Impact of mandatory IFRS implementation on earnings quality. Evidence from the Warsaw Stock Exchange

Jan Michalak *, Halina Waniak-Michalak **, Przemysław Czajor ***

Introduction

The main objective of financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions (IAS 1, 2011). Earnings are one of the most aggregated and most important financial performance measures used by decision makers. Earnings are used both for company valuation purposes and management performance evaluation purposes. It may suggest that the term „earnings quality” is connected with the possibility for users to make better decisions. However, „earnings quality” may be understood also as complying with existing accounting regulations and not hiding any material items which, if revealed, might result in a lower grading of an entity by the users of the financial statements (including financial analysts).

Different decision makers should be aware of the different components (and items, and relationships among them) of financial statements, as well as different kinds of information which may be of interest. In other words, earnings quality should be evaluated only when specifying the decision context (Dechow et al., 2009, 2010).

According to an extensive literature review conducted by Dechow et al. (2010) the term „earnings quality” was used as early as the 1930's, by Graham and Dodd in their book Security Analysis and it was reintroduced by O’Glove’s financial analysis textbook Quality of Earnings published in 1987. Bernstein and Siegel (1979) defined the elements of earnings quality as integrity, reliability and predictability.

Nowadays, quality of earnings is a construct quite widely discussed in accounting literature (Demski, 1998; Dechow, Dichev, 2002; Abody et al., 2005; Ball, Dr. Jan Michalak, assistant professor, Department of Accounting, Faculty of Management, University of Łódź, e-mail: jmichal@uni.lodz.pl

** Dr. Halina Waniak-Michalak, assistant professor, Department of Accounting, Faculty of Management, University of Łódź, e-mail: hwaniak@uni.lodz.pl

*** Dr. Przemysław Czajor, assistant professor, Department of Accounting, Faculty of Management, University of Łódź, e-mail: pczajor@uni.lodz.pl
Shivakumar, 2005; Ecker et al., 2006; Dechow et al., 2010; Francis et al., 2008; Givoly et al., 2010). In Poland this topic was discussed by Cieślik (2006) and Gierusz and Gawrońska (2012). However, the meaning of the term „quality of earnings” differs depending on the author using it. From the point of view of accounting regulations, as well as accounting standards setters, earnings are of „high quality” when they are accounted for in compliance with existing regulations (e.g. IFRS or the Polish Accounting Act). The users of financial statements are eager to perceive earnings to be of high quality if they are free of fraudulency and different methods of illegal window-dressing. This point of view is vital because of many financial „scandals”, like the cases of Enron, WorldCom, Lehman Brothers, etc.

Shareholders, especially those who are well-educated, would probably want earnings to reflect the creation of value by a company. Boards of Directors would have a similar attitude, but they are more interested in the possibility to assess managers’ influence on the growth of companies’ value (and how it may be measured with earnings).

In this paper we will focus on earnings as a measure of financial performance that reflects not only the operating activity of companies but also their ability to value creation. The value of a company is most often measured on the basis of cash flows. Consequently, for the ability to use earnings as value creation’s indicator it is necessary for earnings to be easily convertible into cash flows.

In our study we try to answer the following question, whether the mandatory implementation of IFRS increases earnings quality. In order to answer this question we measured the following proxies of earnings quality of Polish companies: earnings persistence and accruals magnitude. We also looked into the height of special items, following the Donelson et al. (2011) study, which according to these authors is one of important balance sheet items correlated negatively with earnings quality.

Despite the ambiguity of the term „earnings quality”, there is a scientific problem which may be expressed as „what are the determinants of earnings quality?” or „do we know what factors influence the earnings quality most?”. In our article we have focused on the mandatory implementation of IFRS on earnings quality for several reasons. We excluded the impact economic conditions on earnings quality due to the reasons of sample composition and limited length of the article.

IFRS seem to be (or IASB wants them to be perceived as) global accounting standards of high quality. IFRS are, undoubtedly, based on the Anglo-Saxon model of financial reporting model as opposed to Polish accounting regulations, which used to be much more based on the continental model of financial reporting. The Anglo-Saxon model of financial reporting is oriented on value creation by nature. It means theoretically that the implementation of IFRS should increase earnings

---

1 Impact of economic situation on earnings quality was discussed by Healy (1985) and Lin and Shih (2002).
quality as far as value creation is concerned. Moreover, IFRS constitute principle-based standards which should result in reducing earnings management, as they remove alternative accounting treatments (Dechow et al., 2009). However, two facts should be emphasized. First, no accounting model is better per se. Second, the implementation of IFRS in Poland was the effect of an administrative decision (Directive 1606/2002). In such circumstances, the positive impact of the change of the accounting model may be limited.

Our paper is organized as follows. In the first section we present a literature review concerning proxies and determinants of earnings quality we considered in our research. We characterize the process of mandatory IFRS implementation and analyze previous research on its influence on earnings quality. In the second section, the research plan and sample composition are outlined. The third section presents the results of our empirical research. The paper ends with a final discussion that comprises conclusions, limitations of the research and possible future studies.

