

**The Development of Value Relevance of IAS and IFRS over Time:
The Case of Germany**

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Henghsiu Lin
University of Portland
Pamplin School of Business Administration
5000 North Willamette Blvd.
Portland, OR 97203
lin@up.edu

Mari Paananen¹
Business School
University of Hertfordshire,
College Lane, Hatfield, AL10 9AB
United Kingdom
m.paananen@herts.ac.uk

¹ Corresponding author

Abstract

We examine the relative and the incremental value relevance of earnings (E) and the book value of equity (BVE) under IAS (2000-2002) and under IFRS (2003-2004) for German firms. We compare these periods to 2005 observations, to investigate whether EU's mandatory adoption of IFRS have changed the characteristics of companies reporting under IFRS and how this impacted the incremental value relevance of E and the BVE. We find that value relevance of E and BVE has increased significantly over time. The incremental value relevance of BVE and E increase between IAS (2000-2002) and IFRS, however, only the increase in the incremental value relevance of the BVE is statistically significant. We infer that the fair-value orientation in the recent international standards increase the incremental informational content of both the E and BVE, with the market relying more on book value. Between IFRS_{VOLUNTARY} (2003-2004) and IFRS_{MANDATORY} (2005), the incremental value relevance of BVE decreases significantly. The drop in the incremental value relevance of BVE could be driven by the IFRS_{MANDATORY} sample with larger and more profitable companies.

I. Introduction

The main objective of this study is to examine and compare the value relevance of earnings and the book value of equity under International Accounting Standards (IAS) during 2000-2002 with those under International Financial Reporting Standards (IFRS) during 2003-2004 and 2005². Accordingly, we conduct our investigation using a sample of German companies reporting under IAS during 2000-2002 (IAS period) and IFRS during 2003-2004 (IFRS_{voluntary} period) and 2005 (IFRS_{mandatory} period) using a valuation framework provided by Ohlson (1995), which expresses stock price as a function of both earnings and book value of equity. Specifically, we investigate whether there is a change in the relative as well as the incremental value relevance of earnings and the book value of equity during these three periods. We limit our investigation to German companies to hold constant certain institutional factors such as stock listing requirements, accounting disclosure requirements, market microstructures and regulatory environments that may confound the results, thereby strengthening the reliability of our findings.

Our inquiry is mainly motivated by the major revisions of IASs and the development of new IFRSs since the implementation of the new structure with IASB taking over the standard setting responsibilities from IASC in April 2001. The IASB has focused on developing a set of high quality standards to promote global accounting harmonization. This has led to significant changes in standards; only 31 of the 41 IASs remained in effect as of January 2005. In addition, by this time, IASB has issued five new IFRSs (IASB). Many of these revisions and new additions of accounting standards reflect IASB's preference for fair value measurement of assets and liabilities (Alexander

² Beginning in 2005, all listed companies in the European Union (EU) are required to prepare their consolidated financial statements in accordance with IFRS. Prior to that, using IAS/IFRS was voluntary in many European countries.

and Jermakowicz 2005; Hung and Subramanyam 2005; Schipper 2005; Whittington 2005). Considering the developments in the international standards, we predict that these changes are likely to affect the value relevance of earnings and book value of equity as a result of IASB's increased orientation towards fair value accounting.

The European Union's adoption has made IFRS the most widely accepted financial accounting model in the world. It is very important that current and potential investors as well as the standard setters understand the implication of IFRS on accounting variables. Hence, we also examine the effect of the EU's mandatory adoption of IFRS in 2005 on the overall and incremental value relevance of earnings and the book value of equity. Specifically, we examine whether the mandatory adoption of IFRS in the EU may have changed the structure of the set of companies reporting under IFRS and how this may have impacted the overall incremental value relevance of earnings and the book value of equity.

Prior research has investigated value relevance of earnings and book value of equity using samples of German companies (e.g., Hung and Subramanyam 2005; Bartov and Kim 2005). Our study differs from prior research on value relevance of IAS and IFRS accounting measures in that we examine the change in value relevance of earnings and equity book value caused by the revisions made to IASs and the development of new IFRSs. We compare the relative and incremental value relevance of earnings and book values of equity over three periods, the IAS period, the IFRS_{voluntary} period, and the IFRS_{mandatory} period. We measure value relevance in terms of the ability of accounting measures to explain stock prices. The sample for the IAS accounting variables consists of 187 German companies for 302 firm-year observations. The sample for the

IFRS_{voluntary} period consists of 197 German companies for 339 firm-year observations and 204 German companies for 204 firm-year observations for the IFRS_{mandatory} period.

