squared	0,793	R squared	0,713
p-value	0,000	p-value	0,000
Beta	0,958	Beta	1,007
JSC Magnit		T Plyus	
R squared	0,580	R squared	0,511
p-value	0,000	p-value	0,000
Beta	0,977	Beta	1,352
Oil Transporting Joint-Stock Company Transneft		Joint Stock Company Dixy Group	
R squared	0,628	R squared	0,420
p-value	0,000	p-value	0,000
Beta	1,147	Beta	1,052
Pjsoc Bashneft		Federal Grid Company of Unified Energy System , Joint-Stock Company (FGC UES , Jsc)	
R squared	0,324	R squared	0,427
p-value	0,000	p-value	0,000
Beta	0,631	Beta	1,328
JSC Tatneft		TMK	
R squared	0,708	R squared	0,533
p-value	0,000	p-value	0,000
Beta	1,096	Beta	1,363
Joint Stock Company Novatek		Protek	
R squared	0,594	R squared	0,378
p-value	0,000	p-value	0,000
Beta	0,969	Beta	0,776
Aeroflot-Rossiiskie Avialinii		Joint Stock Company Nizhnekamskneftekhim	
R squared	0,358	R squared	0,576
p-value	0,000	p-value	0,000
Beta	0,842	Beta	0,989
Joint Stock Company Severstal		JSC Phosagro	
R squared	0,553	R squared	0,372
p-value	0,000	p-value	0,016
Beta	1,263	Beta	0,674
Federal Hydro-Generating Company - Rushydro		Joint Stock Company Uralkali	
R squared	0,584	R squared	0,439
p-value	0,000	p-value	0,000

Beta	1,122	Beta	1,118
Avtovaz		Joint Stock Company Inter RAO UES	
R squared	0,375	R squared	0,525
p-value	0,000	p-value	0,001
Beta	0,568	Beta	1,776
Joint Stock Company Company M.Video		Novorossiysk Commercial Sea Port	
R squared	0,542	R squared	0,369
p-value	0,000	p-value	0,000
Beta	1,331	Beta	0,884
Joint Stock Company Mostotrest		Kuban Power And Electrification	
R squared	0,621	R squared	0,457
p-value	0,000	p-value	0,000
Beta	1,115	Beta	1,217
Gaz		PIK Group	
R squared	0,403	R squared	0,543
p-value	0,000	p-value	0,000
Beta	1,048	Beta	1,369
Joint Stock Company Acron		Quadra - Power Generation	
R squared	0,498	R squared	0,428
p-value	0,000	p-value	0,000
Beta	1,111	Beta	1,162
Kamaz		Joint Stock Company Kuibyshevazot	
R squared	0,435	R squared	0,212
p-value	0,000	p-value	0,001
Beta	1,110	Beta	0,594
Joint Stock Company LSR Group		Far-Eastern Shipping Company Plc.	
R squared	0,340	R squared	0,358
p-value	0,000	p-value	0,000
Beta	1,299	Beta	0,995
Irkut Corporation		Joint-Stock Company Lenenergo (Jsc Lenenergo)	
R squared	0,660	R squared	0,407
p-value	0,000	p-value	0,000
Beta	1,196	Beta	0,998
E.On Russia JSC		JSC Samaraenergo	
R squared	0,607	R squared	0,506
p-value	0,000	p-value	0,000
Beta	1,250	Beta	1,080
Kazanskoe Publichnoe Aktsionernoe Obshchestvo Organicheskii Sintez		Joint Stock Company Pharmacy Chain 36.6	
R squared	0,319	R squared	0,567
p-value	0,022	p-value	0,000
Beta	0,404	Beta	1,674
Transcontainer		Slavneft-Yanos	
R squared	0,560	R squared	0,334
p-value	0,000	p-value	0,001
Beta	0,716	Beta	0,562

Joint Stock Company Dorogobuzh	
R squared	0,335
p-value	0,000
Beta	0,849
Motovilicha Plants Stock Corporation	
R squared	0,316
p-value	0,002
Beta	0,643
JSC Tattelekom	
R squared	0,515
p-value	0,000
Beta	1,094
JSC Rosinter Restaurants Holding	
R squared	0,281
p-value	0,000
Beta	1,191
Joint Stock Company Khimprom	
R squared	0,189
p-value	0,043
Beta	0,572
Joint-Stock Company Central Telegraph	
R squared	0,273
p-value	0,000
Beta	1,158
Kovrovskii Mekhanicheskii Zavod	
R squared	0,257
p-value	0,000
Beta	0,911
Joint Stock Company Russian Sea Group	
R squared	0,383
p-value	0,000
Beta	0,851
Joint Stock Company Human Stem Cells Institute	
R squared	0,433
p-value	0,000
Beta	0,980
Rollman Group	
R squared	0,392
p-value	0,000
Beta	1,151
Plazmek	
R squared	0,474
p-value	0,000
Beta	1,303
Armada	
R squared	0,476
p-value	0,000
Beta	1,568
Joint Stock Company Gazkon	
R squared	0,074
p-value	0,392
Beta	0,244
JSC Rusgrain Holding	
R squared	0,397
p-value	0,000
Beta	1,244

Source: author

Appendix 3

Appendix 3: Results for companies' cost of equity in 2007-2015 (%)

Companies' cost of equity 2007-2015 (%)									
Company Name	2007	2008	2009	2010	2011	2012	2013	2014	2015
JSC Gazprom	13,045	-12,800	33,864	19,634	7,909	16,457	31,621	16,586	18,373
Neftyanaya Kompaniya Lukoil	13,304	-22,337	40,893	23,955	8,018	20,506	40,377	19,496	18,390
Rosneft Oil Company	13,331	-23,355	41,644	24,416	8,030	20,939	41,312	19,807	18,392
JSC Magnit	13,351	-24,064	42,167	24,738	8,038	21,240	41,963	20,023	18,393
Oil Transporting Joint-Stock Company Transneft	13,528	-30,600	46,984	27,699	8,113	24,015	47,964	22,018	18,405
Pjsoc Bashneft	12,991	-10,819	32,404	18,737	7,886	15,615	29,802	15,981	18,369
JSC Tatneft	13,475	-28,649	45,546	26,815	8,091	23,186	46,172	21,422	18,402
Joint Stock Company Novatek	13,342	-23,761	41,943	24,600	8,035	21,111	41,684	19,931	18,393
Aeroflot-Rossiiskie Avialinii	13,211	-18,908	38,366	22,402	7,979	19,050	37,229	18,450	18,384
Joint Stock Company Severstal	13,648	-35,038	50,255	29,709	8,164	25,899	52,038	23,372	18,413
Joint Stock Company Federal Hydro-Generating Company - Rushydro	13,502	-29,651	46,284	27,268	8,102	23,612	47,092	21,728	18,404
Joint Stock Company United Aircraft Corporation	13,379	-25,102	42,931	25,208	8,050	21,680	42,915	20,340	18,395
Joint Stock Company Long-Distance And International Telecommunications Rostelecom	13,199	-18,486	38,055	22,210	7,974	18,871	36,841	18,321	18,383
Joint Stock Company Megafon (Jsc Megafon)	13,382	-25,211	43,012	25,257	8,051	21,726	43,015	20,373	18,395
T Plyus	13,741	-38,443	52,765	31,252	8,203	27,345	55,164	24,411	18,420
Joint Stock Company Dixy Group	13,429	-26,939	44,285	26,040	8,071	22,460	44,602	20,901	18,399
Federal Grid Company of Unified Energy System , Joint-Stock Company (FGC UES , Jsc)	13,716	-37,526	52,089	30,836	8,193	26,956	54,322	24,131	18,418
TMK	13,753	-38,893	53,096	31,456	8,208	27,536	55,577	24,548	18,420
Protek	13,142	-16,377	36,500	21,255	7,950	17,976	34,905	17,677	18,379
Joint Stock Company Nizhnekamskneftekhim	13,363	-24,525	42,506	24,946	8,043	21,435	42,386	20,164	18,394
JSC Phosagro	13,036	-12,480	33,628	19,489	7,905	16,321	31,327	16,488	18,372
Joint Stock Company Uralkali	13,498	-29,493	46,168	27,197	8,100	23,545	46,947	21,680	18,403
Avtovaz	12,926	-8,411	30,629	17,646	7,858	14,593	27,591	15,247	18,365
Joint Stock Company Company M.Video	13,720	-37,665	52,191	30,899	8,194	27,015	54,450	24,174	18,418
Joint Stock Company Mostotrest	13,495	-29,370	46,077	27,141	8,099	23,493	46,834	21,642	18,403
Gaz	13,425	-26,788	44,174	25,972	8,069	22,396	44,464	20,855	18,398
Joint Stock Company Acron	13,491	-29,230	45,974	27,078	8,097	23,433	46,706	21,600	18,403
Kamaz	13,489	-29,160	45,922	27,046	8,097	23,403	46,641	21,578	18,403
Joint Stock Company LSR Group	13,686	-36,428	51,280	30,339	8,180	26,490	53,314	23,796	18,416
Irkut Corporation	13,579	-32,489	48,376	28,554	8,135	24,817	49,698	22,594	18,409
E.On Russia JSC	13,635	-34,545	49,891	29,486	8,158	25,690	51,585	23,222	18,412
Kazanskoe Publichnoe Aktsionernoe Obshchestvo Organicheskii Sintez	12,755	-2,098	25,975	14,786	7,786	11,912	21,795	13,320	18,353
Joint Stock Company Center For Cargo Container Freightage Transcontainer	13,079	-14,060	34,792	20,205	7,923	16,992	32,778	16,970	18,375
Joint Stock Company Inter RAO UES	14,182	-54,718	64,761	38,625	8,390	34,256	70,105	29,378	18,449

Joint Stock Company Novorossiysk Commercial Sea Port	**13,255**	**-20,519**	**39,553**	**23,131**	**7,997**	**19,734**	**38,707**	**18,941**	**18,387**
Kuban Power And Electrification Joint Stock Company	**13,600**	**-33,268**	**48,951**	**28,907**	**8,144**	**25,148**	**50,413**	**22,832**	**18,410**
PIK Group	**13,759**	**-39,103**	**53,251**	**31,551**	**8,211**	**27,625**	**55,770**	**24,613**	**18,421**
Joint Stock Company Quadra - Power Generation	**13,543**	**-31,154**	**47,392**	**27,949**	**8,119**	**24,250**	**48,472**	**22,187**	**18,406**
Joint Stock Company Kuibyshevazot	**12,953**	**-9,399**	**31,357**	**18,093**	**7,870**	**15,013**	**28,499**	**15,548**	**18,367**
Far-Eastern Shipping Company Plc.	**13,369**	**-24,757**	**42,677**	**25,051**	**8,046**	**21,534**	**42,598**	**20,235**	**18,395**
Joint-Stock Company Lenenergo (Jsc Lenenergo)	**13,373**	**-24,898**	**42,781**	**25,115**	**8,048**	**21,594**	**42,728**	**20,278**	**18,395**
JSC Samaraenergo	**13,459**	**-28,044**	**45,100**	**26,540**	**8,084**	**22,929**	**45,616**	**21,238**	**18,401**
Joint Stock Company Pharmacy Chain 36.6	**14,076**	**-50,820**	**61,887**	**36,859**	**8,345**	**32,601**	**66,527**	**28,188**	**18,442**
Slavneft-Yanos	**12,919**	**-8,159**	**30,443**	**17,532**	**7,856**	**14,486**	**27,360**	**15,170**	**18,364**
Joint Stock Company Dorogobuzh	**13,218**	**-19,163**	**38,554**	**22,517**	**7,982**	**19,158**	**37,463**	**18,528**	**18,384**
Motovilicha Plants Stock Corporation	**13,004**	**-11,270**	**32,736**	**18,941**	**7,891**	**15,807**	**30,216**	**16,119**	**18,370**
JSC Tattelekom	**13,473**	**-28,561**	**45,481**	**26,775**	**8,090**	**23,149**	**46,091**	**21,396**	**18,402**
JSC Rosinter Restaurants Holding	**13,574**	**-32,287**	**48,227**	**28,463**	**8,132**	**24,731**	**49,512**	**22,533**	**18,408**
Joint Stock Company Khimprom	**12,930**	**-8,563**	**30,740**	**17,715**	**7,860**	**14,657**	**27,731**	**15,293**	**18,365**
Joint-Stock Company Central Telegraph	**13,539**	**-31,009**	**47,285**	**27,884**	**8,118**	**24,188**	**48,339**	**22,143**	**18,406**
Kovrovskii Mekhanicheskii Zavod	**13,282**	**-21,550**	**40,313**	**23,598**	**8,009**	**20,172**	**39,654**	**19,256**	**18,389**
Joint Stock Company Russian Sea Group	**13,220**	**-19,257**	**38,623**	**22,560**	**7,983**	**19,199**	**37,549**	**18,556**	**18,385**
Joint Stock Company Human Stem Cells Institute	**13,354**	**-24,178**	**42,250**	**24,789**	**8,039**	**21,288**	**42,067**	**20,058**	**18,394**
Rollman Group	**13,532**	**-30,731**	**47,080**	**27,758**	**8,115**	**24,070**	**48,083**	**22,058**	**18,406**
Plazmek	**13,690**	**-36,564**	**51,380**	**30,401**	**8,182**	**26,547**	**53,439**	**23,838**	**18,416**
Armada	**13,966**	**-46,745**	**58,884**	**35,013**	**8,298**	**30,870**	**62,786**	**26,945**	**18,435**
JSC Rusgrain Holding	**13,629**	**-34,324**	**49,729**	**29,386**	**8,156**	**25,596**	**51,382**	**23,154**	**18,412**

Source: author

Appendix 4

Appendix 4: Summary results of the model without year 2007-2008

Oneway (individual) effect Random Effect Model
(Swamy-Arora's transformation)

Call: plm(formula = y ~ adoptiontype + timeperiod + sizelog + leverage + roe + vix + industry + listing + ownership + auditor, data = pdata, model = "random")

Balanced Panel: n=57, T=7, N=399

Effects:

var	std.dev	share
idiosyncratic	143.8423	11.9934 0.993
individual	0.9926	0.9963 0.007

theta: 0.02331

Residuals:

Min.	1st Qu.	Median	3rd Qu.	Max.
-16.60	-10.20	-2.77	7.22	46.00

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)
(Intercept)	10.7064187	9.1714786	1.1674	0.24378
Data2$adoptiontypevoluntary	1.1060372	1.4861737	0.7442	0.45720
Data2$timeperiodpreadoption	-22.0930426	2.5846736	-8.5477	2.941e-16 ***
Data2$sizelog	-1.2343122	0.5295389	-2.3309	0.02027 *
Data2$leverage	-0.0012994	0.0046586	-0.2789	0.78046
Data2$vix	2.0728637	0.2230951	9.2914	< 2.2e-16 ***
Data2$roe	-0.0074539	0.0125003	-0.5963	0.55132
Data2$industryMining, Energy	2.3655180	1.9819149	1.1936	0.23338
Data2$industryServices, Construction	2.1769058	1.4760482	1.4748	0.14107
Data2$listing1	3.0575517	1.7410875	1.7561	0.07986 .
Data2$ownership1	1.5091464	1.6670895	0.9053	0.36589
Data2$auditor1	1.6684084	2.0124784	0.8290	0.40760

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares: 72571
Residual Sum of Squares: 57572
R-Squared: 0.20668
Adj. R-Squared: 0.18413
F-statistic: 9.16582 on 11 and 387 DF, p-value: 1.2596e-14

Appendix 5

Appendix 5: Summary results of the model without years 2011-2012

Oneway (individual) effect Random Effect Model
(Swamy-Arora's transformation)

Call: plm(formula = y ~ adoptiontype + timeperiod + sizelog + leverage + roe + vix + industry + listing + ownership + auditor, data = pdata, model = "random")

Balanced Panel: n=57, T=7, N=399

Effects:

var	std.dev	share
idiosyncratic	490.68	22.15 1.15
individual	-64.05	NA -0.15

Residuals :

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
-50.800	-10.900	-3.010	-0.116	14.200	49.700

Coefficients:

Estimate		Std. Error	t-value	Pr(>|t|)
(Intercept)	41.7214294	6.1274869	6.8089	3.892e-11***
W$adoptiontypevoluntary	0.3287973	1.0219188	0.3217	0.747824
W$timeperiodpreadoption	-5.4897453	3.3668583	-1.6305	0.103826
W$sizelog	-0.2047951	0.3230648	-0.6339	0.526522
W$leverage	-0.0035571	0.0038204	-0.9311	0.352405
W$vix	-0.6738532	0.2360871	-2.8543	0.004552 **
W$roe	-0.0238698	0.0138185	-1.7274	0.084919 .
W$industryMining, Energy	0.3265837	1.2497493	0.2613	0.793989
W$industryServices, Construction	0.8702263	0.9454562	0.9204	0.357937
W$listing1	1.3994842	1.1368624	1.2310	0.219088
W$ownership1	-1.0637482	1.1602147	-0.9169	0.359805
W$auditor1	-0.6889132	1.2896177	-0.5342	0.593518

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares: 233070
Residual Sum of Squares: 179350
R-Squared: 0.23133
Adj. R-Squared: 0.2089
F-statistic: 10.2654 on 11 and 377 DF, p-value: < 2.22e-16