1. Proxies and determinants of earnings quality

In addition to problems with defining earnings quality, there also different ways when trying to measure the quality of earnings. There are many different proxies for earnings quality that are presented in the literature. The most widely used proxies of the good quality earnings (Dechow et al., 2010; DeFond, 2010) are the following:

1) persistence of earnings – companies with persistent earnings and cash flow streams provide better input for discounted cash flow-based equity valuation; persistence of earnings is also a sign of a company’s stability and lesser risk associated with this company;

2) magnitude of accruals – large accruals may lead to low quality of earnings as they may be a sign of earnings smoothing and they could lead to lesser earnings persistence in the long run;

3) smoothness – smoothing transitory cash flows can improve earnings informativeness as they may be better estimator for future cash flow;

4) timely loss recognition, which is important in order to decrease the influence of managers’ natural optimism. The higher the timeliness of loss recognition, the better the quality of earnings;

Earnings management may be defined as „the purposeful intervention in the external financial reporting process, with the intent of obtaining some private gains” (Schipper, 1989). Healy and Wahlen (1999) perceive earnings management with altering financial statements in order to mislead some stakeholders about the economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers. That is why earnings management is negatively correlated with earnings quality.
5) abnormalities of earnings distribution, if there exists an unusual clustering in earnings distribution e.g. more companies disclosing small profits than small losses may be an indication of earnings management. Earnings management may lead to decreased quality of earnings;

6) earnings correlation with company valuation – a high correlation of earnings with valuation supports the cornerstones of finance and accounting theory: the efficiency of the market and the relevance of the accounting information, in other words earnings disclosures should change the market valuation of the company;

7) lack of external indicators of earnings misstatements. Such indicators may be: Accounting and Auditing Enforcement Releases (AAERs), and SOX reports of internal control deficiencies as well as restatements. Detection of misstatements will definitely document decreased earnings quality. However, a number of companies with such restatements were found.

In our study we have decided to use the first two proxies.

Persistence as a proxy for earnings quality derives from the perspective of decision usefulness. Schipper and Vincent (2003) believe that its usefulness is conceptually based (and empirically proved) on the positive relation between earnings persistence and the correlation between returns and earnings. Theoretically, as stated above, persistent earnings are more useful in the valuation of firms. Assuming that investors make decisions on the basis of the companies’ value (or possibility of companies to generate value for them in the future), then earnings are of a higher quality if they are more persistent.

The second proxy is associated with first one. Extreme accruals are a sign of lower earnings quality because they represent less persistent earnings. On the basis of former studies (Dechow, 1994; Sloan, 1996; Barth et al., 2001; Penman and Sougiannis, 1998; Richardson et al., 2005; Nissim and Penman, 2001; Fairfield et al., 1996; Fairfield et al., 2003) it may be concluded that, in general, earnings are more persistent than cash flows. But on the other hand, when components of earnings are concerned, its cash flows component is more persistent than the accrual component (Dechow et al., 2008).

When considering the quality of earnings as their ability to predict future cash flows (and companies’ value), there are also mixed opinions based on research conducted by different authors. Penman and Sougiannis (1998) found that models that apply simple forecasting assumptions based on earnings provide a better forecast of market value than models based on dividend or cash flow forecasts. However other researchers e.g. Barth et al. (2001) and Finger (1994) provided research results that current cash flows are better predictors of future cash flows especially

---

3 AAERs and SOX reports of internal control deficiencies are mainly valid for US listed companies. They are not existent on Warsaw Stock Exchange.
in the short term. The results seem to be inconclusive due to different variable definitions and research designs.

Following the proxies of earnings quality it is worth considering the determinants of earnings and accruals. P. Dechow et al. (2010) observed that earnings are dependent on the firm’s economic performance as well as on the accounting systems that measure it, however, it is very hard to distinguish one from another. K. Schipper and L. Vincent (2003) also believe that persistence of earnings is a function of accounting standards implementation and an entity’s business model as well as its operating environment.

D. Donelson et al. (2011) found that one of the factors that influence diminished persistence of earnings were special items. The authors concluded that there is no evidence that specific accounting standards require companies to report special items. On the other hand, Donelson et al. (2011) found evidence that changes in economic activity lead to a significant increase in special items.

2. Mandatory and voluntary IFRS implementation process

Mandatory implementation of IFRS in the European Union was conducted in order to improve the usefulness of financial statements. The increase of usefulness should be obtained by better comparability of financial statements. Moreover, International Accounting Standards and International Financial Reporting Standards are believed to be, to some extent, standards superior to national accounting regulations (Barth et al., 2008; Ignatowski, 2009, pp. 121–134).