Overall, we find a significant increase in association between earnings, and equity book value and the share price, which we interpret as an increase in value relevance of both earnings and book value of equity from the IAS period to both IFRS periods. Our incremental analysis of earnings and book value of equity in three periods indicates that the incremental value relevance of book values of equity increases significantly between the IAS period and the IFRS_{voluntary} period, but drops between the IFRS_{voluntary} period and IFRS_{mandatory} period while the incremental explanatory power of earnings has increased over time, however, we find no significant differences in the incremental value relevance of earnings during the three periods studied. We also investigate the set of companies using IFRS over time and find that the companies in the 2005 sample are significantly larger and significantly more profitable compared to the companies reporting under IFRS and IAS in the two previous time-periods when it was voluntary. In addition, the 2005 sample also exhibits less leveraged companies. We interpret the change in the set of users of IFRS as the explanation to the drop in the incremental value relevance of book value of equity in 2005 as IFRS became mandatory for most publicly traded German companies as of January 1 that year.

Our primary contribution is that we provide evidence on the effects of the revisions made to IASs and the development of new IFRSs on the value relevance of earnings and book value of equity over time. No study, to our knowledge, has empirically examined this issue. Our secondary contribution is to investigate changes in

the set of companies using IFRS after the mandatory EU adoption in 2005 on the value relevance of earnings and book value of equity.

The remainder of our paper is organized as follows. The next section describes the development of international accounting standards over time. Section III briefly discusses prior research on the value relevance of earnings and book value. Section IV discusses the research design and how we examine the incremental value relevance of earnings and book value. Section V describes the sample, and the sample selection criteria. Section VI presents our findings while Section VII concludes.

II. The Development of International Accounting Standards over Time

During the period of our investigation, a number of revisions took place. These changes are summarized in Table 1, which outlines the revisions of existing IASs and the issuance of new IFRSs in the chronological order these changes went into effect. Of these changes, we consider three to have had a major impact on companies financial reporting and thereby the possibility of a major impact on the value relevance on book value of equity and earnings. These changes are related to IAS 36, *Impairment of assets*, IAS 38, *Intangible assets*, and IFRS 3, *Business combinations*. IAS 36 requires a review of assets including intangible assets with an indefinite useful life for impairment, and measurement of recoverable amounts on an annual basis. Any impairment loss is recorded as an expense in the income statement. IAS 38 requires the recognition of an intangible asset when it is probable that future benefits of an intangible asset will benefit the company, and the cost of the intangible asset can be measured reliably. In addition, intangible assets should also be assessed for impairment in accordance with IAS 36. IFRS 3 allows only the purchase method for business combinations. All identifiable

assets and liabilities are valued at fair value. Goodwill is not amortized, but subject to an impairment test annually. Negative goodwill is recognized immediately in the income statement. Since the changes in these accounting standards are all fair-value oriented, we expect the informativeness of IFRS earnings and book values to increase compared to that of IAS earnings and book values.

<Table 1 about here>

II. Prior Research

As noted earlier, some recent studies compare IAS to accounting measures under other GAAPs. Hung and Subramanyam (2005) compare the financial statement effects of using IAS to those using German GAAP for a sample of German companies that elected to adopt IAS by examining these companies' restatements of prior years accounting numbers in the adoption year. They find that the adjustments between the two reporting systems are value relevant for book values of equity, but not for earnings. But they do not find any difference in value relevance of book value of equity and earnings under IAS and German GAAP. They also find that total assets and book value of equity are significantly higher under IAS and that there is a higher variability in book value of equity and earnings under IAS. Finally, they find that IAS adopters exhibit larger loss provisions. Bartov et al. (2005) also examine and compare the value relevance of earnings based US GAAP, IAS and German GAAP. They, on the other hand, find that IAS earnings are more value relevant than those based on German GAAP. The difference in the results of these two studies may be found in that Bartov et al. (2005) exclude loss-firm observations in their estimations while these are included in the Hung Subramanyam (2005) study. Finally, Barth et al. (2005) also study IAS adopters from a

number of countries, whereof Germany is one of the countries with greatest representation in the sample. They find that firms that adopt IAS are less prone to engage in earnings management and recognize losses more timely. They also find that adopters are more likely to issue both debt and equity.

