

**Soon we will almost all use IFRS when preparing accounting information – but does that improve financial statements' comparability?**

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## **Soon we will almost all use IFRS when preparing accounting information – but does that improve financial statements’ comparability?**

### **Abstract.**

#### OBJECTIVES AND RESEARCH QUESTIONS:

One of the objectives of using the framework of IFRS / IAS throughout the world is to facilitate a more transparent comparability of companies’ presented financial information. But do we use the IFRS principles in the same way everywhere? Does it make sense to prescribe some accounting practice i.e. references to the process or input part of producing accounting information when the alleged aim is to make comparability of the companies’ provided accounting information, i.e. the financial statements or the output part.

#### DATA & METHODS:

From the global based ORBIS-database, we selected all listed non-financial and non-insurance companies having a turnover in last available financial year larger than 100 million USD, which left us with more than 18 thousand public accounts (companies) from 124 different countries from all over the world.

Based on available information from PWC and IAS Plus dealing with providing overview of present (December 2012) status worldwide for the use and implementation of IFRS, we established a categorisation of each country’s accounting regime: is IFRS required or permitted for listed companies in the country, and what “version” of IFRS is at stake here.

For our comparisons and analyses we carefully chose ROIC, since this financial ratio is not biased by differences in companies’ capital structure or size, but serve as well-defined and commonly used accounting operational profitability measure.

#### RESULTS:

Multivariate statistical methods and analyses (of means and variances) reflect significant differences in the observed key financial ratios in different countries and geographic regions despite alleged use of same accounting regime – also when corrected for differences in countries’ economic climate and industry composition.

#### CONCLUSIONS:

Our first conclusion could be to expect these differences solely as a result of differences in fundamental economic conditions in various countries and regions on earth being different from World Economic Forum’s report.

But, one must recognise that in a true global world this does not make sense except as in the short run. Instead, our revised conclusion is that it would be more obvious to expect the differences to reflect different attitudes towards recognition and measuring, due to differences in tradition and culture. And as a consequence it seems as an illusion to make annual reports completely comparable across regions and countries – even within the European Union this is hardly possible.

**Keywords:** Financial Accounting information, IFRS, Accounting Regulation, Comparability

**JEL Classification:** G15, G38, M41, M48

## **Soon we will almost all use IFRS when preparing accounting information – but does that improve financial statements’ comparability?**

### **I Introduction**

According to IASB (1989, 2008/2010), comparability is a qualitative characteristic of financial information that enhances its usefulness. The EU-accepted framework (2003) states in paragraphs 39 through 42 that “users must be able to compare the financial statements of different enterprises in order to evaluate their financial position, performance and changes in financial position”. Comparability is defined as the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena (IASB, 2008)<sup>1</sup>. Proponents of mandatory IFRS adoption argue according to DeFond et al (2011) that increased uniformity improves financial statement comparability in accordance with IASB conceptual framework, which argues that comparability is the desired outcome adopting a uniform set of accounting standards (such as IFRS). However, requiring firms to use a set of uniform accounting standards does not necessarily result in improved comparability (IASB 2008). The conceptual framework argues that a uniform set of standards increases comparability when it is faithfully applied (i.e. credibly implemented and resulting in an increase in uniformity). A universal financial language offers many advantages. Cross-border business benefit from reduced preparation costs, and cross-border trading in securities increases as international investors can more readily compare the performance of companies based in different countries. Further, it is argued that this results in increased market efficiency and a reduction in the cost of raising capital for companies which ultimately helps to boost growth.

Among others, Yip & Young (2012) state that globalization in the last decades has significantly increased the economic interaction among countries, which in turn has created demand for more internationally comparable accounting information. There are several potential benefits associated with enhanced information comparability. For example, both the FASB and IASB argue that more comparable information enables global markets to operate with less friction. And according to Yip & Young, even way older studies suggest that greater information comparability facilitates international transactions and minimizes exchange costs.

One of the objectives of using the framework of IFRS throughout the world is to facilitate a more transparent comparability of companies’ presented financial information. But do we use the IFRS principles in the same way everywhere? Does it make sense to prescribe some accounting practice i.e. references to the process or input part of producing accounting information when the alleged aim is to make comparability of the companies’ provided accounting information, i.e. the financial statements or the output part.

According to DeFranco et al (2011), the starting point must be that the same economic income and value should reflect the same return statistics. And when it is corrected for industry characteristics and country wise competition effects, comparability will be found as the quality of information that enables users to identify similarities and differences between two sets of economic phenomena because the financial statements are reflections of economic events by a function, and the function in itself represents the accounting system of the firm. DeFranco et al (2011) focus on capturing the notion of financial statement comparability based on the idea that the accounting system is mapping from economic events to financial statements.

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<sup>1</sup> The term comparability in accounting text books, regulatory pronouncements and academic research is defined in broad generalities rather than precisely.

In Ball (2006), we note a deeper concern, substantial differences among countries in implementation of IFRS, now risk being concealed by a veneer of uniformity. The notion that uniform standards alone will produce uniform financial reporting seems at best naïve. IFRS boosters typically take the case for mandatory uniform accounting standards as self-evident. But the case for imposing accounting uniformity by fiat is far from clear and calls for background analysis of the economic role of mandatory accounting standards.

The expected benefits of global accounting standards are compelling. The use of one set of high quality standards by companies throughout the world has the potential to improve the comparability and transparency of financial information and reduce financial statement preparation costs. When the standards are applied rigorously and consistently, capital market participants will have higher quality information and can make better decisions. Thus markets allocate funds more efficiently and firms can achieve a lower cost of capital. These arguments have been used to support the adoption of International Financial Reporting Standards (IFRS) for financial reporting for consolidated listed entities in the European Union (EU) member states (in accordance with resolution EC1606/2002) since 2005. Other jurisdictions have cited similar reasons for adoption of IFRS (see Brown, 2011), reflecting the demand for high quality standards that can improve the quality and comparability of financial reporting and promote the development of national capital markets and the integration of markets internationally.

The remainder of the paper is structured in the following way. In section II we provide the motivation and literature review for the study by examining literature on the IFRS implementation procedure and especially addressing the (potential) benefits, and we develop our hypotheses. In section III we describe the research design and data collection procedure. In section IV we present the findings and discuss some implications. Finally we conclude the paper in section V.

## **II Motivation, literature review and hypotheses**

In the context of accounting standards, comparability refers to the ability to use accounting data to draw valid inference about *similarities* and *differences* both between entities and for the same entity over time; improved comparability of financial statements is indeed an alleged benefit of adopting IFRS. Using data relating to the post 2005 adoption period, many researchers have concluded the setting in which IFRS reporting takes place has a strong influence on whether potential benefits of IFRS can be realised (Daske et al, 2008 and 2011; Beuselinck et al, 2010; Christensen et al, 2012).

A fundamental question which has been addressed is whether IFRS have changed the information available to market participants in a way that is beneficial, i.e. are markets more efficient when IFRS are used? The basic presumption is that IFRS information provided by companies to market participants may differ significantly from information based on prior national GAAP, due to differences between requirements of national standards and IFRS. For this reason many studies have addressed this before and after scenario, confronting what we have got now with what we had before, and link this to the expectations caused by the change. Some studies gathers evidence about changes in market liquidity and firms' cost of capital, as a way of measuring the impact of IFRS. In one of the first large scale studies of firms adopting IFRS in a mandatory setting, Daske et al. (2008) conclude that market liquidity increases following introduction of IFRS. They also find evidence of a decrease in firms' cost of capital and an increase in equity value occurring prior to the official adoption date. In a related study, Daske et al (2011) found benefits such as improved

liquidity and lower cost of capital to be more likely for firms that are “serious” adopters of IFRS as opposed to “label” adopters (defined as firms with a commitment to transparency). The success of common standards depends not just on the quality of the standards issued by the IASB. Critically, success also requires an infrastructure to support IFRS to be in place at a national and international level.