The objectives of financial reporting have varied in different countries. The main reason for the differences was the various groups of stakeholders who are the most interested in information communicated by financial statements. Generally, there are two main models of financial reporting: the Anglo-Saxon model and the continental model. In the continental model, banks (or generally financial institutions), tax authorities and other government bodies are the most important groups of users of financial statements. On the other hand, in other countries (considered to apply the Anglo-Saxon model) financial reporting has evolved with the assumption that shareholders are the most important users, who are entitled to receive financial information.

---

4 There are also other models of financial reporting due to literature. Mueller et al. (1997) have distinguished south-american model, model of mixed economies’ countries, model of communists’ countries and model based on international standards. The authors considered Poland to be an example of mixed economies’ countries although the majority of Polish publications (e.g. Jaruga (ed.), 2002) have considered Polish accounting system as being characteristic for continental model.
The differences between the two main models of financial reporting are discussed in the literature (Mueller et al., 1997; Jaruga, 2002; Alexander et al., 2007, pp. 42–46). As a result of those and other national differences, financial statements of companies listed on stock exchanges all over the world were not comparable. Such a situation seemed to be unacceptable in the age of globalization, and constituted the need for harmonization of financial reporting.

The contrasting attitudes to the objectives of financial statements affected the harmonization of accounting regulations in the European Union significantly. In the beginning there were many attempts to harmonize financial reporting in the 1980s (among European Community countries). There were enforced common regulations with objectives of:

- harmonization of formats of financial statements, valuation rules and note disclosures (the Fourth Directive),
- preparing consolidated financial statements on a common basis (the Seventh Directive).

The deep-rooted differences in accounting regulations among European Union members were eliminated only partially with the Directives. But they should be considered to be the first step on the way to harmonized accounting and provided a base level for that (International GAAP® 2005. Volume I, 2005, pp. 66–74).

Undoubtedly, the Fourth and Seventh Directives seemed to improve comparability of financial statements in the European Union. On the other hand, the Directives were implemented only due to compromise and, in practice, financial reporting rules were still different as far as specific rules are concerned.

In 1995 the European Union issued the Communication (1995) and stated that the Directives did not provide answers to all the problems facing preparers and users of financial statements, as well as accounting rules setters. The Communication considered several proposals to solve that problem. Tightening cooperation with IASC (International Accounting Standards Committee) was thought to be the best one.

The decision to adopt International Accounting Standards (IAS) was confirmed in the Financial Services Action Plan (1999) issued by the European Commission in May 1999. It stated that IAS were the best benchmark for financial reporting that might help to develop a common capital market in the EU. Meanwhile, several Member States allowed, individually, for companies listed on regulated markets to use IAS as a basis for their consolidated financial statements.

In 2000 a new document The European Union’s Financial Reporting Strategy: the Way Forward (2000) was issued and confirmed (again) the adoption of IAS. Eventually, the idea of IAS as a basis for financial reporting on regulated markets in the EU, was enforced due to Regulation no. 1606/2002 of the EU Parliament and of the Council on 19. July 2002\(^5\). In accordance with this Regulation, consolidated

\(^5\) Before IAS were adopted, the European Commission had to amend the Fourth and Seventh Directives (by issuing new Directive (2001) especially to achieve comparability with IAS 39 and make it possible to adopt all existing IAS.
financial statements of listed companies for the period beginning on or after 1 January 2005 had to be prepared on the basis of „adopted IAS”\textsuperscript{6}. It was estimated that this requirement was vital for approximately 7000 companies all over the European Union. This Regulation had a direct effect on listed companies preparing consolidated financial statements. However, there is an option in Regulation no. 1606/2002 that adoption of IAS might be permitted for other companies, although it should be considered individually by each country.

In Poland there is a possibility to voluntarily adopt IFRS for a company that:

- prepares itself to be listed on regular market in any country of European Economic Area,
- is part of a capital group, and the parent company reports on the basis of IFRS,
- is a division of a foreign company that reports on the basis of IFRS.

The difference between voluntary and mandatory implementation of IFRS is significant. If a company decides to implement IFRS voluntarily, it probably has some incentives to do so, e.g. lower cost of capital. Voluntary implementation of IFRS may be also a sign of higher investor orientation and a better working corporate governance system in company. Some former research provide evidence that earnings management magnitude is on average higher in countries using the continental model of financial reporting with low investor protection rights, compared to countries using Anglo-Saxon financial reporting model with high investor protection rights (Hung, 2000; Leuz \textit{et al.}, 2003; Van Tendeloo, Vanstraelen, 2005). A similar correlation was also discovered by Francis and Wang (2008), but in their study the quality of earnings appeared to be higher only for firms audited by one of the Big-4 auditing companies. However, Hung (2000) found that earnings are more value-relevant (that implies higher quality of earnings) when there is stronger protection of shareholders but accompanied by more accrual-related accounting standards. When there is weak shareholder protection then the use of accrual accounting negatively affects the value relevance of financial statements.