There are also other recent studies on the effect of German and other GAAPs' on accounting quality and cost of capital. Leuz and Verrecchia (2000) investigate the bid-ask spreads, trading volume, and stock return volatility as proxies for the information asymmetry part of cost of capital. Comparing the above proxies for German companies which switch from German GAAP to either IAS or US GAAP, as they predict, they find that the bid-asked spread decreases, and the trading volume increases, however they find no reduction in stock return volatility. Daske (2006) builds on Leuz and Verrecchia's (2000) study using data from 1993 and 2002. He, on the other hand, does not find any sign of a lower cost of capital for companies that switch to IAS or US GAAP. On the contrary, Daske (2006) finds an increase in cost of capital for these companies. Finally, Platikanova and Nobes (2006) compare the information asymmetry component of the bid-ask spread among companies before and after EU's adoption of IFRS in 2005. They find a larger volatility in the information asymmetry for UK and German companies. Contrary to expectations, they also find that companies from countries where earnings management is more common exhibit a *lower* information asymmetry component compared to other groups of countries. They interpret this result as income smoothing reduces information asymmetry.

Overall, the results of these studies are inconclusive. We suggest that there are at least two confounding circumstances that may have affected these studies. First, we

assume that the development of international accounting standards have led to changes in the quality of financial reporting over time, which makes it hard to interpret Bart et al.'s (2005) results since this study cover a period from 1990 to 2004. Second, the fact that Bartov et al. (2005) exclude loss-firm observations and obtain a result different from Hung and Subramanyam (2005) suggests that certain characteristics of the companies reporting under international accounting standards may drive the results. Having said this, it needs to be pointed out that we are well aware of the methods such as the Heckman two-stage procedure that has been used in most of these cases to control for self-selection bias in data.

Our study differs from these prior studies and contributes the literature in three ways. First, we do not compare the value relevance of earnings and book value of equity reported under the international standards with those under the local or any other GAAP. Second, we exclusively examine the impact of international standards over *time* on value relevance of accounting measures as these standards go through revisions and new standards are issued. Since the changes in these accounting standards are mainly fair-value oriented, we expect the informativeness of IFRS earnings and book values to increase compared to that of IAS earnings and book values. Third, we include more recent data and investigate the effects of the mandatory EU adoption of IFRS in 2005. Specifically, we investigate whether any changes in the type of companies reporting under IFRS and IAS has taken place over time. Previous research has shown that German firms that voluntarily adopt IFRS are less profitable compared to non-adopters (Barth et al. 2005).

Previous research also suggests that equity book value takes on a more important role in valuation than earnings as financial health (in terms of financial position and profitability) decreases and smaller firms are more likely to report losses than larger firms (Barth et al. 1998; Collins et al. 1997; Hayn 1995). We assume that the users of IFRS changed when the EU adopted IFRS and made it mandatory for most publicly traded companies in 2005 and the firms now reporting under IFRS are not less profitable than other companies. We, therefore, posit that the incremental explanatory power of book value of equity increases during the IAS and the IFRS_{voluntary} periods.

III. Research Design

Our test of relative value relevance is based on a valuation framework provided by Ohlson (1995) where a firm's share price is a function of both earnings and book value of equity.

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BVE_{it} + \varepsilon_{it} \quad (1),$$

where P_{it} is the market price per share three months after fiscal year end in year t of company i , and E_{it} , and BVE_{it} are earnings before extraordinary items, and book value of stockholders' equity per share, respectively, and ε_{it} is the other value-relevant information of company i in year t . The regression model's R^2 indicates the strength of the association between the respective accounting variable(s) and stock price.

To examine the incremental explanatory power that earnings and equity book values have for stock prices, we follow the approach adopted in Collins et al. (1997) and estimate the following three equations over the IAS period, the IFRS_{voluntary} period and the IFRS_{mandatory} period.

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BVE_{it} + \varepsilon_{it} \quad (1)$$

$$P_{it} = \beta_0 + \beta_1 E_{it} + \varepsilon_{it} \quad (2)$$

$$P_{it} = \beta_0 + \beta_1 BVE + \varepsilon_{it} \quad (3)$$

The incremental explanatory power of earnings is defined as model (1) - model (3), and the incremental explanatory power of book value of equity is defined as model (1) - model (2). These tests are further outlined in Table 2.

