The Effect of IFRS on Net Profit And Nominal, Issued And Paid-Up Capital: Evidence From German Listed Companies

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Abstract

The purpose of the study is to examine the financial statements of German publicly traded companies as International Financial Reporting Standards (IFRS) are mandatory. The study relied on the generalized least squares used to calculate the data model to compare the structural errors in the relationship between the income statement and balance sheet items using data from the 30 largest listed companies of German Market Index (DAX30) between 1994 and 2010.

It found that changes in profits due to the adoption of IFRSs do not depend only on net profit and nominal, issued and paid-up capital. The findings indicate that all of the investigated relationships between balance sheet and income statement components have altered considerably. The study concludes that the old profit & loss statement with significant explanatory power disappeared after IFRS adoption.

The results reveal considerable improvements in these relations, although their severity and impact vary according to the balance sheet. The data selection creates a size bias that should be considered when extrapolating the findings to other publicly traded firms. This work is the first to use a mandatory, local, accounting, and panel data system to calculate the effect of IFRS adoption using German listed companies.

Keywords: IFRS mandatory, Financial Statements, German Listed Companies

1. Introduction

Providing the ability to compare a group of German companies through their financial statements is a necessary task to drive the integration process and increase the efficiency of the market, and to this end, important steps towards the harmonization of modern accounting have already been taken. The latest, and perhaps most important, breakthrough has been the

European Union's request for a regulation requiring EU-listed companies to prepare for unification.

In this context, the objective of this paper is to analyze the effects of the application of International Financial Reporting Standards (IFRS) on the relations between financial statements items of German listed companies. As Hung and Subramanyam (2007) remark, examining financial statement implications is important because the only direct effects of adopting IFRS are changed financial statements (Wali, et al. 2019).

2. Literature Review

Following to Hung and Subramanyam (2007), the study highlights two methodological advantages that should be considered: (i) the mandatory nature of changes, which avoids the sample selection bias that may occur in studies that only look at voluntary adopters; and (ii) the accounting perspective, which avoids the omitted variables problem that may occur in studies that only look at adopters from a stock market perspective (Wali et al. 2020)

As a result, as Hung and Subramanyam (2007) conclude, comparing financial statements across two accounting standards for the same organization is likely a superior setting, as it eliminates the missing variables problem; consequently, as Li (2010) notes, standards accounting setters, regulators, and academics in top journals have all urged for such comparability study.

Three fundamental methodologies are widely used to examine the effects of IFRS implementation. The first uses parametric and non-parametric statistical tests, and it has been used by Tsalavoutas & Evans (2010), among others. The primary disadvantages of this technique are the inability to quantify the impacts and the difficulties in considering causation among the firms.

The second uses cross-section discriminating models like as logit and probit, as described by Demaria and Dufour (2007). Other research, such as Barth et al. (2008), model a tailored dichotomous variable using an ordinary least squares (OLS) cross section, despite the fact that, unlike the logit and probit models, this technique does not guarantee estimated values between 0 and 1. As a result, their findings should be interpreted with care as stated by Wali and Darwish (2021).

Finally, there are the OLS cross-section regression models, which are unquestionably the most commonly employed, as demonstrated by Hung and Subramanyam (2007), Habib (2008), Wali (2017), Wali et al 2019 and Wali et al (2020), among others. According to Daske et al. (2008), the primary limitations of this technique, which is applicable to the discriminatory models discussed above, are that it does not take into account the individual influence of the companies or the temporal dynamics of the variables because it does not employ a time series framework. As a result, they employ the panel data approach in this context, accounting for both temporal and individual effects at the same time.

This research applies this technique to a local sample of German listed corporations from the DAX30 market index. The use of a local sample, as in Hung and Subramanyam (2007), Wali (2017), reduces the possibility of a geographical impact.

The rest of the paper is organized as follows. The next part which is section 3 describes the model and the technique used to test it, in addition the hypotheses will developed. Section 4 is devoted to the empirical study, in which it first describes the database and then provide the findings and presenting of discussion. Finally, section 5 concludes with the important points.