Using three dimensions of accounting quality, earnings smoothing, accrual quality and timeliness, which are all potential sources of comparability, Barth et al (2011) found the increase in comparability after firms adopt IFRS and of differences in comparability for the post-adoption sample partitions, although some dimensions appear more likely to be sources for some post-adoption partitions).

In a later study Barth et al. (2012) found the adoption of IFRS improved the comparability of a firm’s results with those US firms reporting under US GAAP, although differences have remained. An alternative benchmark is to use stock price as the object of comparison; that is to predict stock prices using accounting variables prepared previously under domestic GAAP and subsequently under IFRS, and then to examine differences in the pricing errors. The adoption of IFRS in Australia and Europe has been investigated along these lines, using the 2004 “as reported pre-IFRS” data and the “2004 as restated to post-IFRS” data in 2005 annual reports. It was found that, at least for 2004, IFRS so improved the comparability of the accounting information produced by companies domiciled in common law and code law countries that, post-IFRS, legal origin no longer helped explain the size of the pricing error (Clarkson et al., 2011).

Lang et al (2010) use the DeFranco (2011) constructs and measure both earnings comovement (based on the covariation in earnings between firms in different countries) and accounting comparability (based on the relationship of earnings and returns of a firm, compared between firms in different countries). They find that while comovement increases for IFRS firms, comparability does not. Further, the increase in comovement is associated with a poorer information environment (measured as a decrease in analyst coverage and forecast accuracy and an increase in bid-ask spreads). Further, increased earnings comovement but not increased comparability relative to a control sample of non-adapting firms; and evidence suggests that this increase in earnings comovement did not appear to improve (and may actually have inhibited) financial statement users’ ability to gain information from cross-firm comparisons.

However, IFRS do allow some choice among accounting policies calling for different levels in the similarities. So it is not surprising that a review of 16 accounting policies employed by “blue chip” companies in the largest five stock markets that used IFRS found national practices pre-dating IFRS tended to be preserved post-IFRS where they were allowed. This has led to documentation of “national patterns of accounting within IFRS” i.e. the IFRS practice is not the same across countries, which may limit comparability (Kvaal & Nobes, 2010 and 2012) and Nobes (2011). In particular, changes in the comparability of accounting numbers in Germany and Italy, both code law countries, have been studied by Cascino & Gassen (2012), where they conclude that “the overall comparability effect of mandatory IFRS adoption is marginal”, using proxies from DeFranco et al (2011) as bases for comparability measurement.

Additionally, diversity in accounting practices can be expected to increase the dispersion of accounting measurements of the same underlying event, and make the comparison more difficult. One study made by Jones & Finlay (2010) and based on a very large sample drawn from EU and

Australian companies over the period 1994 – 2004 and in 2006, found statistically significant reductions in the variability of ratio measures in the post-IFRS period, where variability was measured by the coefficient of variation, a scale neutral measure of dispersion of a probability distribution, both across industry groups and across countries.

Although the benefits (Brown, 2011) are claimed to be plentiful, most of the key practical tasks so far has been how to measure (increased) comparability. An alternative approach is to assess the extent to which accounting numbers pre- and post-IFRS can be compared to a reasonable benchmark, such as accounting numbers under US GAAP but we assess accounting system comparability and value relevance comparability.

The recent convergence of global accounting standards has motivated interest in research that examines comparability more directly on the output part. But still, Yip & Young (2012), the effect of IFRS adoption on cross-country information comparability is examined in a pre- vs. post-IFRS study. The purpose of their study is, thus, to provide more empirical evidence on this issue, by using three proxies, the similarity of accounting functions that translate economic events into accounting data, the degree of information transfer, and the similarity of the information content of earnings and of the book value of equity – to measure information comparability. The results suggest that mandatory IFRS adoption improves cross-country information comparability by making similar things look more alike without making different things look less different.

This very study is also focusing on the output part, but it is not a before versus after study – we only focus on the outcomes as they are available: do we have comparable financials statements – no matter the intentions for implementing IFRS in large parts of the world as the accounting body. In this study we precede this alleged attitude towards the output of accounting financial statements, since we focus on companies' latest published accounting information, i.e. their financial statements or the output part. Based on the largest more than 18,000 companies worldwide we question whether accounting information is comparable across industries, regions and countries.

To make the comparison fair we correct the observable accounting information by observable differences in coherent business performance differences. Also we correct the accounting information by the present observable differences in business climate across the different countries by using relevant input from “The Global Competitiveness Report 2012-2013”, from World Economic Forum.

For our analyses we concentrate on industry-adjusted Return On Invested Capital (ROIC), since this financial ratio is not biased by differences in companies' capital structure or size, but serve as a well-defined, fair and commonly used accounting evaluation of company business performance. Similar arguments could be stated for NOPAT-Margin, for which reason this measure is used as supporting variable. Basically we rely on the assumption that in the long run in our globalized world; it will not be possible to maintain higher or lower average levels of ROIC in selected regions or countries. But since this could be the case in a shorter run, we adjust our calculated ratios by “observed” differences in expected overall business performance differences in countries by official published notions on country “performance” in The Global Competitiveness Report 2012-2013 from World Economic Forum.

Our study is performed in three steps, all of them challenging the comparability between observed performances in different companies, industries, countries, geographic regions and accounting

regimes. In the first step we look at all our selected companies grouped in different accounting regimes, since we expect financial ratios to be affected by differences in accounting regime, like different treatment of R&D or goodwill in IFRS-GAAP, US-GAAP and local-GAAP. This expectation should be quite intuitive, since if this was not the case there would be no real arguments for changing local-GAAP to IFRS, and the US-GAAP / IFRS convergence project would be just waste of time. More formally stated we hypothesize that:

- **H1:** The observable ROIC level will be different across different accounting regimes, i.e. IFRS as published by IASB, as adopted by EU, as adopted locally (incomplete) or not allowed.

In the last two steps we focus on the IFRS-part of the World alone. Since one of the alleged benefits, as discussed earlier, is to increase the comparability in companies using IFRS across different industries, regions and countries, we challenge this assumption by expecting the ROIC level among those companies who are required to use IFRS to be (on average) on the same levels. More formally stated we hypothesize that:

- **H2a:** The observable ROIC level will be equal across different geographical regions, i.e. North, East and South part of EU, and Middle East, rest of Australia/Asia, Africa, etc. where IFRS is required for listed companies.

Since especially the EU has claimed several times that the implementation of IFRS is necessary in order to among other things increase the comparability, we finally split the IFRS-part of the world into EU and nonEU countries. In each of these two groups we challenge the assumption that use of IFRS secures comparability among the companies in different countries by expecting the ROIC level among the listed companies who are required to use IFRS to be (on average) on the same levels. More formally stated we hypothesize that:

- **H2b:** The observable ROIC level will be equal across different countries, where IFRS is required for listed companies, in EU and nonEU respectively

### **III Data selection and research design**

In this section we first describe the sampling of the overall dataset, i.e. how we derived at a global company sample of 18,308 observations, which is the basis for our efforts in answering the overall questions.