<Table 2 about here>

IV. Sample Selection and Descriptive Statistics

The initial sample consists of all industrial German listed companies found in the Global Compustat database that are traded in their respective national stock exchanges in the years 2000 – 2002, 2003 – 2004 and 2005, indicating IAS/IFRS as their primary accounting standards³ and Euro as the major currency for German companies⁴. In order to maximize the sample size, we cross-reference all German companies reporting under IAS/IFRS included in the databases Amadeus and Thomson Research. We also searched each company's annual reports to verify accounting standards used by each company. We extracted as much accounting and price data as we could find from the Global Compustat, Amadeus and Thomson Research databases, then we collected additional data directly from each company's annual report. German companies often are traded on more than one domestic stock exchange; we choose the common stock issue of the

³ In Global Compustat database, if the accounting standard code of a firm is "DI" or "DA", we classify the firm as an IAS or IFRS user. Global Compustat accounting standard codes are known to contain classification errors. We minimize this error by manually checking each company's annual reports for the accounting policy used.

⁴ The other currency used by the German listed companies is German Mark. Less than ten percent of the German observations are using German Mark. Therefore, all German Marks firm-year observations are excluded from the sample.

highest market value as the company's primary stock issue, and use the stock price of that issue when a company has multiple issues of common stocks. We exclude NAICS industry codes of 22 (Utilities) and 71 (Art, Entertainment and Recreation) because of the highly specific accounting and disclosure requirements in these industries (Glaum and Street 2003). The sample selection process yields a German IAS sample of 302 firm-year observations for 187 companies, a German IFRS_{voluntary} sample of 339 firm-year observations for 197 companies, and a German IFRS_{mandatory} sample of 204 firm-year observations for 204 companies. Table 3 outlines our sample selection procedures.

<Table 3 about here>

The descriptive statistics in Table 4 indicate differences in magnitude in the earnings and book value of equity over time.⁵ The change is most notable between the 2003-2004 period and the 2005 period. Both the mean and the median book value of equity per share and earnings per share increase significantly. This suggests that the size and possibly the profitability of the companies in the sample increase when IFRS became mandatory in 2005.

<Table 4 about here>

V. Results

As shown in Table 5 below, the largest industry cluster in all three periods is the Business Service industry. With a slight variation on the second largest industry cluster, the Industrial and commercial machinery and computer equipment industry is the second largest industry during the IAS period, and the manufacturing industry the second largest industry during the two IFRS periods. The most notable change in industry specialization

⁵ All variables under examination have been winsorized on the 1% percent level to control for outliers.

is the decline in number of companies in Business services. The decline in this industry-sector is related to the dropout of information technology and consulting companies.

<Table 5 about here>

We also compare the capital structure, ownership structure, profitability and size over these three time periods. As presented in Table 6, companies during the IFRS_{voluntary} period borrow more and have a more widespread ownership structure than the IAS period, but the borrowing decreases and the ownership structures becomes less widespread during the IFRS_{mandatory} period. With respect to profitability and size, both the IAS and the IFRS_{voluntary} periods show proportionally less profitable and smaller companies compared to the companies in the sample of the IFRS_{mandatory} period. This supports our prediction that the set of German IFRS users change when IFRS becomes mandatory in Germany. We also find a decrease in leverage between the IFRS_{voluntary} period and the IFRS_{mandatory} period.

<Table 6 about here>

We measure value relevance in terms of the ability of accounting measures to explain stock prices. The R^2 s from the estimated regressions measure value relevance. As shown in Table 7, our primary test of the value relevance of earnings and book value of equity for German companies reporting under IAS and IFRS supports our prediction and shows that value relevance has increased significantly over time.⁶ The overall R^2 of the regression models for each of the time period examined was 0.44 in the IAS period, 0.68 in the IFRS_{voluntary} period, and 0.81 in the IFRS_{mandatory} period. In addition, the magnitude of both the earnings (p-value 0.025) and book value of equity (p-value 0.003)

⁶ In the main test, we pooled the data from the three time periods under investigation. We also rerun our estimations using a random effects estimation controlling for time and firm specific effects. We found no qualitative difference between the two types estimations.

coefficient have increased significantly (not reported here). As noted above with respect to profitability and size of samples in each time period, both the IAS and the IFRS_{voluntary} periods show to be proportionally less profitable and have smaller companies than the IFRS_{mandatory} period. Consistent with the prior research suggesting that equity book value becomes more important in valuation for smaller and less profitable firms, we find that the earnings coefficient more than doubled from the IFRS_{voluntary} period to the IFRS_{mandatory} period while the book value of equity coefficient increased with only 0.24 (25%) compared to the IFRS_{mandatory} period (Barth et al. 1998; Collins et al. 1997; Hayn 1995). The magnitude of the increase in the earnings coefficient is significant (p-value 0.001), as well as, the increase in magnitude of the coefficient for book value of (p-value 0.017) (not reported here). This could be interpreted as a switch to a greater reliance on earnings as opposed to book value of equity due to the fact that the companies are more profitable and larger in the IFRS_{mandatory} period.