3. Methodology

3.1 Model

The income statement's profit for the period represents equity movement and is the difference between the company's starting and ending equity on the balance sheet. Profit for the period (income statement) Equals change in equity (balance sheet)
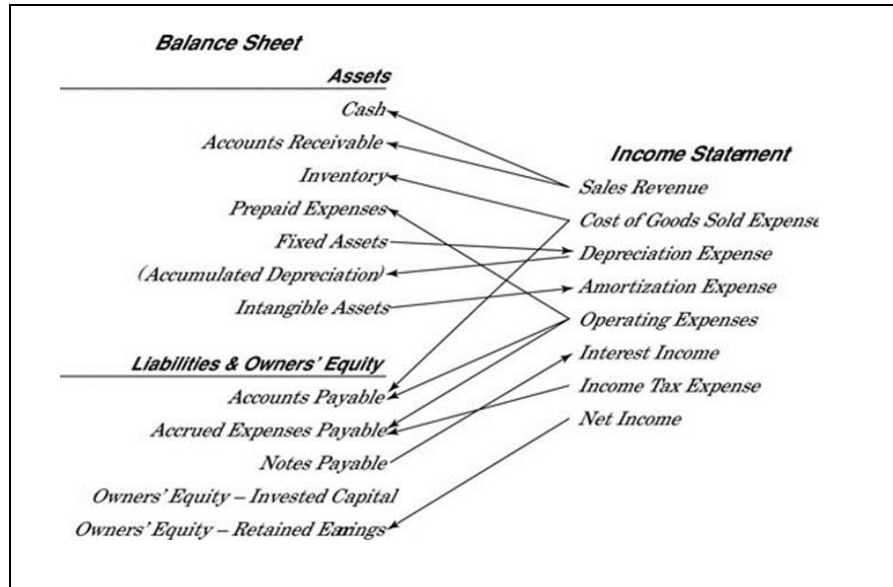
Figure 1 Connections between income statement and balance sheet accounts

The value of a balance sheet item is calculated at the end of the period by adding the value of the beginning of the period to the fluctuations during that period. If the clean redundant connection is successful, the differences are shown in the income statement, following the methodology of Gonzalez and Toscano (2014), and can be described as follows:

$$Yo, i, t = Yo, i, t - 1 + \sum wo, k, i, t + Xk, i, t, \dots\dots\dots\dots\dots\dots eq.1$$

where:

$Yo,i,t,$ is the o transmitted item of the balance sheet for company i, and instant t.

Xk,i,t is the k item of income statement for company i, instant t.

$\sum wo, k, i, =1$ for all k, for i, end or all t, if and only if the clean surplus relation is satisfied.

$$\Delta yi, t = (1 - St)\sum bkXi, k, t + St \sum \propto kXi, k, t + \propto t + u. \dots.. eq\ 2.$$

where:

St is a dummy variable with null value for all fiscal

years where   t < t * and, 1 for the rest (t * ≤ t ≤T)

$\propto t$ * is a constant that captures the valuation changes in the year t *, consequence of the

first   application of the IFRS, that we have to control

bk and ∝k are factors that illustrate how the income components reflect changes in the balance sheet   element after and before the IFRS implementation date.

ui,t is the residual component.

When ∝**k** differs from *bk* in equation (2), it identifies changes in how variations in balance-sheet items are recognized by income-statement components as a result of IFRS adoption. The null hypothesis will be tested using a chi-test to see if they are equal before and after the introduction of the IFRS for each l transmitted item.

$$Ho: bk - ∝k=0; \text{----------------------------} eq.3$$

Cross-section approaches are used in empirical investigations of accounting data, which makes use of all accessible information

In the case of fixed effects, the consistent estimator is OLS; in the case of random effects, it is the "within" estimator. It must also utilize the "between" estimator for common components. To summarize, it must govern two sorts of impacts: individual effects and joint effects. The consistent estimator for this purpose is GLS from the variance-covariance matrix of weighted residuals acquired in earlier estimations by within and between. According to Gonzalez et al. (2014), the GLS application consists of estimating a modified version of the original model using OLS, removing the mean on each observation per person, weighed by residual variances from within and between estimations.

$$Yi, t −⅄ yi = \sum βGLS, k(Xi, t −⅄⅄i)+Ɛ,i,t …………… eq.4$$

4. Empirical research

4.1 Data description

The sample is made up of yearly financial statements from firms in the German market index (DAX30) from 1994 to 2010, resulting in a database of 30 companies and a maximum of 20 observations per company. The data was collected from the Frankfurt Stock Exchange's public information. Table 1 lists the companies and the sample periods for each. **Table 1** Companies of database

Firm	Initial data	Final data	Observations
Bayer	1994-I	2010-II	20
BASF	1994- I	2010-II	20
Siemens	1994- I	2010-II	20
SAP	1994- I	2010-II	20
Allianz	1994- I	2010-II	20
Daimler	1994- I	2010-II	20

Deutsche Bank	1994-I	2010-II	20
Deutsche Telekom	1994- I	2010-II	20
Linde	1994- I	2010-II	18
Munich Re	1994- I	2010-II	18
Volkswagen	1994- I	2010-II	18
BMW	1994- I	2010-II	20
Deutsche	1994-I	2010-II	20
Adidas	1994- I	2010-II	20
RWE	1994- I	2010-II	20
Henkel	1994- I	2010-II	20
Fresenius	1994- I	2010-II	20
Fresenius Medical Care	1994- I	2010-II	20
Continental	1994-I	2010-II	20
Deutsche	1994- I	2010-II	20
Merck	1994- I	2010-II	20
Lufthansa	1994- I	2010-II	20
Heidelberg Cement	1994- I	2010-II	20
Infineon Technologies	1994- I	2010-II	20
Beiersdorf	1994-I	2010-II	20
ThyssenKrupp	1994- I	2010-II	20
K + S	1994- I	2010-II	20
Commerzbank	1994- I	2010-II	18
Lanxess	1994- I	2010-II	18
E. ON	1995-I	2009 -I	18

30 companies 588

Table 2 provides a statistical description of the balance sheet and income statement in Level Data (Panel A) and data measured by total business assets (Panel B) in the prior and subsequent years of IFRS application. Observing at the level data, it might seem that there is a large percentage of huge differences in the mean and the median, it can be seen that with ratio data, mean and median are closer for all items than in level data, and standard deviation is much less. Moreover, as the normal position test suggests, it analyzes the statistical significance of the mean differences using a non-parametric test.

Companies are capped at a weight of 10% so legal provisions of the index are met and more importantly, any mergers and acquisitions do not lead to the emergence of an 'index heavyweight' that will massively influence the value of the index. The top five companies of the DAX (Bayer, BASF, Siemens, SAP and Allianz) make up over 43% of the index. When investing in the DAX it is therefore imperative to see how these companies are performing as well as their relative industry sectors (pharmaceuticals, chemicals, electronics, IT and insurance respectively).

Table 2 Distribution Test & Descriptive Statistics for Companies

	N	Range	Min	Max	Mean	Median	Std. Devia	Skewness		Kurtosis	
	Static	Static	Static	Static	Static	Static	Static	Static	Std. Error	Static	Std. Error
Panel A: Total Assets											
	588	0.718	-0.394	0.325	-0.0428	-0.050	0.0861	0.523	0.049	1.883	0.155
Panel B: items of Balance sheet											
Δ current assets	588	1.92	-0.47	1.43	0.0611	0.033	0.1579	0.896	0.049	0.878	0.155
Δ current liabilities	588	1.22	-0.43	0.75	0.0372	0.019	0.1066	0.413	0.049	0.637	0.155
Δ in cash and cash equivalent	588	1.76	-0.46	1.31	0.0116	0.010	0.1064	0.609	0.049	0.517	0.155
Δ in debt included in current liabilities	588	1.00	-0.48	0.51	0.0210	0.006	0.0653	0.436	0.049	0.640	0.155
Δ Depreciation	588	0.32	0.00	0.34	0.0547	0.060	0.0234	0.434	0.049	0.561	0.155
depreciation and amortization	558	0.182	0. 02	0.32	0.0234	0.012	0.032	0.213	0.049	0.367	0.155
Panel C: Independent Variables											
Δ Revenue	588	2.517	-0.769	1.649	0.1340	0.087	0.2224	0.594	0.049	1.811	0.155
Δ Cash	588	0.884	-0.270	0.514	0.0295	0.016	0.0645	0.317	0.049	2.405	0.155
Δ Net Income	588	0.001	0.100	0.010	0.0011	0.001	0.0031	0.101	0.049	1.045	0.155
Δ property& Equipment	588	1.268	0.120	1.268	.3199	0.287	0.1831	0.161	0.049	1.674	0.155

4.2 Results

Tables 3 and 4 present the outputs for evaluating the equations for each balanced component. It gives significant transactions of 5% and 1% to separate all material links between these accounting components and the income statement. The qualitative and quantitative changes in Table 5 are significant and reveal redundant relationships at all points of equilibrium. The changes in Table 5 are enormous. Hence, next paragraph will explain these reactions that can be divided into categories.

Table 3 Correlation coefficients and a coefficient determination
of Balance sheet and income statement items

Independent variables	N	Pearson correlation coefficient (r)	Coefficient of determination (Aduj.R^2) %	Durbin-Watson	P value (Sig.)
Net operating income	588	-0.153	09.36%	2.706	**0.000
Cash flow for Operation	588	-0.030	09.73%	2.910	*0.004
Change in Revenue	588	0.410	17.71%	2.222	**0.000
Change in Acc. receivable	588	0.896	81.21%	1.962	**0.000
Property, Plant &	588	0.941	83.61%	2.661	**0.000
Equipment	588	0.599	37.82%	1.841	**0.000
T. Assets					

* Correlation statistically significant at the 0.05 level of significance

  **Correlation statistically significant at the 0.01 level of significance

Only qualitative changes have occurred in balance sheet items that relate to income statement items. For example, before to IFRS, cash was not strongly connected to subsidiary results, atypical performance, or marginal results, but following IFRS adoption, these factors exhibit substantial correlations. As shown in Table 4, the stocks for the asset elements are included in this category, as are the other income comprehensive and provisions for equity and liabilities.

Balance sheet items that are related to income statement items have altered in both qualitative and quantitative terms. Financial assets, for example, were not substantially connected to income, costs, amortization, financial outcomes, or unusual performance prior to IFRS, but now exhibit substantial coefficients for these factors.

Table 4 Estimated Levels of Balance sheet and income statement items of Companies Before adoption of IFRS 2004

Items	N	Mean	Median	Std. Deviation	Minimum	Maximum
Stocks	588	-0.0015	0.0056	0.55032	-7.61497	3.4944
Debtors	588	0.1615	0.0830	0.52605	0.0001	3.4900
Cash	588	-0.0015	0.0068	0.55467	-7.61734	3.4828
Equity	588	0.1642	0.0800	0.52985	0.0012	3.4800
Interest	588	0.0015	0.0070	0.55547	-7.61810	3.4787
Others	588	0.1623	0.0797	0.53063	0.0002	3.4800
Liabilities	588	-0.0011	0.0100	0.41962	-7.21590	3.3397
Creditors	588	0.1531	0.0707	0.38827	0.0011	2.2200

Table 5 Estimated Levels of Balance sheet and income statement
items of Companies After adoption IFRS 2005

Items	N Mean		Median	Std. Deviation	Minimum	Maximum
Stocks	588	0.0002	0.0519	0.06933	-0.68149	0.59735
Debtors	588	0.0721	0.0064	0.06371	0.00001	0.68000
Cash	588	-0.0002	0.0047	0.06931	0.00001	0.59330
Equity	588	0.0678	0.0056	0.06389	-0.68419	0.68000
Interest	588	-0.0200	0.0047	0.06913	-0.67117	0.56846
Others	588	0.0660	0.0058	0.06367	0.00000	0.67000
Liabilities	588	0.0210	0.0405	0.06787	-0.68541	0.60303
Creditors	588	0.0543	0.0048	0.06285	0.00000	0.64000

For example, prior to the implementation of IFRS, financial assets were not significantly connected to income, costs, amortization, financial outcomes, or abnormal performance, but now exhibit substantial coefficients for these variables. As a result, their relationship with subsidiary outcomes has deteriorated dramatically, as seen in Tables 3, 4 and 5 the intangible assets and debtors for the assets elements are included in this category, as are equity, minority interest, financial obligations, and creditors for the equity and liabilities elements.

5. Discussion

Since the purpose of this research is to examine the overall trajectory of the German Stock Exchange as a result of adopting IFRSs, this study was chosen to use the DAX30 index, as financial researchers and market analysts usually do. However, this selection adds a size bias since the listed companies are 30 of the largest on the German stock exchange. Although some researchers have found that changes in profits due to the adoption of IFRSs do not depend only on nominal profit values or issued and paid-up capital, meaning that "the application of

international accounting standards may similarly affect German companies," this bias is taken into account when circulate the results to all (listed) companies.

6. Conclusions

The required implementation of the IFRS for consolidated financial statements of publicly traded corporations commencing on or after January 1, 2005 was a considerable departure from prior accounting regulations. The impact of conventional accounting adjustments, i.e., changes in income components that aggregate the volatility of balance sheet items, is determined using a panel data model in this context. To do this, aggregated data assets are used to measure the data and modify the measure's influence, after which a panel data model is constructed and estimated for each item supplied with GLS in it to control individual impacts and provide robust error benchmarks. The sample consists of yearly financial statements from businesses in the German market index (DAX30) from 1994 to 2010, resulting in a database of 30 businesses and a maximum of 20 observations per business. The information was gathered from the public records of the Frankfurt Stock Exchange. The findings indicate that, following the adoption of IFRS, all of the investigated relationships between balance sheet and income statement components have altered considerably. These changes have only been quantitative for some balance sheet components, i.e., the income statement components that explain the relationships are the same before and after IFRS adoption, changing only the explanatory capacity demonstrated by parameters.

Conversely, as new items in the profit & loss statement with significant explanatory power appeared in the relationship after the application of IFRS, and the old profit &loss statement with significant explanatory power disappeared after the implementation of IFRS, the changes are quantitative and qualitative for other balance sheet items. The required adoption of IFRS for German companies included in the sample led to a new structure of the overflowing relationship, according to these findings. It found that changes in profits due to the adoption of IFRSs do not depend only on nominal profit values or issued and paid-up capital. Nevertheless, expanding these findings to all (listed) companies necessitates the prospective size change to take into consideration as the businesses included in the DAX30 index are among the largest corporations on the German stock market. Likewise, the extrapolation of these results to the impact of the IFRS individual firms, even those on the scale, requires the consideration of the individual effects and disclosed a preliminary study of the data utilized.

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