From the global based ORBIS-database, we selected all listed non-financial and non-insurance companies having a turnover in last available financial year larger than the equivalence of 100 million USD, which left us with more than 19 thousand public accounts from 124 different countries from all over the world. This expresses the largest listed companies when size is measured by turnover.

Based on available information from mainly PriceWaterhouseCoopers publication (2012) on IFRS adoption by country, and some additional information retrieved from IAS Plus ([www.iasplus.com](http://www.iasplus.com)) dealing with providing overview of present (December 2012) status worldwide for the use and implementation of IFRS, we established a categorisation of each country's accounting regime: is

IFRS *required* or *permitted* or not allowed for listed companies in the country, and simultaneously what “version” of IFRS is at stake here.

Because full-data was requested for calculating relevant financial ratios, companies with negative Equity or Invested Capital, or just incomplete datasets were deleted which lead to 18,308 valid companies as our observations.

If we break down this complete sample of observations in PWC’s two basic classification dimensions listed/non-listed and requested/non-requested, our observations can be categorized as in Table 1.

**\*\*\* insert Table 1 about here \*\*\***

Before proceeding to the analyses, we make the following adjustments to the “raw” dataset: First, we adjust the observable ROIC by industry (NACE-groups, see literature), since a company’s business performance is quite dependent on which industry the company takes part in, and since the composition of industries is different in different regions and countries. Second, we correct the observed data by present country business climate by using the relevant World Economic Reviews well known metrics. And finally, as it is quite common in studies like this, we deal with extreme cases by winsorizing (5%) the dataset. Winsorizing the data involves replacing outliers with the next highest score that is not an outlier. One needs to bear in mind that if the score you’re changing is very unrepresentative of the sample as a whole and biases our statistical model then winsorizing is the same as improving your accuracy.

*Hereafter one-way ANOVA is used to perform tests in accordance with the presented hypotheses, challenging the levels in the different groups, regions and countries.*

This method is primarily useful, because our expectations heavily draw on the differences in and between the defined groups, i.e. countries and regions. We basically believe that choice of accounting regimes IFRS, US-GAAP, local GAAP and cultural/local implementation do matter when comparing accounting figures. If this assumption is fulfilled we can proceed and challenge the IFRS-part of the World. If our numbers are comparable, the equality between averages in different geographical regions/countries/groups can be analysed.

Many additional considerations should be taken into account when doing a study like this, and for all the concerns not taken explicitly into account a warning is hereby given, i.e. do we compare apples with apples, or do we have some interfering bananas and pears? One key issue to be addressed is that although the setting (IFRS) is standardised; it could be that the different companies handles the regulation differently due to differences in culture, accounting practise and traditions, and the like. On the other hand, if the regulative setting is not able to capture these issues, the output numbers cannot be expected to be comparable. And if that is the case, then the system could be said to have failed – at least concerning this task.

In Table 2 we present some key descriptive statistics to give a first indication of the variation in our complete sample as well as in our IFRS-required for listed companies – part of the sample. As it seems quite clear, our preferred performance measures, the average operating profitability, ROIC,



shows some clear differences across different accounting regimes as well as across different geographic regions. Similar observation can be made concerning the variation in the standard error in the different groups and subgroups.

**\*\*\* insert Table 2 about here \*\*\***

Before we go to the conclusions using ANOVA, we have to look at some of the key assumptions. First we want to deal with variance homogeneity, which is tested by the Levene's test. All we need to know is that if Levene's test is significant at  $p < 0.05$  then we conclude that the null hypothesis is incorrect and that the variances are significantly different – therefore, the assumption of homogeneity of variances has been violated. For our four ANOVA analyses presented here (later), we observe Levene's test-statistics being 51.998; 10.935; 3.663; and 4.690 respectively, which in all instances, where taking the appropriate degrees of freedom (df1 and df2) into account, lead to the conclusion of non-homogeneity at any reasonable significance level. However, it should be noted that when the sample size is large, small differences in group variances can produce a Levene's test that is significant – there are also other very strong arguments for not using it. Additionally, it should be noted that the Levene's test seems not to work as well with unequal group sizes, which is the case here. And when the sample size is large, small differences in group variances can produce a Levene's test that is significant (even though it maybe should not). But we conclude that the variances are significantly different, and that the assumption of homogeneity of variances is violated.

Because of this variance homogeneity violation, we perform Welch and Brown-Forsythe tests since these tests handle the variance homogeneity violation. Referring to Table 3, the results in all our analyses show the Welch-statistics as well as the Brown-Forsythe-statistics at sufficient levels, when the appropriate degrees of freedom (df1 and df2) are taken into account, to leave us with the conclusion of robust equality of the means at any reasonable significance level.

**\*\*\* insert Table 3 about here \*\*\***

In our following tests, apart from the ANOVA, we will perform post hoc tests, i.e. Tukey HSD and Games-Howell, which compares all different combinations of the treatment groups.

#### **IV Findings and implications**

In this section we first present the results from our ANOVA analyses and the analyses of some of the implications as we see them. This discussion is primarily based on the multiple comparisons and the findings presented here.

In the following Table 4, we present the results from our ANOVA analyses for all our hypotheses simultaneously, and although it is clear that all our F-statistics are significant at the appropriate level, it seems also clear that we have differences. First of all, from our ANOVA table it is clear that the first hypothesis is fulfilled – we have differences. For the other, the results show the same but

the hypotheses are turned upside down concerning hypotheses  $H_2$  vs.  $H_1$ . For this reason we reject our hypothesis at any reasonable significance. However, it should be noted that even though the F-values are much smaller for the hypothesis  $H_{2b}$  related tests make our conclusions even more “clear”, none of the hypotheses could be rejected, and even if we decided to use lower significance level when performing the tests.

**\*\*\*\* insert Table 4 about here \*\*\*\***

As to hypothesis  $H_2$ , part a and b, this was un-expected, while the hypothesis  $H_1$  conclusion was as expected. To test these overall conclusions further, we conducted post hoc tests, where different combinations pairwise of treatment were analysed. Based on an overall acceptable level of significance of 5 per cent, many valuable insights are provided. Concerning the first multiple comparison in Table 3, it is clear that the overall inequality is also reflected in the pairwise comparison, since most of the pairwise comparisons also showed inequality. And quite comfortably, in a global perspective, the internal comparisons of IFRS-versions per required shows significantly equality, i.e. no large difference is seen between IFRS as published by IASB and the EU-approved IFRS-version, but maybe we could have expected a higher level of equality? But the pairwise multiple comparisons show that the differences between the groups 11, Required IASB, and 13, Required EU, are relatively smaller than between the two and all the other, which could be expressing equality among all companies where IFRS is required.. In group 22, Local, the US-GAAP is included, which might have a large impact on the group 42, Local but converged, local GAAP even though this GAAP to some extent in general is converged towards IFRS.

**\*\*\*\* insert Table 5 about here \*\*\*\***

Going to Table 6, which deals with the multiple comparisons in the IFRS-part of the world and looking at the geographical regional subgroups here, several insights seem interesting and relevant. The overall conclusion was unexpectedly showing inequality, but below/behind this it seems clear that we do have some pairwise combinations of equality. Supporting the inequality conclusion, the relation between the three EU-subgroups, North, South and East is interesting, since it seems that North and South are completely unequal. This supports the observation that EU still has much work to do before the common market also include complete comparability of companies’ financial statements output. Concerning the non-EU part of the world, what strikes is the lack of inequality which could have been expected due to profound differences around the World.