<Table 7 about here>

We also examine whether the incremental value relevance of earnings and book value of equity have changed over the three time periods. Table 8 shows that the incremental value relevance of both book value of equity and earnings increased between the IAS period and the IFRS_{voluntary} period, however, only the increase in the value relevance of the incremental book value of equity is statistically significant. Our analysis of the characteristics of the sample for each period suggests a marginally significant increase in leverage, free float, and profitability; and a marginally significant decrease in size. We do not interpret the above as a major structural change in the sample instead we interpret the increase in the incremental value relevance of book value of equity between

the IAS period and the IFRS_{voluntary} period as an effect of changes mainly related to IAS 36, *Impairment of assets*, IAS 38, *Intangible assets*, and the new standard IFRS 3, all of which are fair value oriented and predicted to increase the value relevance of book value of equity and earnings.

Turning to the development between the IFRS_{voluntary} period and the IFRS_{mandatory} period, we find that the incremental value relevance of book value of equity decreases significantly. The incremental value relevance of earnings improves, but once again, the increase is not statistically significant. We interpret the sudden drop in the incremental value relevance of book value of equity as driven by the structural change in the sample. Between the IFRS_{voluntary} period and the IFRS_{mandatory} period, both profitability and size improve significantly. In addition, we also see a marginally significant decrease in leverage and the free float. We infer that when IFRS was a choice, certain types of firm had more incentives to opt to report under IFRS than others. Germany has a large and liquid capital market, which means that large and well established companies have relatively less incentive to switch to IAS/IFRS to attract foreign investors since they can raise their capital reporting under German GAAP. However, small information technology and less well established companies may not have the same access to the German capital market, and therefore, have reasons to switch to IAS/IFRS to be able to raise capital. Once IFRS became mandatory in Germany, this self-selection bias was removed, resulting in the change in the above characteristics of the sample over time.

<Table 8 about here>

VI. Conclusion

This study examines the relative as well as the incremental value relevance of earnings and the book value of equity under IAS during 2000-2002, and under IFRS during 2003-2004 and 2005 for firms in Germany. In addition, we also examine whether the mandatory adoption of IFRS in the EU may have changed the structure of the set of companies reporting under IFRS and how this may have impacted the overall incremental value relevance of earnings and the book value of equity. We measure value relevance in terms of the ability of accounting measures to explain stock prices. The R^2 s from the estimated regressions measure value relevance. Overall, we find that value relevance of earnings and book value of equity has increased significantly over time. In particular, we find that the earnings coefficient more than tripled from the IFRS_{voluntary} period to the IFRS_{mandatory} period and the book value of equity coefficient almost halved from the IFRS_{voluntary} period to the IFRS_{mandatory} period. This could be due to the fact that the companies in the IFRS_{mandatory} period are more profitable and larger that the market places more weight on earnings than equity book value when valuing firms.

Both the incremental value relevance of both book value of equity and earnings increase between the IAS period and the IFRS_{voluntary} period, however, only the increase in the value relevance of the incremental book value of equity is statistically significant. We infer that the new changes in international standards towards the fair value orientation possibly contribute to the increase in the incremental informational content of both the earnings and book value of equity, with the market places higher weight on book value. Between the IFRS_{voluntary} period and the IFRS_{mandatory} period, the incremental value relevance of book value of equity decreases significantly. The sudden drop in the

incremental value relevance of book value of equity could be driven by the structural change in our sample.

Taken as a whole, our results suggest that the changes to and new developments in the international accounting standards appear to improve value relevance of accounting measures. However, our results should be interpreted with caution since the first two periods of our study (the IAS and the IFRS_{voluntary} periods) suffer from self-selection bias in that the companies reporting under IAS and IFRS have chosen to do so. This potential self-selection bias is likely to also have biased the results of previous research using data of companies that have voluntarily chosen to report under IAS and IFRS.