Previous literature in most cases focused on the voluntary adoption impact of IAS/IFRS by companies on earnings management (Barth \textit{et al.}, 2008; Van Tendeloo, Vanstraelen, 2005). Van Tendeloo and Vanstraalen (2005) concluded that German companies following IAS and those applying German accounting regulations do not show significant differences in earnings management. By contrast, Bartov \textit{et al.} (2005) found that earnings relevance in companies that apply IAS was higher than in companies following German accounting regulations.

There is a growing number of studies examining if the target of improved usefulness of financial statements was attained due to implementation of IFRS. Most of them find a positive impact of IFRS mandatory implementation on the usefulness/quality of financial information disclosed by companies. Barth \textit{et al.} (2008) find that use of IAS/IFRS by companies from 21 countries show positive impact on

\textsuperscript{6} „Adopted IAS” are standards (and their interpretations) adopted by the European Commission.
accounting information quality. They compared companies applying IFRS with their counterparts using non-U.S. domestic standards. They measured the quality of accounting information using the following proxies: less earnings management, more timely loss recognitions and more value relevance accounting amounts. These features are also characteristics of high earnings quality. The proxies of the accounting information quality used by Barth et al. (2008) were the following: variance of the change in net income, the ratio of the variances of the change in net income to the variances of the change in cash flows, the correlation between accruals and cash flows, and the frequency of small positive income. They considered earnings that reflect losses on a more timely basis as being of higher quality.

There are also few studies on the effects of mandatory IFRS implementation in new EU-members, including Poland. Some light on this topic is shed by the studies of Jaruga et al. (2007) and Klimczak (2011). The Jaruga et al. (2007) study showed that mandatory IFRS implementation caused in some cases enormous changes of earnings. According to Jaruga et al. (2007) differences in earnings prior and after IFRS implementation appeared mainly due to:

- application of regulations of IFRS 3 (Business combinations),
- de-recognition of intangible assets,
- decrease of accounting income as result of recognition of:
  - expenses relating to share-based payments,
  - lower revenues due to long deferred payments.

There is also a growing number of studies examining the impact of mandatory and voluntary IFRS implementation around the world. The articles of Klimczak (2011) and Zeghal et al. (2011) are worth mentioning. Based on the sample of 353 French companies Zeghal et al. (2011) found that mandatory adoption of IAS/IFRS is associated with a reduction in the earnings management level. This research ends with the conclusion that implementation of IAS/IFRS by French companies reduces the use of discretionary accruals and therefore increases earnings quality. Klimczak’s study (2011) provides evidence that IFRS adopters receive a premium in market valuation before adoption, but not afterwards.

On the basis of the former research we pose a hypothesis that implementation of IFRS should improve the quality of earnings, measured by the earnings persistence and accruals magnitude.

3. Research plan, data and methodology

Our main hypothesis posed in the paper sounds as follows: mandatory IFRS implementation has a positive effect on the quality of earnings.

In order to verify the above hypothesis we conducted a study on the quality of earnings in the periods before and after mandatory implementation of IFRS by the companies which are traded on the Warsaw Stock Exchange, which is one of the public markets of the European Union.
Our sample comprises 3279 firm-year observations for 312 firms that prepared financial consolidated financial statements and were listed on the Warsaw Stock Exchange. The sample covered all listed companies that disclose consolidated financial statements apart from banks, insurance companies and investments funds, as those companies have a different format of financial statements, and their business model is so different that such companies are not comparable to companies from other sectors. We used the data from the Notoria database – the database that covers the biggest amount of information on companies listed on the Warsaw Stock Exchange. The data used in the statistical data analysis were scaled by the average amount of assets. The period of the study covers the years 1999–2010, which means it was a six-year sub-period before mandatory IFRS implementation and a six-year sub-period after it.

In order to measure the quality of earnings in the periods before and after mandatory IFRS implementation we used two types of proxies, earnings persistence and magnitude of operating accruals.

Persistence of earnings is measured by estimation of the following equation:

\[ \text{earnings}_{t+1} = \alpha + \beta \text{earnings}_t + \epsilon_t \]

Operating accruals were calculated using the following formula:

\[ OA = (NI - CFO) / AA \]

where:
- OA – operating accruals,
- NI – net income,
- CFO – cash flow from operations,
- AA – average assets.

Net income is taken from profit and loss statements (Notoria Item 166), CFO stands for cash flow from operating activities (Notoria Item 169) – reported in cash flow statements\(^7\). Average assets are calculated as an average of total assets at the beginning and end of the period taken from the balance sheet (Notoria Item 29).

We treated also as signs of high earnings quality their high correlation with net cash flow and cash flow from operations. Following the reasoning of Donelson *et al.* (2011) and Dichev and Tang (2008) we also investigate the percentage of firms with large special items, which may negatively influence earnings quality and decrease the correlation between revenue and expense. Special items were calculated in our study as a difference between profit (loss) from sales (Notoria Item 128) and operating profit (loss) (Notoria Item 137).