**\*\*\*\* insert Table 6 about here \*\*\*\***

Concerning the third and fourth part of our post hoc analyses we refer to the corresponding tables B.1 and B.2 in Appendix B, and the descriptive statistics in Tables A.1 and A.2 in Appendix A. The differences in means are shown in figure A, part 1 and 2, for EU and non-EU countries respectively. Already in Figure A it seems quite clear that there are countries that are coping well and remarkably different than all the others.

\*\*\*\* insert Figure A about here \*\*\*\*

In the third part of our investigation, despite the overall ANOVA conclusion of inequality, a multiple comparison between the EU countries makes it clear that in many of the relations, the equality is complete – but in some relations, this is not the case, as becomes evident in Table B.1. The very interesting observation that can be made here is the very exactly who/which countries stick out – or rather, which pairwise country relations add to the overall inequality conclusion. And no connection to euro-crisis affected countries like Greece and Cyprus or the like seems able to form a plausible explanation for the relations here – no, it is good old Norway, and Iceland who's economy collapsed a few years ago, who seem to be unusual here. Because of profound equality, this area is divided into complete equality (dark green area), and statistically, but not complete equality (light green area). This distinction highlights some of the additional contributors to the overall inequality. While some of the countries having many not complete equal relations can easily be identified as countries having problems, many other relations are not between such countries – so here remains the profound question, if the countries' ROICs in reality are comparable or not.

In the fourth part of our investigation, the overall ANOVA based conclusion is still the same, but even though more statistical inequality than in EU, measured by the F-statistics, stating that in this non EU part of the IFRS-World, IFRS has accomplished that we have comparable financial statements in many cases. Despite this selection of countries includes many generally speaking very different cultural settings and in many ways different countries, it seems that IFRS have succeeded as a regulative framework contributing to comparability where one might not have expected to find it. Based on this, only very few of the multiple comparisons are worth commenting on, like the fact that some of the countries having experienced severe difficulties in later years also are those known problematic countries that show incomplete equalities, like Iraq.

Due to the differences in F-statistics and differences in the different group sizes we would like to compare the statistics in relation to the two hypotheses  $H_{2b1}$  and  $H_{2b2}$  (and the others) more formally by use of effect size as attribute. Based on our previous ANOVA analyses, we can compute the respective effect sizes,  $\omega^2$ , which is the commonly used measure for valuation of the effect size,

$$\omega^2 = \frac{SS_M - (df_M)MS_R}{SS_T + MS_R} \rightarrow \omega = ?$$

In the four analyses we calculate  $\omega^2$  at 1.33%; 1.12%; 2.48%; and 4.72% respectively, which we can compare using Kirk (1996) for comparison, who state that if the  $\omega^2$  number is larger than 0.01 this indicate a small effect, while 0.06 is the threshold indicating a medium effect, which our  $\omega^2$  in all incidences are way below.

This means that we get our hypotheses in relation to H2 (part a and b) rejected at any reasonable significance level, but looking at the effect, this is only small and even smallest in the EU, which means more agreement here in this group than in the nonEU group. In other words, the effect of differences in levels despite the use of IFRS are more pronounced in the group of nonEU countries than in the EU countries, i.e. within the EU, the countries are less different which is in accordance with our expectations.

To sum up, our overall findings are as follows:

- **H<sub>1</sub>**: The robustness tests and ANOVA lead to the not surprising finding that we have differences in the ROIC level across different accounting regimes. Most interesting are the multiple comparisons where we find significantly no difference between required EU-approved and nonEU IFRS-using companies, but found significant inequalities between these and most of the rest. Also we see significant equality between the two local groups, the IFRS-inspired and the one without IFRS (which include US-GAAP).

*Conclusion: Hypothesis H<sub>1</sub> is accepted – we see differences as expected.*

- **H<sub>2a</sub>**: Quite similar pattern as for hypothesis H<sub>1</sub> is seen here, including robustness tests and ANOVA. However, it is very interesting that we see significant inequalities between North and South part of EU. Also some of the other differences among different regions are worth noticing.

*Conclusion: Hypothesis H<sub>2a</sub> is rejected – overall we see differences according to the ANOVA. But the multiple comparisons question whether this is the whole story.*

- **H<sub>2b1</sub>**: Looking country wise for the EU countries, the robustness and ANOVA factors becomes smaller, but still significant. Again looking at the multiple comparisons especially all the inconclusive and all the significant unequal relations are interesting.

*Conclusion: Hypothesis H<sub>2b1</sub> is rejected – overall we see differences according to the ANOVA. But again, the multiple comparisons question whether this is the complete story.*

- **H<sub>2b2</sub>**: Again looking country wise but this time outside EU for those countries requiring IFRS for their listed companies we see interesting patterns. At first it should be noted that several countries have very few observations, but the robustness tests and ANOVA factors are still significant. It should be noted that in several countries the use of IFRS is very new, for which reason we might also expect some diversity due to the implementation and companies not fully used to the IFRS' yet.

*Conclusion: Hypothesis H<sub>2b2</sub> is rejected according to the ANOVA. But, the multiple comparisons challenge the overall conclusion. It should be noted that the size effect,  $\omega^2$ , is higher for nonEU countries than for EU countries.*

## V Conclusions

The results presented here give rise to questioning whether the alleged comparability in the financial statements using IFRS is derived. As showed, controlling for differences in industry performance and country wise competitive possibilities, our results show that we have not yet overall complete comparability. However, we found that the majority of the bilateral comparisons country by country, we actually completely comparable, while a smaller minority showed key figures on significant non-comparable levels. Since no obvious and clear pattern could be identified, which could justify these patterns, except concluding that culture and tradition might be some of the key factors contributing to this, we hereby call for further research in this area.

And beside from these hereby recognised “problem” bilateral country-relations it seems quite clear that the key financial ratios are comparable in large parts of the world. In the broader perspective, a first general conclusion could be to expect these differences solely as a result of differences in fundamental economic conditions in various countries and regions on earth not captured by the World Economic Forum measures. But, one must recognise that in a true global world this does not make sense except as in the short run. Instead, a revised conclusion is that it would be more obvious to expect the differences to reflect different attitudes towards recognition and measuring, due to differences in tradition and culture. And as a consequence it seems as an illusion to make annual reports completely comparable across regions and countries by requesting a set of global accounting standards – even within the European Union this is hardly possible.

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## Figures

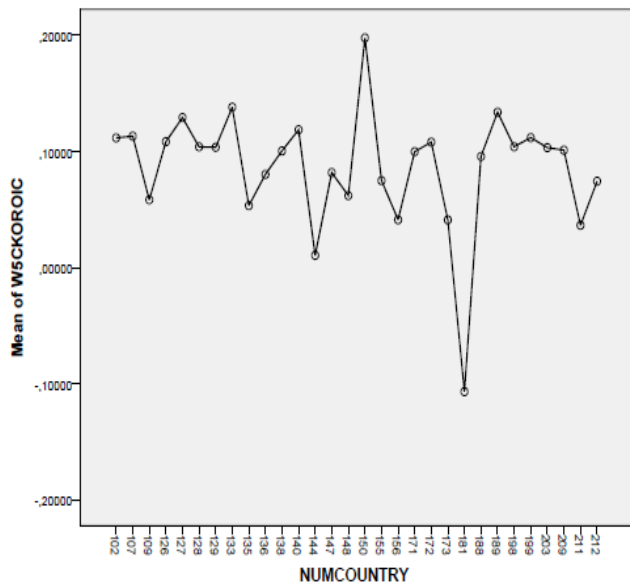


Figure A.1: Mean ROIC in each EU country.

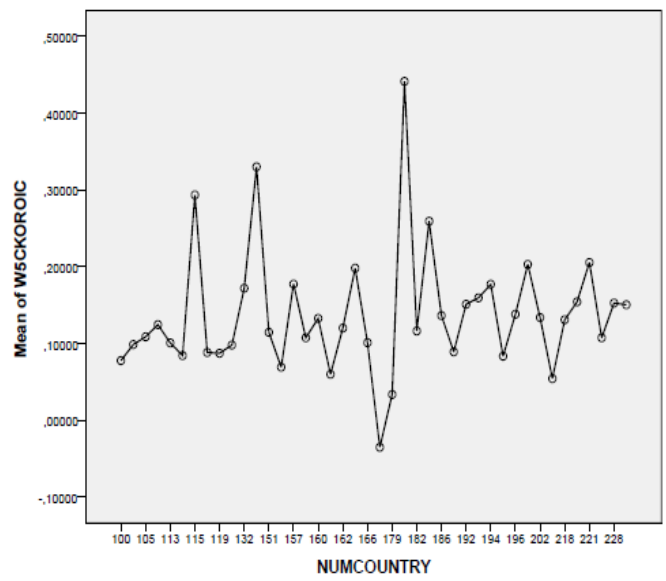


Figure A.2: Mean ROIC in each non-EU country.

**Soon we will almost all use IFRS when preparing accounting information – but does that improve financial statements' comparability?**

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## **Soon we will almost all use IFRS when preparing accounting information – but does that improve financial statements’ comparability?**

### **Abstract.**

#### OBJECTIVES AND RESEARCH QUESTIONS:

One of the objectives of using the framework of IFRS / IAS throughout the world is to facilitate a more transparent comparability of companies’ presented financial information. But do we use the IFRS principles in the same way everywhere? Does it make sense to prescribe some accounting practice i.e. references to the process or input part of producing accounting information when the alleged aim is to make comparability of the companies’ provided accounting information, i.e. the financial statements or the output part.

#### DATA & METHODS:

From the global based ORBIS-database, we selected all listed non-financial and non-insurance companies having a turnover in last available financial year larger than 100 million USD, which left us with more than 18 thousand public accounts (companies) from 124 different countries from all over the world.

Based on available information from PWC and IAS Plus dealing with providing overview of present (December 2012) status worldwide for the use and implementation of IFRS, we established a categorisation of each country’s accounting regime: is IFRS required or permitted for listed companies in the country, and what “version” of IFRS is at stake here.

For our comparisons and analyses we carefully chose ROIC, since this financial ratio is not biased by differences in companies’ capital structure or size, but serve as well-defined and commonly used accounting operational profitability measure.

#### RESULTS:

Multivariate statistical methods and analyses (of means and variances) reflect significant differences in the observed key financial ratios in different countries and geographic regions despite alleged use of same accounting regime – also when corrected for differences in countries’ economic climate and industry composition.

#### CONCLUSIONS:

Our first conclusion could be to expect these differences solely as a result of differences in fundamental economic conditions in various countries and regions on earth being different from World Economic Forum’s report.

But, one must recognise that in a true global world this does not make sense except as in the short run. Instead, our revised conclusion is that it would be more obvious to expect the differences to reflect different attitudes towards recognition and measuring, due to differences in tradition and culture. And as a consequence it seems as an illusion to make annual reports completely comparable across regions and countries – even within the European Union this is hardly possible.

**Keywords:** Financial Accounting information, IFRS, Accounting Regulation, Comparability

**JEL Classification:** G15, G38, M41, M48

## **Soon we will almost all use IFRS when preparing accounting information – but does that improve financial statements’ comparability?**

### **I Introduction**

According to IASB (1989, 2008/2010), comparability is a qualitative characteristic of financial information that enhances its usefulness. The EU-accepted framework (2003) states in paragraphs 39 through 42 that “users must be able to compare the financial statements of different enterprises in order to evaluate their financial position, performance and changes in financial position”. Comparability is defined as the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena (IASB, 2008)<sup>1</sup>. Proponents of mandatory IFRS adoption argue according to DeFond et al (2011) that increased uniformity improves financial statement comparability in accordance with IASB conceptual framework, which argues that comparability is the desired outcome adopting a uniform set of accounting standards (such as IFRS). However, requiring firms to use a set of uniform accounting standards does not necessarily result in improved comparability (IASB 2008). The conceptual framework argues that a uniform set of standards increases comparability when it is faithfully applied (i.e. credibly implemented and resulting in an increase in uniformity). A universal financial language offers many advantages. Cross-border business benefit from reduced preparation costs, and cross-border trading in securities increases as international investors can more readily compare the performance of companies based in different countries. Further, it is argued that this results in increased market efficiency and a reduction in the cost of raising capital for companies which ultimately helps to boost growth.

Among others, Yip & Young (2012) state that globalization in the last decades has significantly increased the economic interaction among countries, which in turn has created demand for more internationally comparable accounting information. There are several potential benefits associated with enhanced information comparability. For example, both the FASB and IASB argue that more comparable information enables global markets to operate with less friction. And according to Yip & Young, even way older studies suggest that greater information comparability facilitates international transactions and minimizes exchange costs.

One of the objectives of using the framework of IFRS throughout the world is to facilitate a more transparent comparability of companies’ presented financial information. But do we use the IFRS principles in the same way everywhere? Does it make sense to prescribe some accounting practice i.e. references to the process or input part of producing accounting information when the alleged aim is to make comparability of the companies’ provided accounting information, i.e. the financial statements or the output part.

According to DeFranco et al (2011), the starting point must be that the same economic income and value should reflect the same return statistics. And when it is corrected for industry characteristics and country wise competition effects, comparability will be found as the quality of information that enables users to identify similarities and differences between two sets of economic phenomena because the financial statements are reflections of economic events by a function, and the function in itself represents the accounting system of the firm. DeFranco et al (2011) focus on capturing the notion of financial statement comparability based on the idea that the accounting system is mapping from economic events to financial statements.

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<sup>1</sup> The term comparability in accounting text books, regulatory pronouncements and academic research is defined in broad generalities rather than precisely.

In Ball (2006), we note a deeper concern, substantial differences among countries in implementation of IFRS, now risk being concealed by a veneer of uniformity. The notion that uniform standards alone will produce uniform financial reporting seems at best naïve. IFRS boosters typically take the case for mandatory uniform accounting standards as self-evident. But the case for imposing accounting uniformity by fiat is far from clear and calls for background analysis of the economic role of mandatory accounting standards.

The expected benefits of global accounting standards are compelling. The use of one set of high quality standards by companies throughout the world has the potential to improve the comparability and transparency of financial information and reduce financial statement preparation costs. When the standards are applied rigorously and consistently, capital market participants will have higher quality information and can make better decisions. Thus markets allocate funds more efficiently and firms can achieve a lower cost of capital. These arguments have been used to support the adoption of International Financial Reporting Standards (IFRS) for financial reporting for consolidated listed entities in the European Union (EU) member states (in accordance with resolution EC1606/2002) since 2005. Other jurisdictions have cited similar reasons for adoption of IFRS (see Brown, 2011), reflecting the demand for high quality standards that can improve the quality and comparability of financial reporting and promote the development of national capital markets and the integration of markets internationally.

The remainder of the paper is structured in the following way. In section II we provide the motivation and literature review for the study by examining literature on the IFRS implementation procedure and especially addressing the (potential) benefits, and we develop our hypotheses. In section III we describe the research design and data collection procedure. In section IV we present the findings and discuss some implications. Finally we conclude the paper in section V.

## **II Motivation, literature review and hypotheses**

In the context of accounting standards, comparability refers to the ability to use accounting data to draw valid inference about *similarities* and *differences* both between entities and for the same entity over time; improved comparability of financial statements is indeed an alleged benefit of adopting IFRS. Using data relating to the post 2005 adoption period, many researchers have concluded the setting in which IFRS reporting takes place has a strong influence on whether potential benefits of IFRS can be realised (Daske et al, 2008 and 2011; Beuselinck et al, 2010; Christensen et al, 2012).

A fundamental question which has been addressed is whether IFRS have changed the information available to market participants in a way that is beneficial, i.e. are markets more efficient when IFRS are used? The basic presumption is that IFRS information provided by companies to market participants may differ significantly from information based on prior national GAAP, due to differences between requirements of national standards and IFRS. For this reason many studies have addressed this before and after scenario, confronting what we have got now with what we had before, and link this to the expectations caused by the change. Some studies gathers evidence about changes in market liquidity and firms' cost of capital, as a way of measuring the impact of IFRS. In one of the first large scale studies of firms adopting IFRS in a mandatory setting, Daske et al. (2008) conclude that market liquidity increases following introduction of IFRS. They also find evidence of a decrease in firms' cost of capital and an increase in equity value occurring prior to the official adoption date. In a related study, Daske et al (2011) found benefits such as improved

liquidity and lower cost of capital to be more likely for firms that are “serious” adopters of IFRS as opposed to “label” adopters (defined as firms with a commitment to transparency). The success of common standards depends not just on the quality of the standards issued by the IASB. Critically, success also requires an infrastructure to support IFRS to be in place at a national and international level.

Using three dimensions of accounting quality, earnings smoothing, accrual quality and timeliness, which are all potential sources of comparability, Barth et al (2011) found the increase in comparability after firms adopt IFRS and of differences in comparability for the post-adoption sample partitions, although some dimensions appear more likely to be sources for some post-adoption partitions).

In a later study Barth et al. (2012) found the adoption of IFRS improved the comparability of a firm’s results with those US firms reporting under US GAAP, although differences have remained. An alternative benchmark is to use stock price as the object of comparison; that is to predict stock prices using accounting variables prepared previously under domestic GAAP and subsequently under IFRS, and then to examine differences in the pricing errors. The adoption of IFRS in Australia and Europe has been investigated along these lines, using the 2004 “as reported pre-IFRS” data and the “2004 as restated to post-IFRS” data in 2005 annual reports. It was found that, at least for 2004, IFRS so improved the comparability of the accounting information produced by companies domiciled in common law and code law countries that, post-IFRS, legal origin no longer helped explain the size of the pricing error (Clarkson et al., 2011).

Lang et al (2010) use the DeFranco (2011) constructs and measure both earnings comovement (based on the covariation in earnings between firms in different countries) and accounting comparability (based on the relationship of earnings and returns of a firm, compared between firms in different countries). They find that while comovement increases for IFRS firms, comparability does not. Further, the increase in comovement is associated with a poorer information environment (measured as a decrease in analyst coverage and forecast accuracy and an increase in bid-ask spreads). Further, increased earnings comovement but not increased comparability relative to a control sample of non-adapting firms; and evidence suggests that this increase in earnings comovement did not appear to improve (and may actually have inhibited) financial statement users’ ability to gain information from cross-firm comparisons.

However, IFRS do allow some choice among accounting policies calling for different levels in the similarities. So it is not surprising that a review of 16 accounting policies employed by “blue chip” companies in the largest five stock markets that used IFRS found national practices pre-dating IFRS tended to be preserved post-IFRS where they were allowed. This has led to documentation of “national patterns of accounting within IFRS” i.e. the IFRS practice is not the same across countries, which may limit comparability (Kvaal & Nobes, 2010 and 2012) and Nobes (2011). In particular, changes in the comparability of accounting numbers in Germany and Italy, both code law countries, have been studied by Cascino & Gassen (2012), where they conclude that “the overall comparability effect of mandatory IFRS adoption is marginal”, using proxies from DeFranco et al (2011) as bases for comparability measurement.

Additionally, diversity in accounting practices can be expected to increase the dispersion of accounting measurements of the same underlying event, and make the comparison more difficult. One study made by Jones & Finlay (2010) and based on a very large sample drawn from EU and

Australian companies over the period 1994 – 2004 and in 2006, found statistically significant reductions in the variability of ratio measures in the post-IFRS period, where variability was measured by the coefficient of variation, a scale neutral measure of dispersion of a probability distribution, both across industry groups and across countries.

Although the benefits (Brown, 2011) are claimed to be plentiful, most of the key practical tasks so far has been how to measure (increased) comparability. An alternative approach is to assess the extent to which accounting numbers pre- and post-IFRS can be compared to a reasonable benchmark, such as accounting numbers under US GAAP but we assess accounting system comparability and value relevance comparability.

The recent convergence of global accounting standards has motivated interest in research that examines comparability more directly on the output part. But still, Yip & Young (2012), the effect of IFRS adoption on cross-country information comparability is examined in a pre- vs. post-IFRS study. The purpose of their study is, thus, to provide more empirical evidence on this issue, by using three proxies, the similarity of accounting functions that translate economic events into accounting data, the degree of information transfer, and the similarity of the information content of earnings and of the book value of equity – to measure information comparability. The results suggest that mandatory IFRS adoption improves cross-country information comparability by making similar things look more alike without making different things look less different.

This very study is also focusing on the output part, but it is not a before versus after study – we only focus on the outcomes as they are available: do we have comparable financials statements – no matter the intentions for implementing IFRS in large parts of the world as the accounting body. In this study we precede this alleged attitude towards the output of accounting financial statements, since we focus on companies' latest published accounting information, i.e. their financial statements or the output part. Based on the largest more than 18,000 companies worldwide we question whether accounting information is comparable across industries, regions and countries.

To make the comparison fair we correct the observable accounting information by observable differences in coherent business performance differences. Also we correct the accounting information by the present observable differences in business climate across the different countries by using relevant input from “The Global Competitiveness Report 2012-2013”, from World Economic Forum.

For our analyses we concentrate on industry-adjusted Return On Invested Capital (ROIC), since this financial ratio is not biased by differences in companies' capital structure or size, but serve as a well-defined, fair and commonly used accounting evaluation of company business performance. Similar arguments could be stated for NOPAT-Margin, for which reason this measure is used as supporting variable. Basically we rely on the assumption that in the long run in our globalized world; it will not be possible to maintain higher or lower average levels of ROIC in selected regions or countries. But since this could be the case in a shorter run, we adjust our calculated ratios by “observed” differences in expected overall business performance differences in countries by official published notions on country “performance” in The Global Competitiveness Report 2012-2013 from World Economic Forum.

Our study is performed in three steps, all of them challenging the comparability between observed performances in different companies, industries, countries, geographic regions and accounting

regimes. In the first step we look at all our selected companies grouped in different accounting regimes, since we expect financial ratios to be affected by differences in accounting regime, like different treatment of R&D or goodwill in IFRS-GAAP, US-GAAP and local-GAAP. This expectation should be quite intuitive, since if this was not the case there would be no real arguments for changing local-GAAP to IFRS, and the US-GAAP / IFRS convergence project would be just waste of time. More formally stated we hypothesize that:

- **H1:** The observable ROIC level will be different across different accounting regimes, i.e. IFRS as published by IASB, as adopted by EU, as adopted locally (incomplete) or not allowed.

In the last two steps we focus on the IFRS-part of the World alone. Since one of the alleged benefits, as discussed earlier, is to increase the comparability in companies using IFRS across different industries, regions and countries, we challenge this assumption by expecting the ROIC level among those companies who are required to use IFRS to be (on average) on the same levels. More formally stated we hypothesize that:

- **H2a:** The observable ROIC level will be equal across different geographical regions, i.e. North, East and South part of EU, and Middle East, rest of Australia/Asia, Africa, etc. where IFRS is required for listed companies.

Since especially the EU has claimed several times that the implementation of IFRS is necessary in order to among other things increase the comparability, we finally split the IFRS-part of the world into EU and nonEU countries. In each of these two groups we challenge the assumption that use of IFRS secures comparability among the companies in different countries by expecting the ROIC level among the listed companies who are required to use IFRS to be (on average) on the same levels. More formally stated we hypothesize that:

- **H2b:** The observable ROIC level will be equal across different countries, where IFRS is required for listed companies, in EU and nonEU respectively

### **III Data selection and research design**

In this section we first describe the sampling of the overall dataset, i.e. how we derived at a global company sample of 18,308 observations, which is the basis for our efforts in answering the overall questions.

From the global based ORBIS-database, we selected all listed non-financial and non-insurance companies having a turnover in last available financial year larger than the equivalence of 100 million USD, which left us with more than 19 thousand public accounts from 124 different countries from all over the world. This expresses the largest listed companies when size is measured by turnover.

Based on available information from mainly PriceWaterhouseCoopers publication (2012) on IFRS adoption by country, and some additional information retrieved from IAS Plus ([www.iasplus.com](http://www.iasplus.com)) dealing with providing overview of present (December 2012) status worldwide for the use and implementation of IFRS, we established a categorisation of each country's accounting regime: is

IFRS *required* or *permitted* or not allowed for listed companies in the country, and simultaneously what “version” of IFRS is at stake here.

Because full-data was requested for calculating relevant financial ratios, companies with negative Equity or Invested Capital, or just incomplete datasets were deleted which lead to 18,308 valid companies as our observations.

If we break down this complete sample of observations in PWC’s two basic classification dimensions listed/non-listed and requested/non-requested, our observations can be categorized as in Table 1.

**\*\*\* insert Table 1 about here \*\*\***

Before proceeding to the analyses, we make the following adjustments to the “raw” dataset: First, we adjust the observable ROIC by industry (NACE-groups, see literature), since a company’s business performance is quite dependent on which industry the company takes part in, and since the composition of industries is different in different regions and countries. Second, we correct the observed data by present country business climate by using the relevant World Economic Reviews well known metrics. And finally, as it is quite common in studies like this, we deal with extreme cases by winsorizing (5%) the dataset. Winsorizing the data involves replacing outliers with the next highest score that is not an outlier. One needs to bear in mind that if the score you’re changing is very unrepresentative of the sample as a whole and biases our statistical model then winsorizing is the same as improving your accuracy.

*Hereafter one-way ANOVA is used to perform tests in accordance with the presented hypotheses, challenging the levels in the different groups, regions and countries.*

This method is primarily useful, because our expectations heavily draw on the differences in and between the defined groups, i.e. countries and regions. We basically believe that choice of accounting regimes IFRS, US-GAAP, local GAAP and cultural/local implementation do matter when comparing accounting figures. If this assumption is fulfilled we can proceed and challenge the IFRS-part of the World. If our numbers are comparable, the equality between averages in different geographical regions/countries/groups can be analysed.

Many additional considerations should be taken into account when doing a study like this, and for all the concerns not taken explicitly into account a warning is hereby given, i.e. do we compare apples with apples, or do we have some interfering bananas and pears? One key issue to be addressed is that although the setting (IFRS) is standardised; it could be that the different companies handles the regulation differently due to differences in culture, accounting practise and traditions, and the like. On the other hand, if the regulative setting is not able to capture these issues, the output numbers cannot be expected to be comparable. And if that is the case, then the system could be said to have failed – at least concerning this task.

In Table 2 we present some key descriptive statistics to give a first indication of the variation in our complete sample as well as in our IFRS-required for listed companies – part of the sample. As it seems quite clear, our preferred performance measures, the average operating profitability, ROIC,

shows some clear differences across different accounting regimes as well as across different geographic regions. Similar observation can be made concerning the variation in the standard error in the different groups and subgroups.

**\*\*\* insert Table 2 about here \*\*\***

Before we go to the conclusions using ANOVA, we have to look at some of the key assumptions. First we want to deal with variance homogeneity, which is tested by the Levene's test. All we need to know is that if Levene's test is significant at  $p < 0.05$  then we conclude that the null hypothesis is incorrect and that the variances are significantly different – therefore, the assumption of homogeneity of variances has been violated. For our four ANOVA analyses presented here (later), we observe Levene's test-statistics being 51.998; 10.935; 3.663; and 4.690 respectively, which in all instances, where taking the appropriate degrees of freedom (df1 and df2) into account, lead to the conclusion of non-homogeneity at any reasonable significance level. However, it should be noted that when the sample size is large, small differences in group variances can produce a Levene's test that is significant – there are also other very strong arguments for not using it. Additionally, it should be noted that the Levene's test seems not to work as well with unequal group sizes, which is the case here. And when the sample size is large, small differences in group variances can produce a Levene's test that is significant (even though it maybe should not). But we conclude that the variances are significantly different, and that the assumption of homogeneity of variances is violated.

Because of this variance homogeneity violation, we perform Welch and Brown-Forsythe tests since these tests handle the variance homogeneity violation. Referring to Table 3, the results in all our analyses show the Welch-statistics as well as the Brown-Forsythe-statistics at sufficient levels, when the appropriate degrees of freedom (df1 and df2) are taken into account, to leave us with the conclusion of robust equality of the means at any reasonable significance level.

**\*\*\* insert Table 3 about here \*\*\***

In our following tests, apart from the ANOVA, we will perform post hoc tests, i.e. Tukey HSD and Games-Howell, which compares all different combinations of the treatment groups.

#### **IV Findings and implications**

In this section we first present the results from our ANOVA analyses and the analyses of some of the implications as we see them. This discussion is primarily based on the multiple comparisons and the findings presented here.

In the following Table 4, we present the results from our ANOVA analyses for all our hypotheses simultaneously, and although it is clear that all our F-statistics are significant at the appropriate level, it seems also clear that we have differences. First of all, from our ANOVA table it is clear that the first hypothesis is fulfilled – we have differences. For the other, the results show the same but



the hypotheses are turned upside down concerning hypotheses  $H_2$  vs.  $H_1$ . For this reason we reject our hypothesis at any reasonable significance. However, it should be noted that even though the F-values are much smaller for the hypothesis  $H_{2b}$  related tests make our conclusions even more “clear”, none of the hypotheses could be rejected, and even if we decided to use lower significance level when performing the tests.

**\*\*\*\* insert Table 4 about here \*\*\*\***

As to hypothesis  $H_2$ , part a and b, this was un-expected, while the hypothesis  $H_1$  conclusion was as expected. To test these overall conclusions further, we conducted post hoc tests, where different combinations pairwise of treatment were analysed. Based on an overall acceptable level of significance of 5 per cent, many valuable insights are provided. Concerning the first multiple comparison in Table 3, it is clear that the overall inequality is also reflected in the pairwise comparison, since most of the pairwise comparisons also showed inequality. And quite comfortably, in a global perspective, the internal comparisons of IFRS-versions per required shows significantly equality, i.e. no large difference is seen between IFRS as published by IASB and the EU-approved IFRS-version, but maybe we could have expected a higher level of equality? But the pairwise multiple comparisons show that the differences between the groups 11, Required IASB, and 13, Required EU, are relatively smaller than between the two and all the other, which could be expressing equality among all companies where IFRS is required.. In group 22, Local, the US-GAAP is included, which might have a large impact on the group 42, Local but converged, local GAAP even though this GAAP to some extent in general is converged towards IFRS.