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Table 1: Summary of Revisions of IAS and IFRS over Time

Panel A: Revisions During the IAS period				
Standard	Issued/ revised Year	In effect	Focus	Revision Made
IAS 12	2000	2001	Income Taxes	The standard was amended to include guidance on accounting for tax consequences of dividends and other distributions made by the reporting parent company.
IAS 19	2000	2001	Employee benefits	Revised to include and regulate more the retirement benefit costs only.
IAS 40	2000	2001	Investment property	Was an attempt to impose fair value measurement of investment property, ended up allowing it as an alternative to historical cost accounting.
Panel B: Revisions During the IFRS voluntary period				
Standard	Issued/ revised Year	In effect	Focus	Revision Made
IAS 41	2001	2003	Agriculture	Regulates accounting for agricultural assets. These types of assets were previously not covered by other IASs.
IAS 36	2004	2004	Impairment of assets	Requires measurement of recoverable amount of intangible assets with an indefinite useful life on an annual basis (including goodwill and intangible assets not yet available for use).
IAS 38	2004	2004	Intangible assets	The assumption that all assets' useful life is finite is abolished. In addition, intangible assets with infinite useful life should not be amortized.
IFRS 3	2004	2004	Business combinations	Prohibits the use of the pooling of interests method for business combinations. Goodwill is initially defined as the net fair value of acquired assets and liabilities. Goodwill etc. with infinite lives are not amortized. Also see IAS 36 and IAS 38.
IAS 1	2003	2005*	Presentation of Financial Statements	Mostly transferring the policies application related to changes in accounting estimates and errors to IAS 8 while the presentation issues is transferred to IAS 1.
IAS 2	2003	2005*	Inventories	The main change is the prohibition of LIFO as a cost formula.
IAS 8	2003	2005*	Accounting policies, changes in accounting estimates and errors	Please refer to revisions described for IAS 1.

Panel B: Revisions During the IFRS voluntary period cont.

Standard	Issued/ revised Year	In effect	Focus	Revision Made
IAS 16	2004	2005*	Property, plant, and equipment	Costs of dismantlement, removal or restoration are included in capitalized amounts. Fair value revaluation only if this is reliably measurable. Depreciation must start when the asset is available for use and continues regardless if the asset is idle or not.
IAS 19	2004	2006*	Employee benefits	Revised to permit recognition of actuarial gain and losses in equity and to require additional disclosure.
IAS 21	2003	2005*	Changes in foreign exchange rates	Removal of a limited option to capitalize exchange rate differences resulting from severe devaluation or depreciation of a currency against which there is no means of hedging.
IAS 24	2003	2005*	Related party disclosures	Requires disclosure of compensation to key management employees and expands the definition of “related party” by adding joint ventures, etc.
IAS 27	2003	2005*	Consolidated and separate financial statements	Minority interests are now presented within the equity as a separate line item.
IAS 28	2003	2005*	Investments in associates	Investors must not only consider the carrying amount the investment but also other long-term interests in the associate when recognizing its share of losses of the associate.
IAS 31	2003	2005*	Interests in joint ventures	Investors must disclose the method used to recognize its interest in jointly controlled entities (proportional consolidation or the equity method).
IAS 39	2004	2005*	Financial instruments: recognition and measurement	Added fair value accounting for a hedge of the interest rate exposure of a portfolio of financial assets and liabilities.
IAS 40	2004	2005*	Investment property	Defining the concept “investment property” and impose a consistent use of the fair value or the cost model.
IFRS 2	2004	2005*	Share-based payment	Require recognition of all share-based payment transactions using a fair value measurement basis.
IFRS 4	2004	2005*	Insurance contracts	Prohibits catastrophe and equalization reserves. Requires testing of the adequacy of recognized insurance liabilities and impairment tests of reinsurance assets.
IFRS 5	2004	2005*	Non-current assets held for sale and discontinued operations	Prescribes accounting for assets held for sale and the presentation and disclosure of discontinued operations.

Panel C: Revisions During the IFRS mandatory period

Standard	Issued/ revised Year	In effect	Focus	Revision Made
IAS 39	2005	2006	Financial instruments: recognition and measurement	Restricted the use of the “fair value option” to eliminate accounting or economic mismatches.
IFRS 6	2005	2006	Exploration for and evaluation of mineral resources	Regulates the financial reporting of mineral resources until IASB has completed a comprehensive project of this.
IFRS 7	2006	2007	Financial instruments disclosure	Require disclosure of information on the significance of financial instruments for a company’s financial position and profitability.

* Earlier application is encouraged.

Table 2: Comparison of models to test the incremental value relevance for earnings and book value of equity.