\(^7\) There is a possibility to calculate operating accruals using the balance sheet as in the study of Sloan (1996). However, such a calculation reflects less the number of special items (only those arising from current assets and liabilities). Based on recommendations of Hribar and Collins (2002), as well as Dechow and Ge (2006) we used data from cash flow statements, and as a result the operating accruals in our survey include more special items (arising from current and non-current assets and liabilities).
We coded variables used in our study as follows:

- EANR\(_t\) = earnings in the period \(t\),
- EANR\(_{t+1}\) = earnings in the period \(t+1\),
- DIFRS = dummy variable, that equals 0 for the period before mandatory IFRS implementation and equals 1 for the period after mandatory IFRS implementation,
- EARNBIFRS – earnings before mandatory IFRS implementation (years – 1999–2004),
- EARNAIFRS – earnings after mandatory IFRS implementation (years – 2005–2010),
- OABIFRS – operating accruals before mandatory IFRS implementation (years – 1999–2004),
- OAAIFRS – operating accruals after mandatory IFRS implementation (years – 2005–2010),
- CFBIFRS – net cash flow before IFRS implementation (years – 1999–2004),
- CFAIFRS – net cash flow after IFRS implementation (years – 2005–2010),
- CFOBIFRS – cash flow from operations before IFRS implementation (years – 1999–2004),
- CFOAIFRS – cash flow from operations after IFRS implementation (years – 2005–2010),
- SIBIFRS – special items before mandatory IFRS implementation (years – 1999–2004),

These codes are used in tables 1 to 8.

4. Results

As mentioned in the previous section, the first step of our analysis was to measure earnings persistence in the period before and after mandatory IFRS implementation. We estimated persistence of earnings using the following regression model:

\[ EARN_{t+1} = \alpha + \beta EARN_t + \epsilon_t. \]

In order to check if there exists an impact of IFRS implementation we introduced a dummy variable, DIFRS, which equaled 0 for data before IFRS implementation and 1 for data after mandatory IFRS implementation. Afterwards our regression model was in the following form:

\[ EARN_{t+1} = \alpha_1 + \alpha_2 DIFRS + \beta EARN_t + \epsilon_t. \]

The results of the estimation of the regression model is presented in tables 1 and 2.
Impact of mandatory IFRS implementation on earnings quality. Evidence from ...

Table 1. Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0.359a</td>
<td>0.129</td>
<td>0.128</td>
<td>0.1106953</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.129</td>
<td>0.128</td>
<td>0.1106953</td>
<td>0.129</td>
<td>241.978</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>df1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

a Predictors: (Constant). EARNt, DIFRS

Source: calculations of the research team on the basis of the financial statement companies in sample.

Table 2. Coefficients in the model

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>0.011</td>
<td>0.003</td>
<td>3.834</td>
</tr>
<tr>
<td></td>
<td>EARNt</td>
<td>0.358</td>
<td>0.018</td>
<td>0.335</td>
</tr>
<tr>
<td></td>
<td>DIFRS</td>
<td>0.018</td>
<td>0.004</td>
<td>0.078</td>
</tr>
</tbody>
</table>

a. Dependent Variable: EARNt+1

Source: calculations of the research team on the basis of the financial statement companies in the sample.

The R square value for the model is rather low, which shows that other factors apart from last year earnings are important for explaining the given year earnings. The model is statistically significant at 0.01 level. The standardized beta coefficient for earnings from the previous year equals 0.358 which is rather low in comparison with studies of other researchers e.g. persistence in the study of Dechow and Ge (2006), where the level earnings persistence coefficient was 0.696. The reason for such a difference may be: different sample (country, sector and size difference) and different period 1988–2002, which was a period of quite high economic growth in the U.S, as well as the limitations of the regression models (standardized betas from different studies should not be directly compared).

More important result from the regression estimation is that the dummy variable DIFRS is significant at 0.01 level. The standardized beta coefficient for DIFRS equals 0.078. Statistical significance and positive, however rather small, standardized beta coefficient prove that there exists a weak positive effect of IFRS implementation on earnings quality measured by earnings persistence.

The second step of our analysis was to check the level and correlations between the level of earnings, net cash flow, cash flow from operations, special items and operating accruals before and after mandatory IFRS implementation (see tables 3, 4, 5).
Table 3. Descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>EAR-NBIFRS</th>
<th>EAR-NAIFRS</th>
<th>OABIFRS</th>
<th>OAAIFRS</th>
<th>SIBIFRS</th>
<th>SIAIFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>677</td>
<td>1636</td>
<td>677</td>
<td>1636</td>
<td>677</td>
<td>1636</td>
</tr>
<tr>
<td>N Missing</td>
<td>1303</td>
<td>344</td>
<td>1303</td>
<td>344</td>
<td>1303</td>
<td>344</td>
</tr>
<tr>
<td>Mean</td>
<td>0.029841</td>
<td>0.055042</td>
<td>–0.055241</td>
<td>0.000103</td>
<td>–0.041694</td>
<td>–0.009387</td>
</tr>
<tr>
<td>Median</td>
<td>0.031661</td>
<td>0.048470</td>
<td>–0.050877</td>
<td>–0.013558</td>
<td>–0.037989</td>
<td>–0.017591</td>
</tr>
<tr>
<td>Minimum</td>
<td>–0.8954</td>
<td>–1.2928</td>
<td>–0.9447</td>
<td>–1.2226</td>
<td>–0.7341</td>
<td>–0.9646</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.1318</td>
<td>1.2068</td>
<td>1.0631</td>
<td>1.6941</td>
<td>0.8616</td>
<td>1.7488</td>
</tr>
</tbody>
</table>

Source: calculations of the research team on the basis of the financial statement companies in sample.

Lower absolute values, means and medians of operating accruals and special items may be interpreted as a proxy of higher earnings quality in the period after mandatory IFRS. In order to check if the difference in means of operating accruals and special items in two researched periods is significant we also conducted a paired t−test. These two results are in line with the results of Barth and Landsman (2008) as well of Zeghal et al. (2011) who found a positive influence of mandatory IFRS implementation on earnings quality.

Table 4. Correlations before mandatory IFRS implementation

<table>
<thead>
<tr>
<th></th>
<th>EARN-BIFRS</th>
<th>CFBIFRS</th>
<th>CFO-BIFRS</th>
<th>OABIFRS</th>
<th>SIBIFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARN-BIFRS</td>
<td>1</td>
<td>0.242**</td>
<td>0.356**</td>
<td>0.491**</td>
<td>0.483**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>N</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
</tr>
<tr>
<td>CFBIFRS</td>
<td>0.242**</td>
<td>1</td>
<td>0.307**</td>
<td>–0.087*</td>
<td>0.163**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.024</td>
<td>0.000</td>
</tr>
<tr>
<td>N</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
</tr>
<tr>
<td>CFO-BIFRS</td>
<td>0.356**</td>
<td>0.307**</td>
<td>1</td>
<td>–0.639*</td>
<td>0.115**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.003</td>
</tr>
<tr>
<td>N</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
</tr>
<tr>
<td>OABIFRS</td>
<td>0.491**</td>
<td>–0.087*</td>
<td>–0.639**</td>
<td>1</td>
<td>0.291**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.024</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>N</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
</tr>
<tr>
<td>SIBIFRS</td>
<td>0.483**</td>
<td>0.163**</td>
<td>0.115**</td>
<td>0.291*</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.003</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>N</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
<td>677</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Source: calculations of the research team on the basis of the financial statement companies in sample.
Table 5. Correlations after mandatory IFRS implementation

<table>
<thead>
<tr>
<th></th>
<th>EAR-NAIFRS Pearson Correlation</th>
<th>CFAIFRS Pearson Correlation</th>
<th>CFOAIFRS Pearson Correlation</th>
<th>OAAIFRS Pearson Correlation</th>
<th>SIAIFRS Pearson Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>Sig. (2-tailed)</td>
<td>Sig. (2-tailed)</td>
<td>Sig. (2-tailed)</td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0.142**</td>
<td>0.329**</td>
<td>0.535**</td>
<td>0.628**</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
</tr>
<tr>
<td>CFAIFRS</td>
<td>0.142**</td>
<td>1</td>
<td>0.126*</td>
<td>0.005</td>
<td>0.064*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.854</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
</tr>
<tr>
<td>CFOAIFRS</td>
<td>0.329**</td>
<td>0.126*</td>
<td>1</td>
<td>-0.622**</td>
<td>-0.029</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.243</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
</tr>
<tr>
<td>OAAIFRS</td>
<td>0.535*</td>
<td>-0.622**</td>
<td>1</td>
<td>0.546*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.854</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
<td></td>
</tr>
<tr>
<td>SIAIFRS</td>
<td>0.628**</td>
<td>0.064*</td>
<td>-0.029</td>
<td>0.546**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.243</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1636</td>
<td>1636</td>
<td>1636</td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Source: calculations of the research team on the basis of the financial statement companies in the sample.

There is a positive correlation between earnings and operating accruals and special items in both periods. The correlation is higher in the period after mandatory IFRS implementation. The effect of IFRS implementation is even stronger when comparing correlation of earnings and special items.

The results are different to the studies of Dechow and Ge (2006), as in their study there was the strongest correlation between earnings and cash flows from operations (0.781). Compared with our study, the correlation of earnings and cash flows from operations was only 0.356 (before IFRS implementation) and even less (0.329) after IFRS implementation.

However, our study has revealed a similar correlation of earnings and operating accruals as the study of Dechow and Ge (2006), especially when considering the period after mandatory IFRS implementation.

With the aim of checking if the change in the variables is statistically significant we conducted a paired samples t-test and calculated eta squared for the pairs of the variables before and after mandatory implementation of IFRS. The results of these tests and calculations are presented in tables 6 and 7.
Table 6. Paired samples test for variables before and after IFRS implementation

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1  EARIFRS – EARIAIFRS</td>
<td>0.0028994</td>
<td>0.1953601</td>
<td>0.0076568</td>
<td>-0.0121355 – 0.0179344</td>
<td>0.379</td>
<td>650</td>
<td>0.705</td>
</tr>
<tr>
<td>Pair 2  CFBIFRS – CFAIFRS</td>
<td>0.0105067</td>
<td>0.1136430</td>
<td>0.0044540</td>
<td>0.0017607 – 0.0192527</td>
<td>2.359</td>
<td>650</td>
<td>0.019</td>
</tr>
<tr>
<td>Pair 3  CFOBIFRS – CFOAIFRS</td>
<td>0.0264877</td>
<td>0.1884884</td>
<td>0.0073874</td>
<td>0.0119815 – 0.0409938</td>
<td>3.586</td>
<td>650</td>
<td>0.000</td>
</tr>
<tr>
<td>Pair 4  OABIFRS – OAAIFRS</td>
<td>-0.0235882</td>
<td>0.2240230</td>
<td>0.0087802</td>
<td>-0.0408291 – 0.0063473</td>
<td>-2.687</td>
<td>650</td>
<td>0.007</td>
</tr>
<tr>
<td>Pair 5  SIBIFRS – SIAIFRS</td>
<td>-0.0269200</td>
<td>0.1490875</td>
<td>0.0058432</td>
<td>-0.0383938 – 0.0154462</td>
<td>-4.607</td>
<td>650</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: calculations of the research team on the basis of the financial statement companies in the sample.

The results of the paired samples t-test show us that the differences in means are significant at 0.01 level for cash flow from operations, operating accruals and special items, and they are not significant for earnings.

Eta squared is the measurement of the magnitude of the differences between the groups (Cohen, 1988). The formula for calculating era squared is the following:

\[ Eta \text{ squared} = \frac{t^2}{t^2 + N - 1} \]

where:
- \( t \) – t statistics,
- \( N \) – the number of observations in the sample.

The results for the pairs of variables for which the differences in means are statistically significant are presented in table 7.

Table 7. Eta squared results

<table>
<thead>
<tr>
<th>Eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0194</td>
</tr>
<tr>
<td>0.0110</td>
</tr>
<tr>
<td>0.0316</td>
</tr>
</tbody>
</table>

Source: calculations of the research team on the basis of the financial statement companies in the sample.

The effect of mandatory IFRS implementation is rather weak, as eta squared computed for means before and after implementation is at level of 0.011 for operating accruals (the weakest but a statistically significant difference in means) to 0.032 for special items (the strongest but still a rather moderate effect of the mandatory IFRS implementation).
In order to triangulate our results we also conducted Wilcoxon Signed Ranks test. The results of the test are presented in table 8.

**Table 8. Wilcoxon Signed Ranks test results**

<table>
<thead>
<tr>
<th>Test Statistics&lt;sup&gt;c&lt;/sup&gt;</th>
<th>EAR-NAIFRS – EARN-BIFRS</th>
<th>CFAIFRS – CFBIFRS</th>
<th>CFOAIFRS – CFO-BIFRS</th>
<th>OAAIFRS – OABIFRS</th>
<th>SIAIFRS – SIBIFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>–0.047&lt;sup&gt;a&lt;/sup&gt;</td>
<td>–2.004&lt;sup&gt;b&lt;/sup&gt;</td>
<td>–4.799&lt;sup&gt;b&lt;/sup&gt;</td>
<td>–3.424&lt;sup&gt;a&lt;/sup&gt;</td>
<td>–7.432&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>0.963</td>
<td>0.045</td>
<td>0.000</td>
<td>0.001</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<sup>a</sup> Based on negative ranks  
<sup>b</sup> Based on positive ranks  
<sup>c</sup> Wilcoxon Signed Ranks Test

The results of the Wilcoxon Signed Ranks test confirm the results of the paired samples t-test. The differences in means are significant at 0.01 level for cash flow from operations, operating accruals and special items using this non-parametric method.

**Conclusions, study limitations and possibilities of further research**

Earnings quality, which has been more and more deeply investigated by researchers from different countries for more than 20 years, has three types of determinants. The first type is economic conditions and the way companies are able to compete in a changing environment. The second type is the different techniques of earnings management and earnings smoothing, that companies’ accountants and management utilize in order to meet and beat analysts’ expectations concerning companies’ earnings’. The third type of determinants is the changes in accounting regulations that shape the rules that companies use in order to prepare financial statements. In our paper we focused on the third type of earning quality – it means changes of accounting regulations. One of the most important accounting changes that took place during recent years in the European Union was mandatory IFRS implementation in companies publicly listed on EU countries’ stock exchanges.

In our study we tried to answer the question whether the mandatory implementation of IFRS increased earnings quality. We point out that mandatory IFRS implementation had a positive yet weak impact on the earnings quality of companies listed on the Warsaw Stock Exchange. The moderate positive effect that was observed is in line with Zeghal *et al.* (2011), results that show similar positive effects on earnings quality in France – another country with the continental model of ac-
counting. The weak effect of IFRS implementation in comparison with other studies (e.g. Van Tendeloo, Van Straelen, 2005; Barth et al., 2008) may be the result of a mandatory accounting change in our study and voluntary change in the two mentioned studies. Voluntary implementation was probably used by companies that wanted to use a signaling effect and tried to present their financial statements as these with a superior quality. The weak positive effect of IFRS implementation may be explained by two more factors. The first factor was the change of the Polish Accounting Act in 2001. The changes were aimed at making Polish accounting regulations more similar to IFRS. The second possible factor is the mandatory nature of the implementation. Some companies may treat it as an unnecessary disclosure burden and try to change as little as possible in their accounting system to meet the requirements imposed by the Directive 1606/2002.

Our study showed that there is weak evidence for the increase in earnings quality after mandatory implementation of IFRS.

The problem that arises is the fact that impact of IFRS may be caused by the difference in the economic conditions and economic positions of Polish listed companies. The number of companies grew substantially between the periods of 1999–2004 and 2005–2010 which were covered by our research.

Our study contributes to understanding the mandatory adoption of IFRS in a country that was undergoing economic transition, so it may be interesting for researchers and standard setters in countries undergoing similar changes to Poland and considering mandatory implementation of IFRS.

Our study has some limitations. The biggest limitation is that it is restricted to Polish companies listed on the Warsaw Stock Exchange and we did not control for impact of economic conditions on earnings quality.

In the next stages of our study we would like to introduce the following improvements. To investigate more deeply the effect of IFRS implementation we may try to assess the impact of economic slowdown on earnings quality on various industries. It may appear that there is a stronger correlation in particular industries which were more affected by the adoption of IFRS or by economic cycles. Studies based on the EU-wide sample may offset the two factors blurring the effects of IFRS mandatory implementation on earnings quality. The first factor negatively affecting the positive impact of mandatory IFRS implementation on earnings quality is that the average GDP growth rate was higher in the period post 2005 and lower in the period before 2005. The second factor that may disturb results is the number of listed companies on the Warsaw Stock Exchange and their overall economic condition. In the latter period the number of listed companies substantially grew, and the companies which survived had, in many cases, undergone a process of reorganization after the slowdown of 2001–2002. The processes of reorganization and consolidation enhanced the financial positions of companies. Our study will be extended to all countries of European Union as soon as we get access to the database covering all EU countries.
Studies should also be conducted on the effect of the size of a company on the results of mandatory IFRS implementation on earnings quality. Companies from well developed countries (especially those in which data are used in most studies) are far bigger than companies that are listed in smaller and post-transitional economies.

References


Impact of mandatory IFRS implementation on earnings quality. Evidence from ...


Summary
This paper is about the impact of the mandatory implementation of IFRS on earnings quality of companies listed on the Warsaw Stock Exchange. We choose earnings persistence and accruals magnitude as the proxies of earnings quality of companies. On the basis of the former research we pose a hypothesis that implementation of IFRS should improve the quality of earnings, measured by the earnings persistence and accruals magnitude. In order to verify the first hypothesis we compared the quality of earnings in the period before mandatory IFRS implementation for listed companies that report consolidated financial statements and in the period after the IFRS implementation (as of the beginning of 2005). We document a weak positive influence of mandatory IFRS implementation on earnings quality. This weak positive impact of mandatory IFRS implementation was proven by earnings quality proxies. Our study covers all the firms (apart from financial institutions) that prepared financial consolidated financial statements and were listed on the Warsaw Stock Exchange. The period of the study covers the years 1999 to 2010.

Keywords: earnings quality, mandatory IFRS implementation, earnings persistence, accruals, income smoothing.

Streszczenie
Wpływ obowiązkowego przyjęcia MSSF na jakość zysków. Wyniki badań empirycznych na Giełdzie Papierów Wartościowych w Warszawie

Artykuł przedstawia wyniki badań empirycznych o wpływie obowiązkowego przyjęcia MSSF na jakość zysków prezentowanych w sprawozdaniach spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie. Jako mierniki jakości zysków zostały zastosowane często wykorzystywane w literaturze przedmiotu: trwałość zysków (earnings persistence) oraz wielkość pozycji umieszczanych memorialowo (accruals magnitude). Na podstawie wcześniejszych badań autorzy postawili hipotezę,

Słowa kluczowe: jakość zysków, MSSF, trwałość zysków, pozycje memoriałowe, wygładzanie zysków.