**\*\*\*\* insert Table 5 about here \*\*\*\***

Going to Table 6, which deals with the multiple comparisons in the IFRS-part of the world and looking at the geographical regional subgroups here, several insights seem interesting and relevant. The overall conclusion was unexpectedly showing inequality, but below/behind this it seems clear that we do have some pairwise combinations of equality. Supporting the inequality conclusion, the relation between the three EU-subgroups, North, South and East is interesting, since it seems that North and South are completely unequal. This supports the observation that EU still has much work to do before the common market also include complete comparability of companies’ financial statements output. Concerning the non-EU part of the world, what strikes is the lack of inequality which could have been expected due to profound differences around the World.

**\*\*\*\* insert Table 6 about here \*\*\*\***

Concerning the third and fourth part of our post hoc analyses we refer to the corresponding tables B.1 and B.2 in Appendix B, and the descriptive statistics in Tables A.1 and A.2 in Appendix A. The differences in means are shown in figure A, part 1 and 2, for EU and non-EU countries respectively. Already in Figure A it seems quite clear that there are countries that are coping well and remarkably different than all the others.

\*\*\*\* insert Figure A about here \*\*\*\*

In the third part of our investigation, despite the overall ANOVA conclusion of inequality, a multiple comparison between the EU countries makes it clear that in many of the relations, the equality is complete – but in some relations, this is not the case, as becomes evident in Table B.1. The very interesting observation that can be made here is the very exactly who/which countries stick out – or rather, which pairwise country relations add to the overall inequality conclusion. And no connection to euro-crisis affected countries like Greece and Cyprus or the like seems able to form a plausible explanation for the relations here – no, it is good old Norway, and Iceland who’s economy collapsed a few years ago, who seem to be unusual here. Because of profound equality, this area is divided into complete equality (dark green area), and statistically, but not complete equality (light green area). This distinction highlights some of the additional contributors to the overall inequality. While some of the countries having many not complete equal relations can easily be identified as countries having problems, many other relations are not between such countries – so here remains the profound question, if the countries’ ROICs in reality are comparable or not.

In the fourth part of our investigation, the overall ANOVA based conclusion is still the same, but even though more statistical inequality than in EU, measured by the F-statistics, stating that in this non EU part of the IFRS-World, IFRS has accomplished that we have comparable financial statements in many cases. Despite this selection of countries includes many generally speaking very different cultural settings and in many ways different countries, it seems that IFRS have succeeded as a regulative framework contributing to comparability where one might not have expected to find it. Based on this, only very few of the multiple comparisons are worth commenting on, like the fact that some of the countries having experienced severe difficulties in later years also are those known problematic countries that show incomplete equalities, like Iraq.

Due to the differences in F-statistics and differences in the different group sizes we would like to compare the statistics in relation to the two hypotheses  $H_{2b1}$  and  $H_{2b2}$  (and the others) more formally by use of effect size as attribute. Based on our previous ANOVA analyses, we can compute the respective effect sizes,  $\omega^2$ , which is the commonly used measure for valuation of the effect size,

$$\omega^2 = \frac{SS_M - (df_M)MS_R}{SS_T + MS_R} \rightarrow \omega = ?$$

In the four analyses we calculate  $\omega^2$  at 1.33%; 1.12%; 2.48%; and 4.72% respectively, which we can compare using Kirk (1996) for comparison, who state that if the  $\omega^2$  number is larger than 0.01 this indicate a small effect, while 0.06 is the threshold indicating a medium effect, which our  $\omega^2$  in all incidences are way below.

This means that we get our hypotheses in relation to H2 (part a and b) rejected at any reasonable significance level, but looking at the effect, this is only small and even smallest in the EU, which means more agreement here in this group than in the nonEU group. In other words, the effect of differences in levels despite the use of IFRS are more pronounced in the group of nonEU countries than in the EU countries, i.e. within the EU, the countries are less different which is in accordance with our expectations.

To sum up, our overall findings are as follows:

- **H<sub>1</sub>**: The robustness tests and ANOVA lead to the not surprising finding that we have differences in the ROIC level across different accounting regimes. Most interesting are the multiple comparisons where we find significantly no difference between required EU-approved and nonEU IFRS-using companies, but found significant inequalities between these and most of the rest. Also we see significant equality between the two local groups, the IFRS-inspired and the one without IFRS (which include US-GAAP).

*Conclusion: Hypothesis H<sub>1</sub> is accepted – we see differences as expected.*

- **H<sub>2a</sub>**: Quite similar pattern as for hypothesis H<sub>1</sub> is seen here, including robustness tests and ANOVA. However, it is very interesting that we see significant inequalities between North and South part of EU. Also some of the other differences among different regions are worth noticing.

*Conclusion: Hypothesis H<sub>2a</sub> is rejected – overall we see differences according to the ANOVA. But the multiple comparisons question whether this is the whole story.*

- **H<sub>2b1</sub>**: Looking country wise for the EU countries, the robustness and ANOVA factors becomes smaller, but still significant. Again looking at the multiple comparisons especially all the inconclusive and all the significant unequal relations are interesting.

*Conclusion: Hypothesis H<sub>2b1</sub> is rejected – overall we see differences according to the ANOVA. But again, the multiple comparisons question whether this is the complete story.*

- **H<sub>2b2</sub>**: Again looking country wise but this time outside EU for those countries requiring IFRS for their listed companies we see interesting patterns. At first it should be noted that several countries have very few observations, but the robustness tests and ANOVA factors are still significant. It should be noted that in several countries the use of IFRS is very new, for which reason we might also expect some diversity due to the implementation and companies not fully used to the IFRS' yet.

*Conclusion: Hypothesis H<sub>2b2</sub> is rejected according to the ANOVA. But, the multiple comparisons challenge the overall conclusion. It should be noted that the size effect,  $\omega^2$ , is higher for nonEU countries than for EU countries.*

## V Conclusions

The results presented here give rise to questioning whether the alleged comparability in the financial statements using IFRS is derived. As showed, controlling for differences in industry performance and country wise competitive possibilities, our results show that we have not yet overall complete comparability. However, we found that the majority of the bilateral comparisons country by country, we actually completely comparable, while a smaller minority showed key figures on significant non-comparable levels. Since no obvious and clear pattern could be identified, which could justify these patterns, except concluding that culture and tradition might be some of the key factors contributing to this, we hereby call for further research in this area.

And beside from these hereby recognised “problem” bilateral country-relations it seems quite clear that the key financial ratios are comparable in large parts of the world. In the broader perspective, a first general conclusion could be to expect these differences solely as a result of differences in fundamental economic conditions in various countries and regions on earth not captured by the World Economic Forum measures. But, one must recognise that in a true global world this does not make sense except as in the short run. Instead, a revised conclusion is that it would be more obvious to expect the differences to reflect different attitudes towards recognition and measuring, due to differences in tradition and culture. And as a consequence it seems as an illusion to make annual reports completely comparable across regions and countries by requesting a set of global accounting standards – even within the European Union this is hardly possible.

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