	IAS (2000 – 2002)	IFRS _{VOLUNTARY} (2003 – 2004)	IFRS _{MANDATORY} (2005)
Book value of equity ¹	$R^2_{E+BVE} - R^2_E^{**}$	$R^2_{E+BVE} - R^2_E$	$R^2_{E+BVE} - R^2_E$
Earnings ²	$R^2_{E+BVE} - R^2_{BVE}^{***}$	$R^2_{E+BVE} - R^2_{BVE}$	$R^2_{E+BVE} - R^2_{BVE}$

¹ The book value of the total shareholders' equity per share for firm "i" at time "t."

² Earnings per share excluding extraordinary items for firm "i" at time "t."

* $Price_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BVE + \varepsilon_{it}$

** $Price_{it} = \beta_0 + \beta_1 E_{it} + \varepsilon_{it}$

*** $Price_{it} = \beta_0 + \beta_1 BVE + \varepsilon_{it}$

Table 3: Sample Selection Process.

	IAS (2000 – 2002)		IFRS _{VOLUNTARY} (2003 – 2004)		IFRS _{MANDATORY} (2005)	
	Firms	Firm- Years	Firms	Firm- Years	Firms	Firm- Years
From Global Compustat Industrial, complemented with observations extracted from Amadeus and Thomson Research	193	312	203	347	218	218
Excluded observations due to missing data	-	-2	-	-2	-9	-9
Firm-year observations with the NAICS codes 22 and 71 removed ¹	-6	-8	-6	-6	-5	-5
Total sample	187	302	197	339	204	204

¹22 = Utilities and 71 = Arts, Entertainment, and Recreation

Table 4: Descriptive Statistics.

Independent Variables	Period.	N	Mean	25 th Percentile	50 th Percentile	75 th Percentile	Std. Dev.
BVE ¹	IAS (2000-2002)	302	9.803	2.497	5.430	12.904	15.534
	IFRS _V (2003-2004)	339	10.982	1.755	4.094**	12.397	17.077
	IFRS _M (2005)	204	14.332	2.299	5.141	14.121	38.927
E ²	IAS (2000-2002)	302	0.029	-1.194	-0.029	1.155	3.195
	IFRS _V (2003-2004)	339	0.298	-0.586	0.125**	1.062	2.527
	IFRS _M (2005)	204	1.488***	0.020	0.514***	1.674	5.149

¹ The book value of the total shareholders' equity per share for firm "i" at time "t."
² Earnings per share excluding extraordinary items for firm "i" at time "t."
 Asterisks indicates that the means (medians) of the period is significantly different from the previous time period using a two-tailed t-test (Mann-Whitney-Wilcoxon test): * p < 0.1, ** p < 0.05, and *** p < 0.01.

Table 5: Analysis of Industry Specialization in Germany

Industry	Number of Firms Germany (%-age of total number of firms)		
	IAS (2000-2002)	IFRS _{VOLUNTARY} (2003-2004)	IFRS _{MANDATORY} (2005)
Manufacturing	19 (10.2%)	27 (13.7%)	22 (10.8%)
Industrial and commercial machinery and computer equipment	21 (11.2%)	22 (11.2%)	18 (8.8%)
Electronic and other electrical equipment and components, except computer equipment	10 (5.3%)	14 (7.1%)	15 (7.4%)
Transportation Equipment	6 (3.2%)	5 (2.5%)	6 (2.9%)
Measuring, analyzing, and controlling instruments; photographic, medical and optical goods; watches and clocks	6 (3.2%)	12 (6.1%)	14 (6.8%)
Communications	10 (5.3%)	6 (3.0%)	8 (3.9%)
Wholesale trade-durable and non-durable goods	9 (4.8%)	10 (5.1%)	12 (5.9%)
Business services	59 (31.6%)	49 (24.9%)	52 (25.5%)
Motion pictures	13 (7.0%)	11 (5.6%)	6 (2.9%)
Other	34 (18.2%)	41 (20.1%)	51 (25.0%)
Total ¹	187 (100%)	197 (100%)	204 (100%)

Table 6: Analysis of the Information Environment in Germany Under IAS (2000 to 2002), Under IFRS_{VOLUNTARY} (2003 to 2004), and IFRS_{MANDATORY} (2005)

		N ¹	Mean	Median
Debt to total assets ratio ²	IAS	302	0.554	0.564
	IFRS _{VOLUNTARY}	339	0.604*	0.593
	IFRS _{MANDATORY}	204	0.539***	0.553***
Free Float ³	IAS	302	40.671	25.945
	IFRS _{VOLUNTARY}	339	49.190**	34.120**
	IFRS _{MANDATORY}	204	53.378	39.093
Loss firms ⁴	IAS	302	0.513	1.000
	IFRS _{VOLUNTARY}	339	0.422**	0.000**
	IFRS _{MANDATORY}	204	0.225***	0.000***
Size ⁵	IAS	302	5.097	4.610
	IFRS _{VOLUNTARY}	339	4.795*	4.426*
	IFRS _{MANDATORY}	204	5.459**	5.070***

¹ Includes loss firm-year observations

² Debt to total assets is total liabilities divided by total assets for firm i time t.

