

St. Petersburg State University
Graduate School of Management
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**THE CHOICE OF FUNDAMENTAL VALUATION MODEL FOR RUSSIAN PUBLIC
COMPANIES: INFLUENCE OF DIFFERENT ACCOUNTING STANDARDS**

Master's Thesis by the 2nd year student
Concentration - Corporate Finance
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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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	<p>6. Определить модели для МСФО и РСБУ, дающие наименьшие расхождения между фундаментальными и рыночными значениями</p> <p>Результаты: использование отчетности по МСФО не уменьшает расхождения в моделях по фундаментальной оценке. Модель остаточной прибыли с балансовой стоимостью капитала на начало периода дает самые низкие расхождения как по МСФО, так и по РСБУ.</p>
Ключевые слова	Фундаментальная оценка, стандарты бухгалтерского учета, РСБУ, МСФО

ABSTRACT

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Faculty	Graduate School of Management
Main field of study	Corporate Finance
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Academic Advisor's Name	Bukhvalov A.V.
Description of the goal, tasks and main results	<p>Research goal of the paper: Determine the influence of accounting standards on fundamental valuation and chose the valuation model with the lowest discrepancies between market and fundamental values for Russian public companies</p> <p>Research objectives:</p> <ol style="list-style-type: none"> 1. Make a literature review and determine fundamental valuation models for testing 2. Based on the literature review form initial hypotheses on accounting standards' influence and valuation models 3. Form a sample of Russian public companies publishing financial statements under RAS and IFRS accounting standards 4. Test valuation models on the sample 5. Determine influence of accounting standards on the models' accuracy 6. Determine the models for IFRS and RAS giving the least discrepancies <p>Results: using of IFRS statements does not decrease discrepancies for fundamental valuation. Residual earnings</p>

	model with book value of equity for the beginning of a period gives the lowest discrepancies for both IFRS and RAS.
Keywords	Fundamental valuation, accounting standards, IFRS, RAS

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INTRODUCTION

The company's capitalization is viewed as a long-term indicator of value, the maximization of which is the management's obligation to shareholders. In practice, stock prices and then capitalization are very volatile. Their changes may be associated not only with the improvement or deterioration of the competitive the position of the company, i.e. its strategic position, but also with many additional circumstances: the disclosure of certain information (which in itself does not usually improve or worsen the competitive position of the company itself that owns this information before disclosure), speculation, attempts to change composition and structure of owners, political events, etc. Market capitalization is a very volatile indicator and fundamental valuation in its turn intends to solve this problem by determining the intrinsic (real) value of companies.

The discounted cash flow method could be considered as the most wide spread method, however it is based on many assumptions and it makes impossible to compare values of companies calculated with different models. Method of multiples is a very simple and direct. It allows to evaluate companies by comparing its financial indicators with others of companies in the industry. Such method is difficult to apply in Russia because it requires a large pool of traded companies to make estimations accurate and as we know the Russian market has 40-50 liquid stocks which is definitely not enough. The next method is dividends discount models. This models bases fundamental values on the companies' dividends: future and past. This method is rarely used because companies go toward decreasing of dividends and focus their efforts on increasing financial indicators rather than manipulations with dividends.

The valuation methods based on book value and earnings of companies does not have above mentioned problems. These two indicators easy accessible in financial statements and at the same time It does not require many assumptions which makes it possible to compare results of evaluation. In this research 2 models are tested. The first is residual earnings model proposed by J.Ohlonson (Ohlson, 1995) which considers market capitalization as a function of book value of equity and residual earnings. The second model is price regression model proposed by (Barth, Kallapur, 1996) which considers stock price as a function of book value per share and earnings per share.

At the moment there is no consensus among academicians on whether book value should be for the beginning or end of a period. (Bukhvalov et al. 2012). This fact is required to analyze and it adds value to this work because not so many papers were devoted to this domain of research. Each of the 2 model are tested with book value for the beginning and end period.

Development of different accounting standards brings uncertainty to the influence on fundamental valuation models. In 1973, a non-governmental private professional organization, the International Standards Committee (IASC), was established in London by an agreement of professional organizations from 10 countries, which established a close cooperation with the International Federation of Accountants. The basis of IASC activities was the generalization of accounting practices in economically developed countries, the presentation and disclosure of information in financial statements, and the result - documents (in the form of a set of rules and explanations), under the general title "International Accounting Standards. In 2000, a new stage in the development of IFRS began - the stage of convergence of international and national (primarily American) standards, which ultimately lead to the formation of global financial reporting standards. This development was very rapid and to 2005 more than 100 countries applied this international accounting standards. In 1998, a program for reforming accounting in accordance with IFRS was adopted in Russia. In particular, since 2005 all credit institutions (banks) are obliged to prepare reports in accordance with IFRS. Russian accounting standard is very unique because the main goal of that reports is to provide tax functions while consolidated IFRS statements intend to reveal real financial situation in the company.

This difference is very significant in terms of accounting and fundamental valuation that is why it is highly important to analyze influence of such differences on fundamental valuation models. The main research problem is that there are no papers devoted to choosing valuation models with consideration of peculiarities of accounting standards in Russia. This paper intends to bring value to this research domain by answering two questions:

- How do accounting standards influence on accuracy of fundamental valuation for Russian public companies?
- Which model does give the closest estimation of fundamental value for Russian public companies?

To answer these questions the following objectives are completed:

1. Make a literature review and determine fundamental valuation models for testing
2. Based on the literature review form initial hypotheses on accounting standards influence and valuation models
3. Form a sample of Russian public companies publishing financial statements under RAS and IFRS accounting standards

4. Test valuation models on the sample
5. Determine influence of accounting standards on the models' accuracy
6. Determine the most accurate model for IFRS and RAS

The main conclusions of this paper is that IFRS financial statements does not decrease discrepancies between fundamental and market values. The next conclusion is that Residual Earnings Model with book value for the beginning of the period is the most accurate for both IFRS and RAS standards. These conclusions have wide managerial implications which are presented in the conclusion part of the research.

CHAPTER 1. THEORETICAL BACKGROUND OF RESEARCH

1.1. Fundamental valuation models

There are 4 main valuation models: Comparable, Discounted Cash Flows (DCF), Dividend Discount Model (DDM) and Residual Earnings Model (REM). All these models are well established and have passed the test of time. Each of them has advantages and drawbacks, that is why these models have as many supporters as opponents.

The first method is Discounted cash flow assessment (DCF). According to this approach, the value of an enterprise depends on its ability to generate cash flow. This method is based on the discounted value notion serving as the basis for calculations. (Koller, Goedhart and Wessels, 2005) state that DCF is the most popular method in the professional and academic environment. The enterprise value equals the discounted value of cash flows less the debt instruments and legal claims of the shareholders (e.g., preferred shares). The calculations use a free cash flow (FCF) reflecting a value available to all capital suppliers. The calculated FCFs are discounted using discount rates, taking into account leverage, tax shield effect, the cost of the debt and equity capital.

The advantage of the model implies that it is based on the prospects of the enterprise and market development thereby reflecting the enterprise value, considering future expectations. The model also considers such factors as shareholder and creditor risks, tax effect and cash flow distribution in time, which proves the method to be unbiased and multilateral. At the same time the method does not consider changes in volume and value of debt capital. The discounting value is calculated at appraisal and used for all cash flows. Theoretically, one can calculate new discount rate each time, but it will make the analysis significantly more difficult to understand. It is very rarely applied in practice.

DCF is by far the most know method which is widely used by various professionals. However, it requires a lot of assumptions and forecasts and because of that it could be difficult to persuade stakeholders in reality of numbers. The DDM model is quite close to DCF but instead of cash flow the model uses dividends paid to shareholders. This method is becoming less popular because more and more companies cease to pay dividends and focus on improving their financial position instead.

The next method is comparative approach in which the value of the assessed entity is the bona fide selling price of a similar firm recorded on the market. (Bukhvalov, Akulaeva, 2014) state that multiples valuation method saw widespread application in developed countries. The logic behind this

method is very simple: if two or several companies are identical in their core activities, size and other criteria, the entities shall have the same value, as the value within the market economy is equal for the customer. Hence, if any firm is different only in terms of size, its value has to increase or decrease respectively. According to this method, in order to estimate the value of an enterprise not trading on the market, one has to look for comparable companies with known market value and calculate the ratio of their market value to a certain indicator. By multiplying the obtained multiplier by the basic indicator of the target enterprise, one can calculate the value of the enterprise given.

The main advantage of this method is its simplicity. An appraiser does not need to rely on numerous assumptions and forecasts in their work because it has already been done by the market. Each financial institution and investor on the market uses its own models and forecasts to identify the shares' market value. Thus, the shares reflect all the opinions and models of the market participants. This method is often used to assess the value of enterprise shares in IPO, as market players are afraid to carry out an incorrect appraisal, thus choosing to go in line with the market. At the same time, the model averages all the enterprises, thus, the calculation is not adjusted for the difference in operational performance of the entities and the capital structure. Moreover, the accuracy of the results is subject to differences in the methods of financial reporting.

Residual earnings model stems from works of (Edwards & Bell, 1961), (Peasnell, 1982) and (Ohlson, 1995). One of the main reasons of popularity of that method is the fact that it is based on accounting data which could be collected and analyzed in more easily. Because of that this model became the main for fundamental valuation.

The model looks like the following:

$$CAP_t = \beta_0 + \beta_1 \times BV_t + \beta_2 \times \frac{RE_t}{K_e} + \varepsilon, \quad (1)$$

where CAP_t is the average market value of a company for the period of t, $\beta_0, \beta_1, \beta_2$ – parameters of the regression, BV_t - book value of equity for the period of t, K_e – applied cost of equity for the firm, RE_t – residual earnings which is calculated the following way:

$$RE_t = NI_t - BV_0 \times K_e, \quad \text{Where } NI_t \text{ is net income of the company for the period t.}$$

Residual earnings (income) is the indicator which shows whether the company cover its cost of capital. When the cost of equity for the period t is less than Net income, it is said that the company has positive residual income.

Many papers were devoted for that model. One of the main domains of the research is to test accuracy of the model and make adjustments to make the model more precise. And works of (Dechow

, Hutton ,1999), (Courteau L. et al., 2001) and (Choi, O’Hanlon, Pop, 2006) were intended to test accuracy of the model through empirical assessments. Though a lot of research were done and many modifications presented, the basic formula stays increasingly relevant and accurate.

In the Russian market authors of (Bukhvalov, Volkov, 2005) were those who conducted first researches using this model. In this paper they used a classical form of REM model and revealed peculiarities of the Russian market which should be taken into account for increasing result accuracy. Further (Bukvalov, Akulaeva, 2014) applied RIM model to already more mature Russian market and evaluated fundamental value of leading public companies. By this article they managed to pioneer in fundamental valuation topic by removing a zero intercept from the classical REM model. It was unusual, however except accurate valuations authors explained their logic by two factors. First, a non-functioning firm (whose balance value and residual profit is zero) must have a value equal to zero, which is not possible to achieve having a zero intercept. Secondly, when using regressions with a free term, we cannot control the sign of the explained variable, which in practice is often negative, which contradicts the meaning of value as a positive quantity.

REM is not the only valuable valuation model. In the papers of (Barth, Kallapur, 1996), (Brown et. al., 1999) and (Easton, Sommers, 2003) were used alternative form of the model. Authors used price regression model which look the following:

$$P_t = \beta_0 + \beta_1 \times EPS_t + \beta_2 \times BVPS_t + \varepsilon, \quad (2)$$

where P_t is the market price of a stock, EPS_t – Earnings Per Share, $BVPS_t$ is book value per share for the period t.

From the first glance it looks like REM model which was divided by the number of shares. However, also we can notice that here cost of equity is not used which makes calculations even easier with this formula. This model was also used for the research of the Russian market. Authors of (Kormiltseva, Garanina, 2013) and (Kim, 2013) applied this model with minor adjustments for the analysis of value relevance for Russian stocks.

In terms of fundamental valuation price regression model and residual earnings model look more attractive since they are based on data which could be received from the financial statements and they do not rely on many assumptions. Also, these models were tested not only in developed countries but also in emerging market including the Russian market. That is why in this research these two models are tested for accuracy under different accounting standards.

1.2. IFRS adoption in an international context

In 1973, a non-governmental private professional organization, the International Standards Committee (IASC), was established in London by an agreement of professional organizations from 10 countries (Australia, Canada, France, Germany, Japan, Mexico, the Netherlands, the United States, Great Britain and Ireland), which established a close cooperation with the International Federation of Accountants. The basis of IASC activities was the generalization of accounting practices in economically developed countries, the presentation and disclosure of information in financial statements, and the result - documents (in the form of a set of rules and explanations), under the general title "International Accounting Standards".

In 2000, a new stage in the development of IFRS began - the stage of convergence of international and national (primarily American) standards, which ultimately lead to the formation of global financial reporting standards. From 2000 many countries imbedded these standards what gave the domain for research for authors who wanted to see consequences of these actions. We can divide goals of articles into an analysis of accounting consequence (to which aspects of accounting it affected most) and value relevance articles which intended to uncover the question: whether IFRS improves value relevance in the market.

First, the analysis of consequences under IFRS was more actual for developed countries because IFRS came there first. Wide research was done by (Daske, Hail, Leuz,Verdi, 2008) where they analyzed earlyy evidence on the Economic Consequences of IFRS adoption. They made conclusion that after implementing IFRS in markets liquidity of stocks increased and cost of equity for investors decreased. Some authors specialized on research for one particular country. For example, (Hung, Subramanyam, 2007) analyzed consequences for Germany and (Callao et al., 2007) did the same for Spain. It is interesting to note that the last researchers made a conclusion that local comparability is negatively influenced if both international and local accounting standards are applied in the same country at the same time. Authors also demonstrated the necessity for reforms in IFRS. This example shows that consequences of adoption of new standards might be negative as well. Further, IFRS became an interest of authors from emerging countries. (Ali, Ahmed, Eddie, 2009) analyzed consequences for 3 countries: India, Pakistan and Bangladesh. They discussed peculiarities of adoption new standards by emerging countries and determined how it influenced them.

Another set of papers was devoted to value relevance changes steaming from the adoption of international accounting standards. Authors of (Cormier, Demaria, Teller, 2009) were concerned

about initial adoption of IFRS and influence on value relevance in the French market. They made a conclusion that IFRS could not increase value relevance simply by itself and it could only be possible if the company started to disclose new information that previously was private. Similar mixed evidence were gotten in papers (Devalle, Onali, Magarini, 2010) , (Gjerde, O. et al. 2008) where authors stated that the effect of IFRS adoption is difficult to determine by comparing two different standards unconditionally. Based on this we can make an initial hypotheses that IFRS adoption does not improve value relevance significantly and it is necessary to see which results were gotten by authors analyzing the Russian market.

1.3. IFRS adoption by the Russian market.

Russia is a unique emerging country in which the business essence and principles often have a historical root. There was communism for almost a century which as we know denies open market and relies on the planned economy. Presence of such history reflected in having a very specific accounting standards which preserved some qualities from the soviet times. The main goal of RAS is to provide accurate tax accruals and goal of using the system for making managerial decisions is not in priority. In the article (Kormiltseva, Garanina, 2013) the authors summarized main influence of IFRS system compared to the traditional Russian standard, they are as following:

- Differences in accounting concepts, definitions and practices (IFRS provides more freedom for accountants because the main reason of this system is to show real situation at the company and help stakeholders make right decisions. While RAS is more specified and fixed, because of its tax essence)
- Lack of professional judgement (these systems are based on different practical methods, that is why each specialist should learn in detail each specifics to be able to work in one of them)
- Consolidation (IFRS requires to make consolidated statements, while RAS focuses on the parent company financials only)
- Intangible assets (these assets are presented with real price under IFRS, while in RAS they present amount of money spent of their development. Also, they have significant differences in terms of amortization goodwill because under IFRS it is prohibited, though under RAS it could be done for 20 years)

- Assets' valuation and tests for impairment (the main principle of RAS is cost principle, that is why often we have overpriced or underpriced assets in companies. At the same time, IFRS requires to test assets for impairment)

These are the main differences between IFRS and RAS, which should be reduced through the plan of Russian finance leaders who want to make RAS closer to international accounting standards. Now it is more clear how adoption of IFRS influences Russian standards and now we need to get insights on whether IFRS statements could increase value relevance.

In the article (Kim, 2013) the author compare leading Russian companies which are traded on the London Stock Exchange with those who trade only in Russia. Oksana Kim stated that companies with trading in London with IFRS reports give more value-relevant reports and she argued that further adoption of IFRS has to increase information quality in the Russian market. Opposite results were received by (Kormiltseva, Garanina, 2013) who analyzed 67 Russian public companies which adopted IFRS and published them in a couple with RAS statements. The authors concluded that there were no strong evidences to say that IFRS statements were more value-relevant compared to RAS statements. This conclusion is supported by international researchers (Cormier, Demaria, Teller, 2009), (Devalle, Onali, Magarini, 2010) and (Gjerde, O. et al. 2008) who either did not find any evidences or found mixed ones of IFRS superiority to local standards. This is going to be a working hypothesis which will be specified in a more detail in a chapter for the research design.

After the first chapter now it is more clear which fundamental valuation models are used and which advantages and drawbacks they have. Also, we uncovered IFRS adoption consequences in terms of changes in accounting systems and value relevance from both international perspectives and the Russian market specifics. The second chapter is based on the findings from this part and introduces the research design and data descriptions which are used to achieve the main goal of this research.

CHAPTER 2. RESEARCH DESIGN AND DATA DESCRIPTION

2.1. Fundamental valuation models

As the main goal of the research is to determine which valuation model gives the most accurate results considering differences in RAS and IFRS financial standards. In the first chapter two valuation models were presented and their value to the research was discussed. Now they will be stated here with adoptions applicable to the current research.

The first model for the analysis is residual income model:

$$CAP_t = \beta_0 + \beta_1 \times BV_t + \beta_2 \times \frac{RE_t}{K_e} + \varepsilon, (M1) \quad (3)$$

where CAP_t is the average market value of a company for the period of t, $\beta_0, \beta_1, \beta_2$ – parameters of the regression, BV_t - book value of equity for the period of t, K_e – applied cost of equity for the firm, RE_t – residual earnings which is calculated the following way:

$$RE_t = NI_t - BV_0 \times K_e,$$

In constructing the model assumes it is assumed that :

1. Residual net profit does not change in time, which allows use the value formula perpetuate;
2. Only companies whose shares have high liquidity are included in the sample for valuation;

The second model will be price regression model which were analyzed in papers (Barth, Kallapur, 1996), (Brown et. al., 1999) and (Easton, Sommers, 2003) and approbated in the Russian market by two main researchers in this field (Kormiltseva, Garanina, 2013) and (Kim, 2013).

$$P_t = \beta_0 + \beta_1 \times EPS_t + \beta_2 \times BVPS_t + \varepsilon, (M2) \quad (4)$$

where P_t is the market price of a stock, EPS_t – Earnings Per Share, $BVPS_t$ is book value per share for the period t.

The next typology for models come from variations in periods for book value of equity. In the paper (Bukhvalov et al. 2012) the authors justify that there is no consensus among academicians on whether book value should be for the beginning or end of a period. The results gotten by researchers vary significantly and it is not possible to make one conclusion. That is why in this paper accuracy of models is tested for book value for the beginning and end of a period.

Having determined all fundamental valuation models and options, 4 models were formed and they are presented in the table 1.

Table 1. Valuation models for the research.

	Book Values for t	Book Values for t-1
Residual Earnings Model	$CAP_t = \beta_0 + \beta_1 \times BV_t + \beta_2 \times \frac{RE_t}{K_e} + \varepsilon$ <p>(M1)</p>	$CAP_t = \beta_0 + \beta_1 \times BV_{t-1} + \beta_2 \times \frac{RE_t}{K_e} + \varepsilon$ <p>(M3)</p>
Price regression model	$P_t = \beta_0 + \beta_1 \times BVPS_t + \beta_2 \times EPS_t + \varepsilon$ <p>(M2)</p>	$P_t = \beta_0 + \beta_1 \times BVPS_{t-1} + \beta_2 \times EPS_t + \varepsilon$ <p>(M4)</p>

Source: author's synthesis

2.2. Research hypotheses and statistical tests

Based on the analysis presented in the first chapter now we can formulate two hypotheses regarding influence of accounting standards on fundamental valuation and accuracy of valuation models. The first hypothesis is devoted to accounting standards and the second is for the choice of valuation models.

Analyzed articles (Devalle, Onali, Magarini, 2010), (Dobija and Klimczak, 2007) stated about insignificance of IFRS adoption to the value relevance, while (Cormier, Demaria, Teller, 2009) and (Gjerde, et al. 2008) received mixed evidence on the same issue, it could not provide any ground contradictions to the first group of researchers. For the Russian market the first article (Kormiltseva, Garanina, 2013) for value relevance states that there is no significant differences in accuracy of models under IFRS and RAS. Based on these results we can form the first hypothesis that IFRS adoption doesn't IFRS financial statements does not increase accurateness of fundamental valuation models.

H₁: IFRS financial statements does not does not decrease discrepancies between fundamental and market values

Testing this hypothesis is done by analyzing discrepancies of models between real market value and estimated ones. Presence of such discrepancies is normal and easily explained by impossibility to predict market values with 100% assurance. It would be strange to state that market prices are precisely equal to fundamental values. That is why we could expect that if IFRS does increase accurateness of fundamental valuation models, so discrepancies have to be lower for such accounting standard. The same is true for backward logic. The formula used in this paper is following:

$$\text{Discrepancy} = \frac{\text{Value}_m - \text{Value}_e}{\text{Value}_m}, \quad (5) \quad \text{where}$$

Value_m – market capitalization or stock price, Value_e – estimated market value or stock price

In terms of valuation models the most prominent is Residual Income model with book value for the end of period which was used by many very experienced scientists and let them get accurate results. The researchers (Penman, Sougiannis, 1998), (Myers, 1999), (Dechow, Hutton, 1999), (Francis et al., 2000), (Courteau L. et al., 2001), (Choi, O’Hanlon, Pop, 2006) tested the accuracy of this model for evaluation of fundamental value of companies. Though they admitted that it had drawbacks but it was one of the most accurate models for valuation. The price regression model could be considered as an option of REM models because it also has two main variables as book value of equity and earnings. This model is less known and analyzed by researchers. That is why the second hypothesis states that: “Residual Earnings Model with a book value for the end of a period explains fundamental value of Russian companies most accurately”.

H₂: Residual Earnings Model with a book value for the end of a period gives the least discrepancies between fundamental and market values for both IFRS and RAS

To test this hypothesis, the same method and criteria are used. As discrepancies show quality of input information, they also show the quality of models used for testing. That is why the same measure is used. For models with higher accuracy, we can expect that they absorb and reflect market values better, what leads to the increased quality of estimated values.

Initial tests before determination of any regressions will be run. One-sample Kolmogorov-Smirnov-test will be used for checking normality of distribution. That is needed to define whether

further tests will be parametric or non-parametric. The null hypothesis under Kolmogorov-Smirnov test is that the distribution does not follow the normal.

Wilcoxon signed-rank test for paired samples is a statistical test, which reveals whether there is a difference between the mean ranks in two samples for the dependent samples. The null hypothesis under this test is that this difference is equal to zero. Since this test is non-parametric, it is not required for the distribution to be normal.

Z-statistics for the test is calculated the following way:

$$Z = \frac{T - \frac{n(n+1)}{4}}{\sqrt{\frac{n(n+1)(2n+1)}{24}}}, \quad (6) \quad \text{where } n \text{ is a length of the sample and } T \text{ is the smallest from } T_1 \text{ and } T_2.$$

T_1 and T_2 .

Mann-Whitney U-test is a statistical criteria used to estimate the differences between two independent samples by the level of a feature measured quantitatively. It allows to detect differences in the value of a parameter between small samples. What important is that this test also does not require a distribution to be normal.

The U-Criteria is calculated the following way

$$U = n_1 \cdot n_2 + \frac{n_x \cdot (n_x + 1)}{2} - T_x. \quad (7) \quad \text{where } n_1 \text{ is the number of elements in the first sample, } n_2 \text{ is the number of elements in the second sample, } T_x \text{ is the largest of the sums for samples one or two.}$$

one or two.

2.3. Data sample

The set of public companies consist of 67 leading public companies which publish financial statements under both Russian accounting standards and international accounting standards. The methodology of receiving such amount is presented in the table 2. The full list of companies is presented in appendixes 3 and 4.

Table 2. Valuation models for the research.

Initial number of companies	233	All Russian companies with IFRS reports
Excluding	166	

Financial organizations	89	Banking services, insurance, exchanges, depositories and other monetary intermediation
Limited Liability Company, Closed Joint-Stock Company	39	
Non-public joint-stock company	29	Distribution between existing shareholders or among founders, etc.
No data	9	No data for the whole year, there is no data on the number of shares or quotations
Total	67	

Source: author's calculations

Industry distribution among 67 sample companies is presented in the table 3. We can say that this distribution is quite representative for the whole economy of Russia. There it is seen that heavy industries consist the larger part of a sample. The telecommunication industry also has a large share and 11 companies are presented in our research.

Table 3. Business sector distribution of companies

Industry	Number of sample companies
Power generation	21 (31.34%)
Manufacturing	19 (28.35%)
Telecommunications	11 (16.42%)
Natural resources	4 (5.97%)
Wholesale and Retail	4 (5.97%)
Transport	3 (4.48%)
Real estate	3 (4.48%)
Services	2 (2.97%)

Source: author's calculations

4 types of indicators were collected for each company: net income, market capitalization, book value of equity and number of shares. Chosen time period 2006 -2016 is justified by the fact that in 2006 most of companies started to publish accounting reports under IFRS. It should be noted that for this research book value of equity also was collected for 2005, because 2 models had one year lag in

their book values of equity, that is why to make calculations it was needed to use data from 2005. Since the research is focused on analyzing accounting standards influence, so all the data was collected for 2 accounting standards: for IFRS and RAS. Also, it is needed to note that all money indicators were transformed from rubles to USD. It was done to make research comparable with other international papers.

The following sources of data were used:

1. For Russian Accounting Standards data – SPARK database
2. For International Accounting Standards – Thomson Reuters DataStream
3. For stock market data - Thomson Reuters DataStream, investing.ru.
4. For forming samples – SPARK database

The descriptive statistics of data for Russian accounting standard is presented in the table 4. It is interesting to note that for all years mean of residual earnings is negative. It is a specific of the Russian where the cost of equity is very high.

Table 4. Descriptive statistics of RAS data

Variable	Year	Observations	Mean	Standard deviation
CAP_RAS_16	2016	47	3943.826	8681.863
BV_RAS_16			5562.731	24934.32
RE_RAS_16			-2375.938	15539.35
CAP_RAS_15	2015	48	3264.149	8146.765
BV_RAS_15			4048.23	18386.25
RE_RAS_15			-4054.857	20658.56
CAP_RAS_14	2014	48	3731.104	10118.11
BV_RAS_14			4869.798	23197.17
RE_RAS_14			-7448.346	35137.02
CAP_RAS_13	2013	49	5121.178	15154.41
BV_RAS_13			7769.503	36333.63
RE_RAS_13			-6192.85	28133.02
CAP_RAS_12	2012	48	5375.455	14362.01
BV_RAS_12			8257.99	37270.69
RE_RAS_12			-5365.038	25175.12
CAP_RAS_11	2011	55	5534.307	16178.66
BV_RAS_11			6749.356	31449.51

RE_RAS_11			-3508.501	15589.8
CAP_RAS_10	2010	59	6647.415	21737.88
BV_RAS_10			5427.781	26361.84
RE_RAS_10			-3583.542	18185.1
CAP_RAS_9	2009	52	5678.333	18027.1
BV_RAS_9			5261.474	24654.25
RE_RAS_9			-2848.016	13231.47
CAP_RAS_8	2008	42	5389.424	19706.71
BV_RAS_8			5879.734	24917.92
RE_RAS_8			-5297.59	22044.99
CAP_RAS_7	2007	41	13692.07	49698.02
BV_RAS_7			6070.136	25039.61
RE_RAS_7			-2307.952	14408.44
CAP_RAS_6	2006	42	9203.366	34034.39
BV_RAS_6			4704.761	21315.05
RE_RAS_6			-2782.4	14871.11

Source: author's calculations

The descriptive statistics for International accounting standards financial statements is presented in the table 5. There we can see the same tendency for residual earnings as for RAS statements.

Table 5. Descriptive statistics of IFRS data

Variable	Year	Observations	Mean	Standard deviaion
CAP IFRS 16	2016	47	3943.826	8681.863
BV IFRS 16			5485.037	26556
RE IFRS 16			-1886.94	13977.31
CAP IFRS 15	2015	48	3264.149	8146.765
BV IFRS 15			4199.221	20870.21
RE IFRS 15			-4042.656	20040.95
CAP IFRS 14	2014	48	3731.104	10118.11
BV IFRS 14			5200.536	25044.22
RE IFRS 14			-8363.519	39535.8
CAP IFRS 13	2013	49	5121.178	15154.41
BV IFRS 13			8547.633	40439.53
RE IFRS 13			-5669.844	23352.06
CAP IFRS 12	2012	48	5375.455	14362.01
BV IFRS 12			8761.687	39627.13

RE IFRS 12			-3860.644	15373.02
CAP IFRS 11	2011	55	5534.307	16178.66
BV IFRS 11			6735.323	31089.2
RE IFRS 11			-2275.487	10162.81
CAP IFRS 10	2010	59	6647.415	21737.88
BV IFRS 10			5554.022	26637.29
RE IFRS 10			-2381.712	9656.173
CAP IFRS 9	2009	52	5678.333	18027.1
BV IFRS 9			5281.125	24324.24
RE IFRS 9			-2896.834	11534.73
CAP IFRS 8	2008	42	5389.424	19706.71
BV IFRS 8			6251.44	25603.69
RE IFRS 8			-4231.794	15150.74
CAP IFRS 7	2007	41	13692.07	49698.02
BV IFRS 7			6608.319	27323.41
RE IFRS 7			-1003.807	5181.393
CAP IFRS 6	2006	42	9203.366	34034.39
BV IFRS 6			4562.163	19532
RE IFRS 6			-1501.194	7580.222

Source: author's calculations

Here data for residual earnings model was presented, for price regression model descriptive statistics of variables was also collected, but presented in appendixes. This was done to reduce amount of heavy tables in the main block of the research paper.

In this chapter research methods, statistical tests and samples were determined. Based on that the research results were received and discussed. They are presented in the next chapter.

CHAPTER 3. RESEARCH RESULTS

3.1. Regression coefficients

In this research paper 4 models are tested for accuracy of fundamental value estimation. In total 88 regressions were constructed, such number is explained by 4 models for 11 years and for 2 types of accounting standards. All regressions are statistically significant and all hypothesis about zero regression coefficients are rejected.

The first model is residual earnings model with book value for the end of a period. In this model capitalization of the company is a function of a book value of equity for the end of the period and residual earnings divided by cost of equity. The table 6 contains received regression coefficients, Fisher's significance test and difference between adjusted determination coefficients. All this data is presented for both accounting standards (RAS and IFRS).

Tables 6. Regression of models 1.

	RAS		IFRS		Differences
	Adjusted R ²	F	Adjusted R ²	F	
2016	0,7767	0	0,935	0	-0,1583
2015	0,7954	0	0,7389	0	0,0565
2014	0,7096	0	0,7251	0	-0,0155
2013	0,8594	0	0,8296	0	0,0298
2012	0,9094	0	0,8362	0	0,0732
2011	0,9063	0	0,9108	0	-0,0045
2010	0,9357	0	0,9272	0	0,0085
2009	0,968	0	0,9568	0	0,0112
2008	0,9735	0	0,9732	0	0,0003
2007	0,9884	0	0,9898	0	-0,0014
2006	0,9924	0	0,9936	0	-0,0012

Source: author's calculations

The second regression is for the price regression model. In this model stock price is a function of book value per share for the end of a period and earnings per share. The table 7 contains the same data as table 6 but for the model two.

In this case we can notice that though all models are statistically significant, adjusted coefficients of determination are lower than for the model one. Even for the period of 2014 for RAS

and for IFRS for 2015 adjusted coefficients of determination are quite low. Also, we can notice that differences between 2 accounting standards are becoming higher.

Table 7. Regression of models 2

	RAS		IFRS		Differences
	Adjusted R ²	F	Adjusted R ²	F	
2016	0,4986	0	0,7627	0	-0,2641
2015	0,6689	0	0,3644	0	0,3045
2014	0,3978	0	0,4992	0	-0,1014
2013	0,639	0	0,471	0	0,168
2012	0,7657	0	0,8518	0	-0,0861
2011	0,8832	0	0,5001	0	0,3831
2010	0,5243	0	0,95	0	-0,4257
2009	0,7376	0	0,8127	0	-0,0751
2008	0,7358	0	0,5965	0	0,1393
2007	0,9275	0	0,9221	0	0,0054
2006	0,9208	0	0,9529	0	-0,0321

Source: author's calculations

The third model is residual earnings model with book value for the beginning of the period. Market capitalization is considered as a function of book value of equity for the beginning of the period and residual earnings divided by cost of equity. All regressions are statistically significant with rejected null hypothesis of zero regression coefficients. Visually we can note that adjusted coefficients of determination are higher than for the model 2.

Table 8. Regression of models 3

	RAS		IFRS		Differences
	Adjusted R ²	F	Adjusted R ²	F	
2016	0,7748	0	0,9406	0	-0,1658
2015	0,8544	0	0,8184	0	0,036
2014	0,8033	0	0,7818	0	0,0215
2013	0,8983	0	0,8473	0	0,051
2012	0,9368	0	0,841	0	0,0958
2011	0,8924	0	0,934	0	-0,0416
2010	0,9698	0	0,9385	0	0,0313
2009	0,9687	0	0,9621	0	0,0066
2008	0,9799	0	0,9841	0	-0,0042
2007	0,9899	0	0,9914	0	-0,0015
2006	0,9924	0	0,9936	0	-0,0012

Source: author's calculations

The fourth regressions were for the price regression model. Similar to the model 2, here the stock price is a function of book value per share and earnings per share. The only difference is that book value per share is presented for the beginning of the period. In the table 9 all regression coefficients are presented. We can see that all models are statistically significant as well as all others.

Table 9. Regression of models 4

	RAS		IFRS		Differences
	Adjusted R ²	F	Adjusted R ²	F	
2016	0,6205	0	0,8295	0	-0,209
2015	0,7965	0	0,6951	0	0,1014
2014	0,3151	0,0001	0,7603	0	-0,4452
2013	0,8677	0	0,5794	0	0,2883
2012	0,8387	0	0,73	0	0,1087
2011	0,8902	0	0,813	0	0,0772
2010	0,9478	0	0,961	0	-0,0132
2009	0,3126	0,0009	0,4764	0	-0,1638
2008	0,8031	0	0,8595	0	-0,0564
2007	0,883	0	0,9411	0	-0,0581
2006	0,9208	0	0,9529	0	-0,0321

Source: author's calculations

3.2. Influence of accounting standards on fundamental valuation

In order to understand whether IFRS has influence on fundamental valuation accuracy we used the method of discrepancies analysis. As we stated in the research design chapter, if IFRS does increase accurateness of fundamental valuation models, so discrepancies have to be lower for such accounting standard. We calculated such discrepancies for all models analyzed for IFRS and RAS accounting standards. All results are presented in the following tables. In the table 10 the results are shown for models 1 and 3 which are residual earnings models with book value for the end and beginning of the period, respectively.

Table 10. Discrepancies under IFRS and RAS for residual earnings models.

	Model 1		Model 3	
	RAS	IFRS	RAS	IFRS

2006	-937,45%	-438,89%	-919,17%	-905,20%
2007	-851,30%	-849,62%	-1027,12%	-904,84%
2008	-4165,13%	-4550,90%	-2292,59%	-2172,93%
2009	-317,42%	-369,23%	-229,88%	-271,65%
2010	-324,58%	-410,96%	-152,74%	-449,61%
2011	-669,61%	-620,91%	-699,06%	-622,92%
2012	-612,12%	-1094,93%	-521,69%	-1089,20%
2013	-1241,04%	-1373,80%	-1079,65%	-1365,79%
2014	-925,04%	-846,68%	-479,68%	-650,24%
2015	-595,73%	-996,37%	-483,61%	-689,67%
2016	-249,09%	-171,89%	-231,27%	-131,20%

Source: author's calculations

In the table we can see that discrepancies are high and look not attractive from the first sight. Which investor would want to make decisions on models giving 500% discrepancy? But the issue is not so simple as it could be seen. The main influence on such high accuracy was created by outliers. Since for the sample we have chosen companies which publish under both accounting standards and in Russia there are few of them, it led to including as many companies as possible. Many researchers of the Russian market used only liquid stocks which resulted in much lower discrepancies, however for this research we could not allow it because if we did so, we would get too small sample for making any conclusions.

In the table 11 the results are shown for models 2 and 3 which are price regression models with book value for the end and beginning of the period, respectively.

Table 11. Discrepancies under IFRS and RAS for price regression models.

	Model 2		Model 4	
	RAS	IFRS	RAS	IFRS
2006	7105,97%	3753,93%	7124,25%	3775,83%
2007	-4664,60%	-2910,81%	47,10%	-227,72%
2008	-44659,36%	-33727,71%	-6491,52%	-157,53%
2009	-17504,06%	-15847,31%	-34241,83%	-8577,93%
2010	-33270,06%	-13019,06%	-6639,44%	-8812,07%
2011	-31237,79%	-13870,57%	-20236,30%	1521,27%
2012	-4310,09%	5954,23%	-4772,12%	5813,40%
2013	4113,70%	10442,76%	6742,75%	19960,74%

2014	-81295,67%	-5827,49%	-35973,89%	2093,31%
2015	-49444,31%	-41073,30%	-36298,17%	-2781,08%
2016	-39483,68%	-22354,85%	-27506,17%	-16078,28%

Source: author's calculations

As we can see in the table 11 discrepancies are even higher and now it is difficult to find any indicators which are less than 1000%. It could be explained by not only presence of outliers, but also by the specifics of price regression models. These models are based on indicators divided by the number of share, so the main aim of models is to give values of stock prices. It resulted in high discrepancies, because when you have small base , any deviations lead to significant percentage changes.

The next step that is to analyze whether IFRS models “outperform” those based on RAS. In order to check it, we applied a comparative approach and tried to find any patterns there. We estimated differences based on absolute values rather than with consideration of plus or minus in front of indicators. It was done because in terms of discrepancies it does not matter in which direction there is a deviation, what matters is the amount of that discrepancy. In the table 12 the results of the comparative analysis are presented where with green color the least discrepancies were outlined.

Table 12. Comparative analysis of discrepancies for residual earnings models.

	Model 1		Model 3	
	RAS	IFRS	RAS	IFRS
2006	-937,45%	-438,89%	-919,17%	-905,20%
2007	-851,30%	-849,62%	-1027,12%	-904,84%
2008	-4165,13%	-4550,90%	-2292,59%	-2172,93%
2009	-317,42%	-369,23%	-229,88%	-271,65%
2010	-324,58%	-410,96%	-152,74%	-449,61%
2011	-669,61%	-620,91%	-699,06%	-622,92%
2012	-612,12%	-1094,93%	-521,69%	-1089,20%
2013	-1241,04%	-1373,80%	-1079,65%	-1365,79%
2014	-925,04%	-846,68%	-479,68%	-650,24%
2015	-595,73%	-996,37%	-483,61%	-689,67%
2016	-249,09%	-171,89%	-231,27%	-131,20%

Source: author's calculations

In the table 12 it is clear that there is not any pattern there, in some periods models based on IFRS gave lesser discrepancies, but in some cases the same is true for RAS. In the table 13 the results of the comparative analysis are presented for price regression models.

Table 13. Comparative analysis of discrepancies for residual earnings models

	Model 2		Model 4	
	RAS	IFRS	RAS	IFRS
2006	7105,97%	3753,93%	7124,25%	3775,83%
2007	-4664,60%	-2910,81%	47,10%	-227,72%
2008	-44659,36%	-33727,71%	-6491,52%	-157,53%
2009	-17504,06%	-15847,31%	-34241,83%	-8577,93%
2010	-33270,06%	-13019,06%	-6639,44%	-8812,07%
2011	-31237,79%	-13870,57%	-20236,30%	1521,27%
2012	-4310,09%	5954,23%	-4772,12%	5813,40%
2013	4113,70%	10442,76%	6742,75%	19960,74%
2014	-81295,67%	-5827,49%	-35973,89%	2093,31%
2015	-49444,31%	-41073,30%	-36298,17%	-2781,08%
2016	-39483,68%	-22354,85%	-27506,17%	-16078,28%

Source: author's calculations

As we can see the same situation is presented in the analysis of price regression models. For model 2 it could be stated that IFRS is more accurate, but when we look at the model 4 it is clear that it is not enough to state that there is any tendency there.

Based on the analysis of all 4 models we accept the zero hypothesis that IFRS does not increase accurateness of fundamental valuation models. The next question that we need to research is to decide which model is the most accurate in terms of discrepancies.

3.3. Choice of fundamental valuation model

For the fundamental valuation model analysis we stated the null hypothesis that Residual Earnings Model with a book value for the end of a period explains fundamental value of Russian companies most accurately. To test this hypothesis we used similar approach as in the previous chapter which is focused on the analysis of the models' discrepancies. We similarly state that if a model gives the most accurate estimations, it has to have the least discrepancies with the real market values. Since in the previous chapter we received the results that the use of different accounting

standards do not result significantly on the accuracy of models, so we can determine the most accurate model for each accounting standard and they would be considered independent from each other.

In the table 14 results of the comparison are presented for all models based on Russian accounting standards (green color indicates which model gives the least absolute discrepancies).

Table 14. Comparison of discrepancies

	Models based on RAS			
	1	2	3	4
2006	-937,45%	7105,97%	-919,17%	7124,25%
2007	-851,30%	-4664,60%	-1027,12%	47,10%
2008	-4165,13%	-44659,36%	-2292,59%	-6491,52%
2009	-317,42%	-17504,06%	-229,88%	-34241,83%
2010	-324,58%	-33270,06%	-152,74%	-6639,44%
2011	-669,61%	-31237,79%	-699,06%	-20236,30%
2012	-612,12%	-4310,09%	-521,69%	-4772,12%
2013	-1241,04%	4113,70%	-1079,65%	6742,75%
2014	-925,04%	-81295,67%	-479,68%	-35973,89%
2015	-595,73%	-49444,31%	-483,61%	-36298,17%
2016	-249,09%	-39483,68%	-231,27%	-27506,17%

Source: author's calculations

The comparison shows that model 3 which is residual earnings model with book value of equity for the beginning of a period outperforms other. For all years except 2007 and 2011 this tendency is preserved. This result rejects the zero hypothesis, however to make a final decision we must analyze models based of IFRS statements. In the table 15 the comparison of discrepancies for this standard is presented.

Table 15 Comparison of R squared for RAS models.

	Models based on IFRS			
	1	2	3	4
2006	-438,89%	3753,93%	-905,20%	3775,83%
2007	-849,62%	-2910,81%	-904,84%	-227,72%
2008	-4550,90%	-33727,71%	-2172,93%	-157,53%
2009	-369,23%	-15847,31%	-271,65%	-8577,93%
2010	-410,96%	-13019,06%	-449,61%	-8812,07%
2011	-620,91%	-13870,57%	-622,92%	1521,27%
2012	-1094,93%	5954,23%	-1089,20%	5813,40%
2013	-1373,80%	10442,76%	-1365,79%	19960,74%
2014	-846,68%	-5827,49%	-650,24%	2093,31%

2015	-996,37%	-41073,30%	-689,67%	-2781,08%
2016	-171,89%	-22354,85%	-131,20%	-16078,28%

Source: author's calculations

The analysis of models for IFRS shows similar results we see that model 3 has the least discrepancies in 6 out of 11 years. There is a consistency in results of the models' analysis, no matter which statements we use. It also rejects our current initial hypothesis, and at the same time it gives more ground for the decision concerning influence of accounting standards we have made in the previous chapter.

Summing the conclusions for IFRS and RAS models we can see that they had the same patterns and model 3 "outperformed" others. Based on that, we can conclude that fundamental valuation model of residual earnings with book value for the beginning of the period could be recommended as the most accurate for both RAS and IFRS statements for Russian public companies

CONCLUSION

This paper is devoted to choosing fundamental valuation model in the Russian market with consideration of different accounting standards. The research goal is to determine the influence of accounting standards on fundamental valuation and chose the most accurate valuation model for Russian public companies.

In this paper literature review was completed and the author determined fundamental valuation models which tested for IFRS and RAS data. Residual earnings and price regression models were chosen for testing. Literature review allowed to find an important typology of models which was to check models for book value being for the end and beginning of the year. Based on the literature review initial hypotheses were formulated and determined the criteria for checking them. The first hypothesis was to check whether IFRS financial statements does not increase accurateness of fundamental valuation models. The second hypothesis was that Residual Earnings Model with a book value for the end of a period explains fundamental value of Russian companies most accurately.

After determination of initial hypotheses a sample of Russian public companies publishing financial statements under IFRS and RAS was formed. 233 companies which publish under IFRS and RAS were analyzed and 67 were chosen as a sample for the research. After determination the research design, all tests were run and hypotheses were tested. The first hypothesis was accepted and based on results it is argued that IFRS adoption by Russian public companies has not led to increase in value-relevance to market data. The second hypothesis was rejected. The most accurate model was the residual earnings model with book value for the beginning of the year. It was quite surprising result because literature analysis led to using the book value for the end of the year, however all tests showed the superiority of the model with book value for the beginning of the period.

Results of this paper will be useful for stakeholders who make decisions based on financial analysis especially for managers and investors. All managerial implications are based on conclusions achieved in this paper. Firstly, it is concluded that fundamental valuation models based on RAS is as accurate as those for IFRS, that is why by making decisions with RAS statements stakeholders can make faster decisions (up to 3 months). Secondly, Determined Residual Earnings Model's specification will increase accuracy of valuation for both IFRS and RAS statements for stakeholders.

There are different directions to extend this research. First, is to receive more empirical data and extend data samples. This will help to add statistical ground for research results. Second, is to use

different modifications to presented models. It will help to make an analysis of models broader and more comprehensive.

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APPENDICES

Appendix 1. Descriptive statistics of IFRS data divided by number of shares

Variable	Year	Obs	Mean	Std. Dev.
P_IFRS_16	2016	47	8.653028	23.46863
BVPS_IFRS_16			3.204474	7.289127
EPS_IFRS_16			.6568963	8.933829
P_IFRS_15	2015	48	6.912368	20.48672
BVPS_IFRS_15			2.733714	6.252172
EPS_IFRS_15			-2.341402	9.031667
P_IFRS_14	2014	48	7.341997	25.68445
BVPS_IFRS_14			3.671796	7.883277
EPS_IFRS_14			-6.13405	13.50827
P_IFRS_13	2013	49	8.861154	29.33931
BVPS_IFRS_13			6.660162	14.27073
EPS_IFRS_13			-4.735767	15.73277
P_IFRS_12	2012	48	9.884843	25.71947
BVPS_IFRS_12			7.667909	17.38064
EPS_IFRS_12			-3.034538	25.25441
P_IFRS_11	2011	55	8.92375	23.59235
BVPS_IFRS_11			6.838945	21.11739
EPS_IFRS_11			-2.735175	24.62448
P_IFRS_10	2010	59	11.99583	33.6081
BVPS_IFRS_10			6.750286	23.84891
EPS_IFRS_10			-3.415742	21.23619
P_IFRS_9	2009	52	9.600022	26.3399
BVPS_IFRS_9			7.340233	23.1368
EPS_IFRS_9			-5.292867	23.07396
P_IFRS_8	2008	42	7.49861	17.78369
BVPS_IFRS_8			6.689993	13.0662
EPS_IFRS_8			-7.242962	21.116
P_IFRS_7	2007	41	21.62922	51.7335
BVPS_IFRS_7			8.579155	20.47308
EPS_IFRS_7			.357902	5.889603
P_IFRS_6	2006	42	14.42339	35.77486
BVPS_IFRS_6			5.850027	12.37333
EPS_IFRS_6			-.2608583	6.071344

Appendix 2. Descriptive statistics of RAS data divided by number of shares

Variable	Year	Obs	Mean	Std. Dev.
P RAS 16	2016	47	8.653028	23.46863
BVPS RAS 16			6.61445	18.24426
EPS RAS 16			-7.7702692	11.27071
P RAS 15	2015	48	6.912368	20.48672
BVPS RAS 15			4.584037	11.93033
EPS RAS 15			-2.612357	11.27682
P RAS 14	2014	48	7.341997	25.68445
BVPS RAS 14			4.444437	12.12725
EPS RAS 14			-7.264063	20.6359
P RAS 13	2013	49	8.861154	29.33931
BVPS RAS 13			7.815949	21.57756
EPS RAS 13			-7.334717	24.19943
P RAS 12	2012	48	9.884843	25.71947
BVPS RAS 12			9.585735	25.91851
EPS RAS 12			-6.783695	22.43468
P RAS 11	2011	55	8.92375	23.59235
BVPS RAS 11			8.191224	23.66104
EPS RAS 11			-5.003572	20.97458
P RAS 10	2010	59	11.99583	33.6081
BVPS RAS 10			7.800061	22.69001
EPS RAS 10			-6.168788	26.03017
P RAS 9	2009	52	9.600022	26.3399
BVPS RAS 9			7.185862	23.14071
EPS RAS 9			-3.52733	20.55932
P RAS 8	2008	42	7.49861	17.78369
BVPS RAS 8			6.097883	12.77953
EPS RAS 8			-6.527871	22.62508
P RAS 7	2007	41	21.62922	51.7335
BVPS RAS 7			8.079593	19.8392
EPS RAS 7			-.0706419	11.46409
P RAS 6	2006	42	14.42339	35.77486
BVPS RAS 6			5.22236	10.47265
EPS RAS 6			-1.389609	6.536058

Appendix 3. Sample companies

№	Russian name	International Name
1	СЗТ	OJSC North-West Telecom
2	Авиакомпания Ютэйр	UTAIR AVIATION JSC
3	Автоваз	PJSC "AVTOVAZ"
4	Акрон	JSC ACRON
5	Аэрофлот	JSC "AEROFLOT"
6	ВолгаТелеком	OJSC "VolgaTelecom"
7	Волжская ТГК	OJSC "Volga TGC"
8	ОГК-2	JSC "OGK-2"
9	ГАЗ	OJSC "GAZ"
10	Газпром	RAO "GAZPROM"
11	ГМК Норильский никель	JSC "MMC "NORILSK NICKEL"
12	Группа Компаний ПИК	"PIK Group"
13	Группа ЛСР	OJSC LSR Group
14	Дальсвязь	OJSC Far EAST Telecommunications Company
15	ДВМП	FAR-EASTERN SHIPPING COMPANY PLC.
16	Дорогобуж	"DOROGOBUZH"
17	Енисейская ТГК (ТГК-13)	JSC "Yenisei TGC (TGC-13)"
18	ОАО "ИНТЕР РАО ЕЭС"	OJSC "INTER RAO UES"
19	Иркутскэнерго	JSC Irkutskenergo
20	Казаньоргсинтез	OJSC "Kazanorgsintez"
21	Концерн Калина	OJSC Concern "KALINA"
22	Камаз	OJSC KAMAZ
23	М.Видео	"Company "M.video", OJSC
24	Красноярская ГЭС	OAO "Krasnoyarskaya GES"
25	Кузбассэнерго	SC "Kusbassenergo"
26	Лебедянский	JSC Lebedyansky
27	МГТС	Public JSC Moscow City Telephone N
28	ММК	OJSC "MMK"
29	Мосэнерго	AO MOSENERGO
30	МОЭСК	OAO "MOESK"

Appendix 4. Sample companies (continue)

№	Russian name	International Name
31	МРСК Волги	IDGC OF VOLGA, JSC
32	МРСК Северо-Запада	"IDGC of North-West" JSC
33	МРСК Урала	IDGC of of Urals JSC
34	МРСК Центра и Приволжья	IDGC of Center and Volga Region, JSC
35	МРСК Центра	OAO "MRSK Tsentra"
36	МТС (Мобильные ТелеСистемы)	Mobile TeleSystems OJSC
37	Нижнекамскнефтехим	"Nizhnekamskneftekhim" Incorporated
38	Новатэк	JSC "Noyatek"
39	ОГК-1	JSC "OGK-1"
40	ОГК-3	JSC "WGC-3"
41	ОГК-4	JSC "OGK-4"
42	ОГК-6	JSC "OGK-6"
43	ОМЗ	OMZ
44	ОПИИ	JSC "Open Investments".
45	Пава	OAO "PAVA"
46	Пивоваренная компания Балтика	Baltika Breweries
47	Полюс Золото	OJSC "Polyus Gold"
48	Распадская	MINE "Raspadskaya"
49	Росинтер Ресторантс Холдинг	OJSC "ROSINTER RESTAURANTS HOLDING"
50	Ростелеком	OJSC Long-Distance and Interna
51	РусГидро	JSC "RusHydro"
52	Северсталь	YSC "Severstal"
53	Седьмой Континент	JSC "The Seventh Continent"
54	Сибирьтелеком	OJSC Sibirtelecom
55	Силовые машины	OJSC "Power machines"
56	Синергия	Synergy, Co.
57	Соллерс	SOLLERS OJSC
58	Таттелеком	OAO "Tattelekom"
59	ТГК-5	OAO "TGK-5"
60	Уралкалий	OJSC Uralkali
61	Уралсвязьинформ	OJSC "Uralsvyazinform"
62	Фармстандарт	JSC "PHS"
63	Центр Телеком	JSC CenterTelecom
64	ЧТПЗ	JSC "ChTRP"
65	ЧЦЗ	"CHELYABINSK ZINC PLANT"
66	Энел ОГК-5	OJSC Enel OGK-5
67	ЮТК	"UTK" PJSC