³ Free float is calculated by taking the number of shares traded in the last month or the year divided by outstanding shares by year end for firm i at time t.

⁴ Loss is the number of loss-firm observations for firm i at time t.

⁵ Size is measured as the natural log of total assets for firm i at time t.

Asterisks indicates that the means (medians) of the period is significantly different from the previous time period using a two-tailed t-test (Mann-Whitney-Wilcoxon test): * p < 0.1, ** p < 0.05, and *** p < 0.01.

Table 7: OLS regressions of German accounting measures on share price.

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BVE_{it} + \varepsilon_{it}$$

Panel A: IAS (2000-2002):				
Variable	Coefficient	Std. Dev.	p-value	Adj. R ²
Intercept	8.280	1.367	0.000	
E ¹	2.273	0.414	0.000	
BVE ²	0.648	0.085	0.000	0.440
Panel B: IFRS_V (2003-2004)				
Variable	Coefficient	Std. Dev.	p-value	Adj. R ²
Intercept	6.385	0.907	0.000	
E	3.243	0.336	0.000	
BVE	0.940	0.050	0.000	0.675
Panel C: IFRS_M (2005)				
Variable	Coefficient	Std. Dev.	p-value	Adj. R ²
Intercept	6.915	1.875	0.000	
E	8.358	0.898	0.000	
BVE	1.182	0.127	0.000	0.807
Panel D: Comparison of R²:				
R ² IAS	0.440			
R ² IFRS _V	<u>0.675</u>	Z- value ³	5.285	
Difference	-0.235	p-value	0.000	
R ² IFRS _V	0.675			
R ² IFRS _M	<u>0.807</u>	Z- value ³	4.390	
Difference	-0.132	p-value	0.000	

¹ The book value of the total shareholders' equity per share for firm "i" at time "t."

² Operating profit per share for firm "i" at time "t."

³ The Z-statistic is calculated using the following formula: $Z = R_{2004}^2 - R_{2005}^2 / \sqrt{\{\sigma^2(R_{2004}^2) + \sigma^2(R_{2005}^2)\}}$, with the variance of the R² derived as shown in Cramer [1987].

Table 8: Evaluation of the incremental value relevance for earnings and book value of equity.

Panel A: R² comparison				
	Book value of equity ¹ (BVE)	Diff	Earnings ² (E)	Diff
IAS (2000-2002):	$R^2_{E+BVE} - R^2_E$ 0.440 - 0.333	0.107	$R^2_{E+BVE} - R^2_{BVE}$ 0.440 - 0.385	0.055
IFRS _V (2003-2004)	$R^2_{E+BVE} - R^2_E$ 0.675 - 0.331	0.344	$R^2_{E+BVE} - R^2_{BVE}$ 0.675 - 0.586	0.089
IFRS _M (2005)	$R^2_{E+BVE} - R^2_E$ 0.807 - 0.725	0.082	$R^2_{E+BVE} - R^2_{BVE}$ 0.807 - 0.725	0.082
Panel B: Evaluation of R² comparison				
Incremental value relevance of BVE under IFRS _{VOLUNTARY}	0.334		Incremental value relevance of E under IFRS _{VOLUNTARY}	0.089
Incremental value relevance of BVE under IAS	<u>0.107</u>		Incremental value relevance of E under IAS	<u>0.055</u>
Net increase	0.227		Net increase	0.034
Z-value	3.274		Z-value	0.514
p-value	0.001		p-value	0.607
Incremental value relevance of BVE under IFRS _{MANDATORY}	0.082		Incremental value relevance of E under IFRS _{MANDATORY}	0.082
Incremental value relevance of BVE under IFRS _{VOLUNTARY}	<u>0.344</u>		Incremental value relevance of E under IFRS _{VOLUNTARY}	<u>0.089</u>
Net decrease	-0.262		Net decrease	0.007
Z-value	4.757		Z-value	0.142
p-value	0.000		p-value	0.887

¹ The book value of the total shareholders' equity per share for firm "i" at time "t."

² Net profit per share for firm "i" at time "t."

³ The Z-statistics are calculated using the following formulas: