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Financial statement effects of adopting international accounting standards: the case of Germany

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Abstract Using a sample of German firms, we investigate the financial statement effects of adopting International Accounting Standards (IAS) during 1998 through 2002. We find that total assets and book value of equity, as well as variability of book value and income, are significantly higher under IAS than under German GAAP (HGB). In addition, book value and income are no more value relevant under IAS than under HGB, and HGB (IAS) income is highly persistent (transitory). Finally, we find weak evidence that IAS income exhibits greater conditional conservatism than HGB income. Our results are consistent with the fair-value (income smoothing) orientation of IAS (HGB).

Keywords International Accounting Standards · Germany · Fair-value accounting

JEL Classifications M41 · G15

1 Introduction

As of January 1, 2005, all listed companies in the European Union are required to prepare their financial statements in accordance with International Accounting Standards (IAS) (Hofheinz 2002).[1] IAS adoption by the European Union is one of the biggest events in the history of financial reporting, making IAS the most widely

[1] For ease of exposition, we use the term "IAS" to refer to both the International Accounting Standards (IAS) issued by International Accounting Standards Committee (IASC) and the International Financial Reporting Standards (IFRS) issued by IASC's successor, the International Accounting Standards Board (IASB).

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accepted financial accounting model in the world. Accordingly, there is an urgent need for managers and investors to understand the implications of IAS adoption. This is especially true in European countries with stakeholder-oriented accounting systems (such as Germany and France), as IAS is heavily influenced by the shareholder-oriented Anglo-Saxon accounting model, whereas local standards in many European countries have a greater contracting orientation and are driven by tax-book conformity considerations.

The objective of our paper is to examine the financial statement effects of adopting IAS in European countries with stakeholder-oriented accounting systems. We conduct our investigation using a sample of 80 German firms that adopt IAS for the first time during the 1998 through 2002 period. Specifically, we investigate the effects of IAS adoption on financial statements by (1) documenting the financial statement changes precipitated by IAS adoption and (2) examining the effects of these changes on the properties of financial statement information. Examining financial statement implications is important because, while IAS adoption might lead to indirect economic consequences such as higher market liquidity or lower cost of capital, the only *direct* effects of adopting IAS are changed financial statements (and related footnote disclosures).

We limit our investigation to Germany primarily to overcome problems associated with comparing across countries with different institutional environments. In addition, Germany is particularly well suited for our empirical investigation for several reasons. First, Germany provides an ideal natural experiment for examining the financial statement effects of IAS adoption in countries with stakeholder-oriented accounting systems because, unlike IAS, German GAAP or the German Commercial Code (*Handelsgesetzbuch*; henceforth, HGB) emphasizes a "prudent" approach to asset valuation and liability recognition to facilitate contracting among stakeholders (Harris et al. 1994; Leuz and Wustemann 2004).[2] Second, because Germany has a strong rule of law tradition and an efficient judicial system, we can be assured that there is adequate enforcement of accounting rules (La Porta et al. 1998).[3] Third, a relatively large number of German companies have adopted IAS, which provides us a reasonably large sample.[4]

Our research design allows us to directly compare accounting numbers (and their properties) prepared under HGB with those prepared under IAS for the *same set of firm-years*. A direct comparison is possible because German firms adopting IAS are required to restate their prior-year results under IAS during the adoption year; that is,

[2] For ease of exposition, henceforth we use "HGB" to refer to either German GAAP or the German Commercial Code, even though German GAAP refers to a broader concept that includes all legal rules, principles, and standards that have to be applied by a company in the preparation of its financial statements.

[3] Several recent developments also strengthen the auditing and implementation environment in Germany. In April 1998, section 323 of HGB increased the legal liability for auditors, and sections 331–332 of HGB subjected auditors and directors to criminal prosecution.

[4] More than 40% of the companies in the German DAX100 index have adopted IAS and many companies are planning to do so in the near future (Leuz and Wustemann 2004). This trend is partially due to the enactment of the Capital Raising Facilitation Act (KapAEG) in 1998, which allows German listed firms to prepare their consolidated financial statements according to internationally accepted accounting standards instead of German accounting standards.

IAS-adopting firms are required to issue financial statements prepared under both IAS and HGB for the year before adoption. Accordingly, our research design controls for cross-sectional and time-series differences between IAS and HGB firm-years. In addition, we restrict our sample to firms adopting IAS in 1998 or thereafter. Two important events occurred in 1998: (1) the core IAS standards were completed, and (2) IAS adopters were mandated to fully comply with the IAS standards (before 1998, companies could choose to implement only a subset of IAS standards).[5] Hence, examining post-1997 adoptions ensures that our IAS firm-years are representative.

Our empirical investigation comprises two basic sets of analyses. Our first set of analyses documents the major accounting differences between HGB and IAS as well as the effects of IAS adoption on key accounting measures such as book value of equity and net income. Based on the book value and net income reconciliation adjustments that a subset of our sample firms report in their annual reports, we find that switching to IAS results in widespread and significant changes to deferred taxes, pensions, PP&E, and loss provisions. In addition, we find that total assets and book value of equity are significantly larger under IAS than under HGB and that cross-sectional variation in book value and net income are significantly higher under IAS than under HGB. Overall, our results are consistent with HGB emphasizing the prudence principle (balance sheet conservatism) and income smoothing—for example, limited recognition of assets and frequent use of discretionary loss provisions—and IAS emphasizing fair values and balance sheet valuation—for example, the use of fair value for financial instruments and recognition of internally developed intangibles.

Our second set of analyses investigates the effects of IAS adoption on the relative and incremental value relevance of book values and net income as well as the asymmetric timeliness of net income. Since our sample companies voluntarily adopt IAS and therefore do not represent a random selection of German firms, we implement the two-stage regression procedure suggested by Heckman (1979) to control for the effect of self-selection in these tests. We measure value relevance in terms of the ability of accounting measures to explain contemporaneous stock prices. Our relative value relevance analysis finds no evidence that IAS improves the value relevance of book value or net income. However, we find that book value (net income) is accorded a significantly larger (smaller) valuation coefficient under IAS than under HGB, consistent with IAS markedly reducing income persistence (Ohlson 1995). In addition, our incremental value relevance results show that while the IAS adjustments to book value are value relevant, they add noise (measurement error) to income. Overall, our value relevance results are consistent with IAS being balance sheet- and fair value-orientated and HGB being income smoothing- and historical cost-oriented.

Finally, we compare the timeliness and asymmetric timeliness of income measured under HGB and IAS. As in Ball et al. (2000), we estimate both timeliness and asymmetric timeliness (conditional conservatism) by regressing

[5] For example, the core standards were the standards being considered for endorsement by the International Organization of Securities Commissions (IOSCO). The endorsement of IAS by IOSCO was one of the key factors for the European Commission's decision to adopt IAS.

income on returns interacted with a variable that measures the sign of returns. Our results are consistent with IAS recognizing economic losses in a timelier manner than HGB, which suggests that IAS income is more conditionally conservative than its HGB counterpart. However, these results are not statistically significant.

Two factors could potentially bias our results. First, we conduct our analyses in the year before IAS adoption, when IAS numbers are unavailable to the market. It is possible that our results are driven by the inability of the market to price IAS information at the time we conduct our tests. Accordingly, we conduct additional analyses using future prices and returns as proposed by Aboody et al. (2002). The results of these analyses suggest that the unavailability of IAS information is not likely to affect our inferences. Second, it is possible that our sample companies gradually narrowed differences between HGB and IAS before IAS adoption, that is, gradually transitioned to IAS, potentially lowering the power of our tests (Barth et al. 2005). However, our additional analyses find little evidence of such gradual transition, which suggests that our results are robust to this alternative explanation.[6]

Our paper's primary contributions to the literature are threefold. First, we provide evidence on the likely financial statement effects of IAS adoption throughout the European Union, arguably one of the biggest events in the history of financial reporting. Unlike Barth et al. (2005), who study a large sample of firms from many different countries, we conduct a detailed examination on a small sample of German firms that voluntarily adopt IAS using a design that provides superior experimental control.

Second, we contribute to the literature examining the valuation properties of IAS (for example, Ashbaugh and Olsson 2002; Harris and Muller 1999) by focusing our investigation on the period after both the adoption of the core standards by the IASC and the requirement of full compliance. Thus, our paper is arguably the first to examine the financial statement effects of truly representative IAS. Consequently, we are the first to document the substantial fair-value orientation of IAS and its implications for the value relevance and timeliness of financial statement information.

Third, we contribute to the debate on the relative superiority of the Anglo-Saxon shareholder-oriented versus the continental European stakeholder-oriented accounting models. Prior studies using cross-country comparisons conclude that the shareholder-oriented model is more value relevant (Ali and Hwang 2000) but are unable to disentangle the effects of accounting standards from other institutional factors such as shareholder protection or market development. In contrast, we implement a design that allows us to examine the effects of accounting differences under a *ceteris paribus* condition and find no significant differences in value relevance between stakeholder-oriented (HGB) and shareholder-oriented (IAS) accounting models, although we do find suggestive evidence

[6] Additional sensitivity tests find that our overall conclusions are robust to deleting firms listed in the New Market (Neuer Market), using a bootstrapping procedure for the significance tests, scaling all variables by lagged market values in our value relevance tests, and using future prices rather than current prices for the value relevance and asymmetric timeliness tests.

that IAS income may recognize economic losses in a timelier manner. While speculative in nature, our results are consistent with Ball et al. (2003), who show that institutional factors such as shareholder protection may play a more important role than accounting standards in explaining cross-country variation in the valuation properties of accounting data.

The rest of the paper proceeds as follows. Section 2 describes the sample. Section 3 discusses accounting differences between HGB and IAS. Section 4 presents our procedure to correct for potential self-selection bias. Section 5 provides the results on the value relevance of HGB and IAS measures, while Section 6 examines differences in asymmetric timeliness. Section 7 discusses several robustness tests. Finally, Section 8 concludes.

2 Sample and data

Our sample consists of 80 German industrial firms that adopted IAS for the first time during 1998–2002. We begin our investigation period in 1998 because two important events in the development of IAS occurred that year. First, the IAS core standards were completed with the approval of IAS 39 (Financial Instruments: Recognition and Measurement).[7] Second, the revised IAS 1 (Presentation of Financial Statements), which requires full compliance of IAS adopters, became effective.[8] Thus, by restricting our sample to firms adopting IAS during 1998 and thereafter, we are assured that (1) the standards applied by our IAS sample firms are representative of the core international standards and (2) our sample IAS adopters are not selectively applying only a subset of the prescribed international standards. Together, these two conditions ensure that the IAS data that we use in our analyses represent the current IAS rules.

We use the following procedures to identify our sample and collect the necessary restated IAS accounting data. First, we use the Compustat Global Industrial/Commercial and Issue databases to gather all firm-year observations with available data on net income, book value, and market value for firms incorporated in Germany. Second, we identify all firms that switch their accounting standards from local GAAP to IAS, that is, those with Compustat Global accounting standard codes changing from "DS" (Domestic standards) to "DI" (Domestic standards generally

[7] While the majority of the core standards have effective dates earlier than 1998, few of the standards have effective dates later than 1998. However, we note that the standards generally encourage early adoption.

[8] Before the revised IAS 1 became effective in 1998, there was no requirement that IAS adopters should be in full compliance with IAS and many "IAS adopters" selectively adopted standards between local GAAP and IAS in their financial statements. Specifically, the revised IAS 1 states: *"Financial statements should not be described as complying with International Accounting Standards unless they comply with all the requirements of each applicable Standard and each applicable interpretation of the Standing Interpretations Committee."*

in accordance with IASC guidelines), during our sample period.[9] These procedures result in an initial sample of 89 firms.[10]

Third, we obtain all available annual reports for these 89 firms during our sample period either from the respective company's website or the Thomson ONEBanker Company Filing database. We verify whether the firms are using HGB or IAS by examining notes to consolidated financial statements and audit reports. We delete eight firms because the Compustat Global database erroneously identifies an IAS adoption during our sample period; the annual reports of these eight firms indicate that they have been using either HGB or IAS throughout the entire sample period and contain no references to changes in accounting standards. This reduces our sample to 81 firms. Note that we modify the IAS adoption year for 13 sample firms because Compustat Global database appears to have miscoded this information for these firms.[11]

Fourth, for the sample of 81 firms, we collect both the original HGB and the restated IAS information for the year before IAS adoption. As we suggest above, we are able to obtain two sets of financial statements—prepared alternatively under HGB and IAS—for the same firm-years because the Standing Interpretations Committee Interpretation SIC 8 (First-time Application of IAS as the Primary Basis of Accounting) requires that first-time IAS adopters restate prior-period results.[12] Specifically, for the year before adoption, the SIC 8 requirement allows us to collect the original HGB numbers from the annual report for that year and the restated IAS numbers from the annual report in the following year (i.e., the adoption year).[13] To maximize our sample size, we use all available restated accounting information. Since some firms voluntarily provide more data than required (three firms provide two-year book value and net income reconciliations from HGB to IAS and one firm

[9] We note that in addition to "DI," there are two other accounting standards codes in Compustat Global with references to IAS: "DA"—Domestic standards generally in accordance with IASC and OECD (Organization for Economic Cooperation and Development) guidelines, and "DT"—Domestic standards in accordance with principles generally accepted in the United States and generally in accordance with IASC and OECD guidelines. We only focus on "DI" to identify IAS adopters because none of the German companies in Compustat have the accounting codes "DA" or "DT" during our sample period.

[10] One firm's accounting standard codes change from "DS" to "DU" and then to "DI" during our sample period, where "DU" denotes "Domestic standards in accordance with principles generally accepted in the United States." We check the accounting standards in the company's annual reports throughout our sample period. We find that the codes "DU" should have been "DS" and make the corrections accordingly.

[11] While verifying our data, we ensure that the reported financial statement numbers in the annual reports are the same as those reported in Compustat Global and that we do not erroneously classify a firm as an IAS adopter during our sample period. However, we acknowledge that it is possible that there are firms that did adopt IAS during our sample period but are not included in the sample because of errors in the Compustat Global database and our reliance on this database for the initial screening process.

[12] SIC 8 requires that firms restate prior periods as if the financial statements had always been prepared in accordance with IAS and to disclose instances in which the amount of adjustment to the opening balance of retained earnings cannot be reasonably determined. We note that SIC 8 was superseded by IFRS 1 (First-Time Adoption of International Accounting Standards) in 2004.

[13] We illustrate our procedure by using BMW as an example. BMW adopted IAS for the first time in 2001 (see Appendix 1 for excerpts from BMW's 2001 Annual Report). In its 2001 Annual Report, BMW reports the 2001 financial statements according to IAS and restates the 2000 financial statements as if prepared in accordance with IAS. Since the 2000 financial statements reported in its 2000 annual report are based on HGB, we are able to obtain both HGB and IAS data for 2000.

provides consolidated financial statements based on both HGB and IAS prior to adopting IAS), we obtain four more sample observations, for a total of 85 firm-years.

Finally, consistent with prior research such as Collins et al. (1997), we exclude firms with negative book value of equity (under either HGB or IAS). This results in the loss of one firm. Thus, our sample selection procedure ultimately yields 80 firms, comprising 84 firm-year observations, for which both HGB and IAS accounting data are available.

Table 1 reports the distribution of our sample firms by year and industry group. Panel A reveals that the number of German firms switching from HGB to IAS increases noticeably in 1999 (from 4 to 19). This is likely due to the 1998 Capital Raising Facilitation Act (KapAEG), which allows companies to prepare consolidated financial statements in accordance with internationally accepted accounting standards instead of German GAAP (Leuz and Verrecchia 2000). Panel B classifies firms based on the industry group classification in Fama and French (1997). Our sample firms are well dispersed across industry groups with no industry constituting more than 15% of the sample. In addition, the relatively high concentration of our sample firms in Machinery, Wholesale, and Business Services industries likely

Table 1 Distribution of sample firms by year and industry group (N = 80 firms)

Panel A: Number of German firms switching from German GAAP (HGB) to IAS, by year

Year	1998	1999	2000	2001	2002	Total
N	4	19	19	17	21	80

Panel B: Number of German firms switching from German GAAP (HGB) to IAS, by industry group

Industry Group[a]	*N*	%	Industry Group	*N*	%
Machinery	10	12.50	Beer	1	1.25
Wholesale	8	10.00	Building materials	1	1.25
Business service	7	8.75	Books	1	1.25
Autos	6	7.50	Chemicals	1	1.25
Fun	4	5.00	Clothes	1	1.25
Computers	3	3.75	Electric equipment	1	1.25
Fabricated products	3	3.75	Energy	1	1.25
Retail	3	3.75	Food	1	1.25
Transportation	3	3.75	Healthcare	1	1.25
Miscellaneous	3	3.75	Paper	1	1.25
Boxes	2	2.50	Personal service	1	1.25
Chips	2	2.50	Rubber	1	1.25
Construction	2	2.50	Steel	1	1.25
Drug	2	2.50	Telecommunications	1	1.25
Household	2	2.50	Textiles	1	1.25
Lab equipment	2	2.50	Utility	1	1.25
Real estate	2	2.50	Total	80	100

Notes:

[a] See Fama and French (1997) for the industry classification scheme and related SIC codes

reflect the dominance of these industries in the German economy. Overall, our sample firms are representative of a broad cross-section of German companies.

3 Accounting differences between HGB and IAS

HGB, which is typically characterized as stakeholder-oriented and tax-driven (Harris et al. 1994; Hung 2000; Leuz and Wustemann 2004), differs substantially from IAS, which is shareholder-oriented and independent of tax reporting considerations. The different objectives of these alternative accounting systems have several important implications for the accounting choices allowed under each system. First, HGB encourages a "prudent" approach to asset valuation and liability recognition to facilitate contracting with stakeholders, while IAS promotes "true and fair" presentation of balance sheets to facilitate decision making for investors. For example, HGB does not allow capitalization of internally developed intangibles or research and development costs (R&D) (Coopers and Lybrand 1993). In contrast, IAS allows capitalization if certain criteria are met. Second, HGB permits flexibility in measuring assets at their lowest possible value to minimize tax liability, while IAS constrains such flexibility. For example, HGB allows tax-based accelerated depreciation methods for property, plant, and equipment while IAS does not. Third, HGB is characterized by income smoothing through the use of reserves to dampen fluctuations in income and also through delayed and gradual recognition. IAS, on the other hand, is more fair value-oriented and therefore likely to incorporate the effects of economic events into the financial statements in a faster but more volatile manner (Alexander and Archer 2001; Coopers and Lybrand 1993; GAAP 2000). Table 2 summarizes the key accounting differences between HGB and IAS.

3.1 Differences in book value of equity and net income based on reported reconciliation disclosures

We obtain information regarding the incidence and magnitude of specific differences between HGB and IAS from voluntary reconciliation disclosures that a subset of our sample firms provide in the years surrounding their IAS adoption. We find that a substantial proportion of our sample firms provide information on book value reconciliation, while relatively fewer firms provide information on net income reconciliation.[14] Specifically, we obtain 57 firm-year observations on book value reconciliations and 31 firm-year observations on net income reconciliations for our sample of 80 firms.[15] Appendix 1 details reported reconciliations for BMW

[14] We note that while firms with a book value or net income reconciliation likely differ from those without a reconciliation in terms of firm size or investor base, we do not expect the differences to affect our overall inferences: Our conclusions regarding accounting differences are based on the interpretation of the accounting standards.

[15] Five (three) firms provide a book value (net income) reconciliation for two separate years. We note that the years for which firms provide reconciliation adjustments vary. While most firms provide reconciliation adjustments on the beginning balance of book values in their annual reports of the IAS adoption year, some firms provide such information on the ending balance of book values. Thus, the reconciliation adjustments reported in Panel A of Table 3 do not necessarily pertain to the same years used in our primary analyses.

Table 2 Summary of accounting standards differences between HGB and IAS

Accounting treatment	HGB	IAS
Goodwill	May be capitalized or offset against equity. Negative goodwill may only be released in restricted cases.	Capitalized.
Inventory	Wide range of options for capitalization of manufacturing costs between direct and full costs.	Systematic allocation of the production overhead costs is required.
Financial instruments	Lower of cost or market values.	Fair values for certain types of investments.
PP&E revaluation/ depreciation	Revaluation not permitted. Additional tax-based accelerated depreciation allowed.	Revaluation permitted.
Developed intangible, R&D	Not capitalized.	Capitalized if criteria are met.
Leases	Largely based on tax rules. Seldom capitalized as finance lease.	Capitalized as finance lease if criteria are met.
Provisions	Recognized on the basis of prudent management judgment, resulting in the opportunity to set up hidden reserve more easily.	Recognized when probable and can be reasonably estimated.
Pensions	Largely based on tax rules. In most cases: Discount rate fixed at 6% No consideration of expected future compensation levels.	The actuarial present value of promised retirement benefits should be recorded using either current or projected salary levels.
Percentage of completion	Not permitted.	Yes.
Foreign currency translation adjustment	According to the principle of prudence, no recognition of unrealized gains.	Unrealized gains or losses should be recognized, with exception for long-term monetary assets.

Source: Alexander and Archer (2001), Coopers and Lybrand (1993), and GAAP (2000)

and Washtec AG, two firms that disclose both book value and net income reconciliation adjustments.

Panel A of Table 3 reports detailed reconciliation adjustments separately for book value of equity and net income. We classify adjustments into ten categories (categories are identified as those with a minimum of ten observations), and we group all other adjustments under "other." If a firm does not specifically report an adjustment for a given category, we assign a value of zero for the corresponding firm-category.[16] We report descriptive statistics separately for book value of equity and net income measured under IAS and HGB as well as for each of the adjustment categories.

[16] While companies might include these items in the "other adjustments" category, we assume items included in this category are generally immaterial.

Table 3 Descriptive statistics on the reconciliation adjustments and key accounting measures, HGB versus IAS[a]

Panel A: Descriptive statistics on the book value and net income reconciliation adjustments between HGB and IAS

Book value reconciliation (N = 57 firm-years)

	BV_HGB	Def. taxes	Pensions	PP&E	Provisions	GW	Inventory	Leases	Rec.	Fin. inst.	Int. /R&D	Other	BV_IAS	BV_ IAS-HGB
Mean	839.98	0.28	−76.73	180.34	116.32	1.88	26.41	27.37	−0.08	6.57	128.49	1.06	1,252.64	412.66
Std. dev.	1,657.06	275.20	150.43	517.94	472.67	77.49	133.21	273.87	28.88	193.72	604.72	181.91	3,156.82	1,639.18
25th pctile	55.73	−2.44	−48.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	−2.93	50.03	−0.18
Median	169.98	0.48	−7.70	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	231.25	8.86
75th pctile	634.52	20.04	0.00	101.00	19.95	0.13	0.63	0.00	0.00	0.00	0.00	6.09	871.05	95.82
% Positive	100%	58%	5%	60%	46%	30%	30%	19%	16%	16%	18%	40%	100%	72%
% Negative	0%	37%	67%	11%	18%	19%	16%	21%	9%	7%	0%	44%	0%	28%
% Non-zero	100%	95%	72%	70%	63%	49%	46%	40%	25%	23%	18%	84%	100%	100%

Net income reconciliation (N = 31 firm-years)

	NI_HGB	Def. taxes	Pensions	PP&E	Provisions	GW	Inventory	Leases	Rec.	Fin. inst.	Int. /R&D	Other	NI_IAS	NI_ IAS-HGB
Mean	143.10	−6.71	−0.00	18.98	−47.19	2.35	2.17	28.35	−1.78	1.81	19.47	4.55	165.00	21.90
Std. dev.	406.83	51.34	15.21	111.80	193.47	16.55	12.41	121.76	22.37	10.06	74.26	21.95	506.57	106.08
25th pctile	1.40	−3.41	0.00	−0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	−1.58	0.50	−11.13
Median	3.87	−0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.59	0.01
75th pctile	77.40	0.19	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.28	84.66	5.05
% Positive	87%	26%	19%	32%	10%	19%	6%	23%	10%	6%	23%	45%	81%	52%
% Negative	13%	55%	19%	32%	19%	19%	16%	26%	10%	3%	3%	42%	19%	45%
% Non-zero	100%	81%	39%	65%	29%	39%	23%	48%	19%	10%	26%	87%	100%	97%

Table 3 continued

Panel B: Descriptive statistics on key accounting measures according to HGB and IAS[b]

	N	Mean		Median		Std. dev.	
		HGB	IAS	HGB	IAS	HGB	IAS
TA	81	3,446.07	3,936.73	358.93	495.97	10,554.16	12,289.10
		(0.04)		(<0.01)		(0.18)	
TL	81	2,793.81	2,995.75	231.34	314.50	9,052.23	9,580.55
		(0.17)		(<0.01)		(0.61)	
BV	84	652.69	929.88	126.85	130.78	1,546.21	2,700.08
		(0.05)		(<0.01)		(<0.01)	
Sales	81	4,319.86	4,298.75	504.97	504.99	11,832.53	11,692.87
		(0.61)		(0.91)		(0.92)	
NI	84	94.92	103.07	9.30	6.43	266.81	331.92
		(0.32)		(0.04)		(0.05)	

Notes:

[a] All numbers are in Euro million

[b] The difference in means is based on pairwise *t*-tests. The difference in medians is based on signed rank tests. The difference in standard deviations is based on *t*-tests. Two-tailed *p*-values are in parentheses

Variable definitions: BV_HGB is book value of equity under HGB; BV_IAS is book value of equity under IAS; BV_IAS-HGB is book value under IAS minus book value under HGB; NI_HGB is net income under HGB; NI_IAS is net income under IAS; NI_IAS-HGB is net income under IAS minus net income under HGB; TA is total assets; TL is total liabilities; BV is book value of equity; Sales is sales revenue; and NI is net income

3.1.1 *Differences in book value of equity*

Panel A of Table 3 reports that book value of equity under IAS is larger, on average, than that under HGB. Both the mean and median book values under IAS (€1,253 million and €231 million, respectively) are larger than those under HGB (€840 million and €170 million, respectively).[17] This is consistent with HGB producing more conservative balance sheets than IAS. Additionally, the standard deviation of book value of equity under IAS is nearly double that under HGB (€1,657 million under HGB versus €3,157 million under IAS), indicating that adopting IAS increases cross-sectional variation. This is consistent with the fair-value orientation of IAS, as fair values likely magnify differences across companies.

We next discuss major book value reconciliation categories in the order of reporting frequency (that is, number of firms that report the reconciliation type):

Deferred Taxes. Deferred taxes comprise the most frequent adjustment item, reported in 95% of the observations. Deferred tax differences arise because IAS eliminates tax-book conformity, which potentially affects every company. The average effect is deceptively small (mean of €0.28 million), given the relatively large standard deviation of €275 million, due to the presence of both book-value increasing (that is, creation of deferred tax assets) and book-value decreasing (that is, creation of deferred tax liabilities) adjustments.

Pensions. Pension adjustments are also fairly common (72% of the observations have pension adjustments). IAS pension adjustments tend to generally reduce book values (the mean reduction is €77 million). This effect likely arises from an increase in pension liabilities under IAS because, unlike HGB, IAS considers expected future compensation levels in determining pension liabilities.

Property, Plant, and Equipment (PP&E). IAS adjustments related to PP&E are also relatively common (70% of observations) and on average increase book value of equity (mean of €180 million). This suggests that PP&E values are higher under IAS than under HGB, probably because of the elimination of tax-based accelerated depreciation methods. For example, Volkswagen states in its 2001 Annual Report: "Movable tangible assets are depreciated using the straight line method instead of the declining balance method...Furthermore, useful lives are now based on commercial substance and no longer on tax law. Special depreciation for tax reasons is not permitted in IAS." (Volkswagen 2001 Annual Report, p. 85).

Provisions. IAS allows less flexibility in recognizing provisions than HGB, thereby decreasing opportunities to set up hidden reserves to smooth income, an allegedly common practice in Germany (Celarier 1993; Joos and Lang 1994). The corresponding reductions in provisions result in an average increase in book value of equity (mean of €116 million) upon IAS adoption. For example, BMW states in its 2001 Annual Report that "provisions may only be recognised under IAS if an enterprise has a present obligation (legal or constructive) to a third party and outflow of resources is probable ("more likely than not")... Provisions are measured for

[17] Since the descriptive statistics in Panel A of Table 3 are based on a subset of our sample, we do not report the statistics tests on the differences between book value and net income in this panel. We report results from such statistical tests for our full sample in Panel B of Table 3.

HGB purposes on the basis of prudent management judgment, for IAS purposes at their most probable amount." (BMW 2001 Annual Report, p. 61).

Goodwill. The adjustment related to goodwill on average increases book value of equity by €2 million. The increase in book value likely results from capitalizing goodwill that was previously offset against equity. This is because HGB allows goodwill to be offset against equity reserves while IAS requires goodwill to be capitalized and amortized. Although about 50% of the companies report goodwill adjustments, the magnitudes of these adjustments are generally small.

Inventory. HGB allows inventory to be valued at various combinations of direct and full cost. In contrast, IAS requires inventory to be valued at full cost. Thus, adopting IAS generally increases inventory values, resulting on average in an increase (mean of €26 million) in book value of equity.

Leases. The adjustment related to leases on average increases book value of equity (mean of €27 million), suggesting an increase in net assets related to leases when firms switch from HGB to IAS. This adjustment is likely due to the capitalization of finance leases required by IAS.[18] For example, Washtec discloses in its 2001 Annual Report that the €0.26 million book value adjustment on lease contracts is due to "capitalising the asset value and remaining liability of financing leases in accordance with the allocation criteria of IAS 17." (Washtec 2001 Annual Report, p. 42).

Receivables. The adjustment related to receivables on average decreases book value of equity by €0.08 million. The change is miniscule and likely due to differences in the reduction rates recognized under HGB and IAS. For example, Baywa discloses in its 2002 Annual Report: "In the case of trade receivables, the overall adjustment applied to financial statements prepared under German commercial law, which is generally based on reduction rates recognized for tax purposes, was replaced by a standardized reduction calculated on the basis of the age structure" (Baywa 2002 Annual Report, p. 56).

Financial Instruments. The adjustment related to financial instruments on average increases book value of equity by €7 million, suggesting an increase in asset value for financial instruments when firms switch from HGB to IAS. The increase is likely because HGB requires lower of cost or market values for financial instruments, while IAS generally uses fair values. For example, Volkswagen reports that "securities are recorded at their fair value, even if this exceeds cost, with the corresponding effect in the income statement." (Volkswagen 2001 Annual Report, p. 85).

Intangibles/Research & Development Costs (R&D). The adjustment related to intangibles and R&D on average increases book value of equity by €128 million. This is likely due to capitalization of internally developed intangibles and development costs required by IAS, another feature of fair-value accounting. While

[18] Note that lease capitalization creates compensating assets and liabilities on the balance sheet. The increase in book value likely occurs because the capitalized assets exceed the liability, which usually happens in the later stages of the lease for the lessee (and in the early stages for the lessor).

the occurrence of this item in the reconciliation adjustments is relatively infrequent (only 18% of the observations), the effect is extremely large when it occurs. For example, capitalization of development costs, at €2 billion, is the largest book value reconciliation adjustment for BMW (see Case 1 of Appendix 1), accounting for over 40% of the increase in book value from adopting IAS.

3.1.2 Differences in net income

Panel A of Table 3 shows that net income is slightly larger under IAS than under HGB: the mean (median) net income under IAS is €165 (5) million versus €143 (4) million under HGB. In addition, the standard deviation of net income increases from €407 million under HGB to €507 million under IAS .

The average effects of net income reconciliation items are generally in the same direction as those of book value reconciliation items, except for the adjustments related to provisions and deferred taxes. We note that the accounting differences do not necessarily change book value and net income in the same direction because book value captures the cumulative effect of accounting differences whereas net income captures the effect during the fiscal year. For example, while the change from tax-based accelerated depreciation methods to straight-line depreciation methods will increase book value of PP&E and therefore increase book value of equity, it will generally decrease (increase) depreciation expense and therefore increase (decrease) net income in the earlier (later) stage of PP&E's useful life.

Since the net income adjustments result from the same accounting differences described in Sect. 3.1.1, we only provide a brief description of the five most frequent adjustment items:

Deferred Taxes. As expected, deferred taxes represent the most frequent net income adjustment item, reported in 81% of observations. In addition, IAS expense adjustments related to deferred taxes on average reduce net income by €7 million.

Property, Plant, and Equipment (PP&E). IAS adjustments related to PP&E on average increase net income by €19 million, indicating a decrease in depreciation expense related to PP&E during the reporting period.

Leases. IAS adjustments related to leases on average increase net income by €28 million, indicating a decrease in expenses (such as interest and depreciation expenses related to the lease) during the reporting period.

Pensions. While IAS adjustments related to pensions are relatively frequent, the average effect on net income is miniscule (the mean and median are both less than one Euro million). The small effect in net income suggests that most of the increase in pension liability is reflected in its opening balance for the reporting period.

Goodwill. IAS adjustments related to goodwill on average increase net income by €2 million, indicating a decrease in goodwill amortization expense during the reporting period.[19]

[19] While this might seem surprising given that average goodwill increases in the balance sheets, we note that the effect of the accounting difference related to goodwill on net income during the reporting period depends not only on the total amount of capitalized goodwill but also on the amortization schedule.

3.2 Full-sample differences in financial statement measures

In Panel B of Table 3 we report descriptive statistics regarding key balance sheet (total assets, total liabilities, and book value of equity) and income statement (sales revenue and net income) variables measured alternatively under IAS and HGB and the statistical significance of the differences for our full sample of 84 firm-years. With respect to the balance sheet items, we find that *both* total assets and total liabilities are higher under IAS than under HGB: the mean (median) total assets under IAS is significantly higher than that under HGB at $p \leq 5\%$ ($p \leq 1\%$), while mean (median) total liabilities under IAS is higher than that under HGB at $p = 17\%$ ($p \leq 1\%$).[20] This implies that IAS recognizes more asset and liability items on the balance sheet or that it measures them at higher values, probably because of its fair-value orientation. In addition, book value of equity is larger under IAS than under HGB: the mean (median) book value under IAS is €930 (131) versus €653 (127) million under HGB, with the difference significant at $p \leq 5\%$ ($p \leq 1\%$). These results are consistent with the common view that HGB-generated balance sheets are more conservative than those generated under IAS.

Turning to the income statement, we do not find significant differences in revenue under HGB and IAS, which is not surprising because there are relatively few differences in revenue recognition across the two systems. Additionally, while median net income under IAS is significantly lower than that under HGB at $p \leq 5\%$, mean net income is not significantly different between the two systems at the conventional levels.

Interestingly, Panel B of Table 3 shows that IAS generates greater cross-sectional variability in both balance sheet and income statement measures. In particular, the standard deviation of book values under IAS is almost twice that under HGB (difference significant at $p \leq 1\%$). The standard deviation in net income is also significantly higher under IAS than under HGB (difference significant at $p \leq 5\%$), although the magnitude of the difference is less striking. These results imply that IAS (HGB) tends to magnify (diminish) differences across companies, which could be a consequence of its greater fair-value orientation (smoothing orientation).

3.3 Summary and inferences

In summary, we find that switching to IAS results in widespread changes relating to deferred taxes, pensions, PP&E, and loss provisions. While less widespread, adjustments relating to intangibles/R&D are economically significant for certain firms. In addition, our analyses of key accounting variables under IAS and HGB shows that total assets and book value of equity are significantly larger under IAS than under HGB and that cross-sectional variation in book value and net income are

[20] While we have 84 observations for book value of equity and net income, we only have 81 observations for other key accounting numbers. This is because we are not able to obtain restated total assets, total liabilities, and sales revenue numbers from book value and net income reconciliation adjustments. (Recall that in the sample selection description, we gather three additional observations on book value of equity and net income from firms that disclose two-year book value and net income reconciliations.)

significantly higher under IAS than under HGB. Overall, our analyses are consistent with the view that, relative to HGB, IAS is balance sheet-focused and fair value-oriented (Ernst and Young 2004). While HGB emphasizes the prudence principle and income smoothing (for example, limited recognition of assets and frequent use of discretionary loss provisions), IAS focuses on fair-value accounting (for example, use of fair value for financial instruments and recognition of internally developed intangibles).

4 Controlling for self-selection bias

Our sample companies voluntarily adopt IAS and therefore do not represent a random selection of German firms. Although we examine the differential properties of IAS versus HGB for the same set of firm-years, it is still possible that our results are affected by self-selection bias. To control for the effects of self-selection, we implement the two-stage regression procedure suggested by Heckman (1979) in all subsequent analyses in this paper (Sects. 5–7). In the first stage, we model our sample firms' decision to adopt IAS. In the second stage we include the Inverse Mills Ratio from the first stage as an additional explanatory variable in the price and returns regressions in our value relevance and asymmetric timeliness analyses. In this section, we provide descriptive data regarding our sample firms' characteristics and describe the first-stage analysis of the Heckman procedure.

We use a probit model to analyze our sample firms' decisions to adopt IAS. The dependent variable in our probit model equals 1 for an IAS adopter (that is, our sample firm-years) and 0 for a non-adopter (that is, German companies using HGB during our sample period, where we include only one randomly selected annual observation for each firm in our analysis). Following prior studies such as Harris and Muller (1999) and Leuz (2003), we predict that the decision to adopt IAS is a function of the following factors: (1) financial performance, measured as return on assets, (2) leverage, measured as total liabilities divided by book value of equity, (3) firm size, measured as the natural logarithm of the market value of equity, (4) financing needs, measured by cross-listing in the United States and an increase in common stock or long-term debt, and (5) industry membership, measured as indicator variables based on 2-digit SIC codes. In addition, since the decision to adopt IAS could vary over time, we also include separate indicator variables for the years between 1998 and 2001.

More formally, we begin by estimating the following probit model:

$$\begin{aligned} \text{Select}_{it} = & a_0 + a_1 \text{ROA}_{it} + a_2 \text{LEV}_{it} + a_3 \text{Size}_{it} + a_4 \text{Cross - listed}_{it} + a_5 \text{CS\_D}_{it} \\ & + a_6 \text{Debt\_D}_{it} + a_m(\Sigma \text{DIndustry}) + a_n(\Sigma \text{DYear}) + e_{it} \end{aligned} \quad (1)$$

where Select_{it} is the indicator variable equal to 1 for the sample firms and 0 otherwise. ROA_{it} is return on assets, which equals net income divided by total assets. LEV_{it} is leverage, which equals total liabilities divided by book value of equity. Size_{it} is firm size, which equals the natural logarithm of the market value of

equity. Cross-listed$_{it}$ is indicator variable equal to 1 if the firm is included in the 2004 J.P. Morgan ADR list and the years are greater than the effective date for the ADR program. CS_D$_{it}$ is indicator variable equal to 1 if there is an increase in the par value of common stock during the year. Debt_D$_{it}$ is indicator variable equal to 1 if there is an increase in long-term debt during the year. Dindustry is indicator variables indicating a firm's industry membership based on the 2-digit SIC codes; for ease of presentation, industry dummy coefficients are suppressed. DYear is indicator variables for years; for ease of presentation, year dummy coefficients are suppressed.

We estimate this probit regression on a sample of 484 observations, which comprise 84 IAS adopters and 400 control firms that use HGB over the same period as our IAS adopters. Panel A of Table 4 reports descriptive statistics relating to the independent variables used in our probit regression. We find that the mean (median) differences on Size, Cross-listed, CS_D, and Debt_D are significant at better than $p = 10\%$ based on t-tests (Wilcoxon tests). The descriptive statistics suggest that IAS adopters are larger, more likely to cross-list in the United States, and have a greater propensity to raise capital than the typical German firm. Panel B of Table 4 reports the results of our probit regression. We find that the coefficients on Size and CS_D are significantly positive at better than $p = 10\%$. Overall, our estimation results are consistent with larger firms and firms with greater financing needs more likely adopting IAS.

Using the first-stage probit estimation, we compute the Inverse Mills Ratio, denoted by Lambda, for each of the 84 firm-years in our primary sample. We then include Lambda in all our subsequent regression models. Hence, all our subsequent analyses control for self-selection bias using the Heckman (1979) two-stage procedure.

5 Value relevance of German (HGB) and IAS accounting measures

In this section, we examine the value relevance of summary accounting measures—book value and net income—measured alternatively under HGB and IAS. By value relevance we refer to the ability of summary accounting measures to reflect the underlying economic value of the firm, which we measure through contemporaneous stock prices. We do not seek to address whether alternative measures differentially *affect* stock prices, that is, differentially revise investors' beliefs. Rather, we use stock prices as parsimonious proxies for users' expectations of future cash flows and test which accounting measurement regime better maps these expectations as reflected in stock prices (Barth et al. 2001).

Researchers in the past have used either levels (price) or changes (returns) specifications for examining value relevance issues. The price specification is economically better specified than the returns specification (Kothari and Zimmerman 1995). An additional advantage of the price specification is that it is possible to examine the value relevance of both the stock (book value) and flow (net income) variables. Since a major focus of IAS is the balance sheet and we document significant differences between HGB and IAS in both book values and net income,

Table 4 IAS adoption choice

Panel A: Descriptive statistics for IAS and HGB firms

	Observations	*N*	Mean	Median	Std. dev.	*t*-test *p*-value[a], *Wilcoxon p-value*[b]
ROA	IAS sample	84	0.02	0.03	0.07	0.03
	HGB firms	400	−0.00	0.02	0.13	*0.18*
LEV	IAS sample	84	2.99	2.60	2.64	0.18
	HGB firms	400	3.58	2.02	6.51	*0.12*
Size	IAS sample	84	5.91	5.63	1.89	<0.01
	HGB firms	400	4.66	4.54	1.85	*<0.01*
Cross-listed	IAS sample	84	0.06	0.00	0.24	0.08
	HGB firms	400	0.01	0.00	0.11	*0.01*
CS_D	IAS sample	84	0.71	1.00	0.45	<0.01
	HGB firms	400	0.54	1.00	0.50	*<0.01*
Debt_D	IAS sample	84	0.43	0.00	0.50	0.02
	HGB firms	400	0.30	0.00	0.46	*0.02*

Table 4 continued

Panel B: IAS adoption choice model

Probit model: $Select_{it} = a_0 + a_1 ROA_{it} + a_2 LEV_{it} + a_3 Size_{it} + a_4 Cross\text{-}listed_{it} + a_5 CS\_D_{it} + a_6 Debt\_D_{it} + a_m(\Sigma DIndustry) + a_n(\Sigma DYear) + e_{it}$

	Intercept	ROA	LEV	Size	Cross-listed	CS_D	Debt_D	Industry dummy variables	Year dummy variables	Pseudo R^2%	*N*
Coeff. (Two-tailed *p*-values)	−7.73 (1.00)	0.10 (0.91)	−0.01 (0.71)	0.21 (<0.01)	0.09 (0.85)	0.46 (0.02)	0.19 (0.28)	Included	Included	23.9	484

Notes:

[a] The *t*-test tests the null hypothesis that the mean difference is zero

[b] The Wilcoxon test, a nonparametric statistical method, tests the null hypothesis that the median difference is zero

Variable definitions: ROA is return on assets, which equals net income divided by total assets; LEV is leverage, which equals total liabilities divided by book value of equity; Size is firm size, which equals the natural logarithm of the market value of equity; Cross-listed is a dummy variable equal to 1 if the firm is included in the 2004 J.P. Morgan ADR list and the years are greater than the effective date for the ADR program; CS_D is a dummy variable equal to 1 if common stocks at par increase during the year; Debt_D is dummy variable equal to 1 if long-term debts increase during the year; Select is a dummy variable equal to 1 for the sample firms and equal to 0 otherwise; Dindustry = Dummy variables indicating a firm's industry membership based on the 2-digit SIC codes; and DYear = Dummy variables for years

we examine the combined value relevance of both book value and net income. This is especially important if there is a trade-off between the value relevance of book value and net income, that is, if IAS improves the value relevance of book values at the expense of net income.[21] Accordingly, we adopt a price specification in this section. The major disadvantage of the price specification is that it is prone to econometric problems that largely arise from heteroskedasticity and scale bias (Kothari and Zimmerman 1995). To address this concern, we perform sensitivity tests after deflating all variables by lagged market values and find that our results are largely qualitatively unchanged (see Sect. 7.5).

We first compare the relative value relevance of book values and net income alternatively measured under HGB and IAS. Relative value relevance tests compare the ability of measurements under each alternative system to reflect economic information incorporated in stock prices, that is, when information from only one of the two alternative systems is available. Relative value relevance tests are particularly appropriate in our context, because firms that switch to IAS discontinue reporting HGB measurements. We also examine the incremental value relevance of the adjustments made by IAS to HGB book values and net income. Incremental value relevance tests evaluate the ability of IAS measures to reflect information beyond that in the HGB measurements, that is, when both sets of information are simultaneously available. While both the HGB and IAS numbers are not expected to be available simultaneously for firms after the transition period, the incremental value relevance tests allow us to specifically evaluate the value relevance of the adjustments made to the existing HGB measures when adopting IAS.[22]

5.1 Relative value relevance

When income is neither transitory nor permanent, the correct specification is a model in which price is regressed on both book value of equity and net income (Ohlson 1995). Accordingly, our basic model for testing relative value relevance is:

$$P_{it} = a_0 + a_1 BV_{it} + a_2 NI_{it} + a_3 Lambda_{it} + e_{it} \quad (2)$$

where P_{it} is the total market value of equity for the ith firm at the end of year t. BV_{it} is book value of equity (excluding minority interest), alternatively measured under the IAS and HGB methods. NI_{it} is income before extraordinary items, alternatively measured under the IAS and HGB methods. $Lambda_{it}$ is Inverse Mills Ratio in the Heckman two-stage regression model (Heckman 1979).

[21] While income under fair-value accounting is less persistent and hence unlikely to correlate better with stock prices, it can be argued that it measures the change in the value of net assets of the firm and should therefore correlate better with returns. Therefore, it also could be argued that income under fair-value accounting is more value relevant in the sense of explaining returns. Our tests of income timeliness in Sect. 6 alleviate these concerns.

[22] Biddle et al. (1995) show that *relative* value relevance and *incremental* value relevance are conceptually distinct. It is possible that two measures (such as NI_HGB and NI_IAS) are incrementally value relevant with respect to each other even though there are no differences in relative value relevance. Therefore, our incremental value relevance tests provide additional evidence that cannot be inferred from the relative value relevance analyses.

All numbers are in Euro million.

Panel A of Table 5 reports results of our relative value relevance analyses. We run two sets of regressions, one with HGB measures and the other with IAS measures. We also report differences in coefficients and adjusted-R^2s across the HGB and IAS models. To control for the effect of influential observations, we delete observations with absolute studentized residual values above 2 for each of our regression models (Belsley et al. 1980). To maintain a comparable sample, we ensure that each pair of regressions (that is, alternatively with HGB and IAS measures) have identical observations. Thus, the observations used in the regression estimates are those with absolute studentized residuals below (or equal to) 2 under both the HGB and IAS regression models.[23]

As in prior studies (e.g., Biddle et al. 1995; Lev 1989), we measure value relevance as the explanatory power of accounting measures for market values. We find that the explanatory power of book value and net income is 84.1% under HGB, versus 79.6% under IAS. The Vuong statistics (Vuong 1989) suggest that the difference in explanatory power is significant at $p \leq 10\%$ (two-tailed).[24] These results imply that the combined value relevance of IAS book value of equity and income is marginally *lower* than that of HGB. These results are consistent with greater measurement error in the IAS measures.

We next examine the pricing weights (coefficients) on book value and net income. The results provide two important insights into the differences between HGB and IAS measures. First and most striking is the extent to which the income coefficients are different under the two systems: the income coefficient is 10.57 under HGB versus 0.18 under IAS, and the difference is statistically significantly at $p \leq 1\%$ (two-tailed).[25] Second, while less pronounced, the IAS book value coefficient (1.55) is larger than that under HGB (0.83), with the difference significant at $p \leq 5\%$ (two-tailed). The higher book value and lower income coefficients under IAS vis-à-vis HGB are consistent with lower income persistence under IAS (Ohlson 1995).[26]

[23] We replicate our analysis for alternative truncation rules that are less stringent, including the full sample (i.e., without truncation). Our results (not reported) are qualitatively similar in these replications, although statistical significance is lower, as might be expected. Most of our analyses have low power because of the relatively small sample sizes in our paper compared with typical market-based analyses.

[24] The Vuong (1989) statistic has been used extensively in accounting research to test for significant differences in R^2 across different regressions. The Vuong (1989) test is a likelihood-ratio test of non-nested difference in explanatory power between two models, under the null hypothesis that either model is "true." The only two requirements of the test are that the dependent variable must be identical across the two models and the regression models should be non-nested.

[25] We test the difference in coefficients based on *t*-tests generated from "stacked" regressions. These *t*-statistics are generated using strong assumptions, such as equality of residual variances across the two regressions and normality. Accordingly, we apply a bootstrapping approach as an alternative significant test and find that our results are qualitatively unchanged (see Sect. 7.4).

[26] To corroborate the result that IAS income is less persistent, we examine first-order autocorrelation in income before and after IAS adoption by our sample firms. Consistent with our pattern of pricing coefficients, we find that the autocorrelation in income drops significantly after adoption of IAS, suggesting that income under IAS is significantly less persistent.

Table 5 Relative and incremental value relevance of German (HGB) and IAS book value and net income[a]

Panel A: Relative value relevance of book value and net income under HGB and IAS

Regression Model: $P_{it} = a_0 + a_1 BV_{it} + a_2 NI_{it} + a_3 Lambda + e_{it}$

	Intercept	BV	NI	Lambda	Adj. R^2%	*N*
HGB	692.17 (0.03)	0.83 (<0.01)	10.57 (<0.01)	−422.77 (0.08)	84.1%	80
IAS	1379.49 (<0.01)	1.55 (<0.01)	0.18 (0.92)	−915.81 (<0.01)	79.6%	80
IAS-HGB		0.72 (0.05)	−10.39 (<0.01)		−4.5% (0.09)	

Panel B: Incremental value relevance of IAS adjustments to book value and net income

Regression Model: $P_{it} = a_0 + a_{11} BV\_HGB_{it} + a_{12} BV\_DIF_{it} + a_{21} NI\_HGB_{it} + a_{22} NI\_DIF_{it} + a_3 Lambda_{it} + e_{it}$

	Intercept	BV_HGB	BV_DIF	NI_HGB	NI_DIF	Lambda	Adj. R^2%	*N*
Coeff. (Two-tailed *p*-values)	545.05 (0.07)	0.46 (0.09)	0.56 (0.09)	13.68 (<0.01)	−12.00 (<0.01)	−353.95 (0.11)	87.7%	80

Notes:

[a] Two-tailed *p*-values are in parentheses. The tests in coefficients are based on *t*-tests. The tests in adjusted-R^2s are based on Vuong tests (Vuong 1989)

Variable definitions: P is total market value of equity at year end; BV is book value of equity; NI is net income; BV_HGB is book value of equity under HGB; BV_DIF equals book value of equity under IAS minus book value of equity under HGB; NI_HGB is net income under HGB; NI_DIF equals net income under IAS minus net income under HGB; and Lambda is the Inverse Mills Ratio in the Heckman two-stage regression model (Heckman 1979)

5.2 Incremental value relevance

Our primary model for examining incremental value relevance is:

$$P_{it} = a_0 + a_{11}BV\_HGB_{it} + a_{12}BV\_DIF_{it} + a_{21}NI\_HGB_{it} + a_{22}NI\_DIF_{it} + a_3Lambda_{it} + e_{it} \quad (3)$$

where P_{it} is the total market value of equity for the ith firm at the end of year t. BV_HGB_{it} is book value of equity (excluding minority interest) under HGB. BV_DIF_{it} is book value of equity under IAS—book value of equity under HGB. NI_HGB_{it} is income before extraordinary items under HGB. NI_DIF_{it} is income before extraordinary items under IAS—income before extraordinary items under HGB. $Lambda_{it}$ is Inverse Mills Ratio in the Heckman two-stage regression model (Heckman 1979). All numbers are in Euro million.

Panel B of Table 5 reports results of our incremental value relevance analyses. As in the relative value relevance analyses, we delete observations with absolute studentized residual values above 2 in the regression model to control for outliers. We find that the coefficient on book value adjustments is significantly positive at $p \leq 10\%$ (two-tailed), which suggests that IAS adjustments to book value are incrementally value relevant. The coefficient on net income adjustments is significantly negative at $p \leq 1\%$ (two-tailed). The significant and negative coefficient on the IAS income adjustments is consistent with greater noise (measurement error) in the IAS income measure vis-à-vis the HGB income measure (Barth and Clinch 1996; p. 165). Overall, our results suggest that IAS adjustments to book value have incremental value relevance but IAS adjustments to income actually impair value relevance.

5.3 Summary and inferences

In summary, we document the following results related to the value relevance of two IAS and HGB summary financial statement measures, namely, book value and net income. First, there is little evidence suggesting that IAS improves the combined value relevance of book value and net income. Second, the pricing weight on HGB income is orders of magnitude higher than that of IAS income, while the pricing weight on IAS book value is higher than that on HGB book value. Finally, IAS book value adjustments are incrementally value relevant, but IAS income adjustments add noise to the income measure.

Our results suggest the following. First, IAS income is entirely transitory while HGB income is highly persistent, and thus income (book value) plays a more important valuation role under HGB (IAS). This is consistent with practitioner claims that IAS emphasizes the balance sheet, is more fair value-oriented, and allows less income smoothing (for example, Ernst and Young 2004). Second, while it is possible that the fair-value orientation of IAS reduces bias (that is, conservatism) in book value and income, it introduces more measurement error,

especially in income. Consequently, the combined value relevance of book value and income is marginally lower under IAS.

6 Asymmetric timeliness of German (HGB) and IAS income

In Sect. 5 we provide evidence consistent with IAS' fair-value orientation reducing income persistence. However, it is also possible that the fair-value orientation improves the ability of IAS income to incorporate economic events in a timely manner. Accordingly, in this section we compare the timeliness and asymmetric timeliness of IAS and HGB income. Following prior studies, we define *income timeliness* as the ability of net income to incorporate contemporary economic events (Ball et al. 2000) and *asymmetric income timeliness* (or *income conservatism*) as the ability of accounting income to asymmetrically incorporate contemporary economic losses in a more timely manner than economic gains (Ball et al. 2000; Basu 1997). As in prior research, we measure contemporaneous economic events through the 12-month stock return over the fiscal year. As with the value relevance analyses, we assume that stock prices incorporate the effects of economic events in a timely manner, independent of how these events are reported in the financial statements (for example, Basu 1997).

Specifically, we estimate the following model:

$$NI_{it} = a_0 + a_1 RET_{it} + a_2 NEG_{it} + a_3 RET_{it} * NEG_{it} + a_4 Lambda_{it} + e_{it} \quad (4)$$

where NI_{it} is the net income for the ith firm at the end of year t, scaled by lagged market value. RET_{it} is 12-month holding period returns over the fiscal year. NEG_{it} is dummy variable equal to 1 if RET is less than zero and 0 otherwise. $Lambda_{it}$ is Inverse Mills Ratio in the Heckman two-stage regression model (Heckman 1979). All numbers are in Euro million.

Net income is alternatively measured under IAS and HGB. As in Ball et al. (2000), we evaluate income timeliness by the adjusted-R^2 of the estimation model and income conservatism by a_3, the incremental response to bad news relative to good news. As in our previous analyses, we delete observations with absolute studentized residual values above 2 to control for the effect of influential observations.

Table 6 reports results of our income timeliness and conservatism analyses. We note that the number of observations is 60 rather than 80 because of data requirements related to the calculation of stock returns in Compustat Global Issue database. We find that income under IAS records economic events captured in stock returns in a timelier manner than HGB: the adjusted-R^2 for the model with IAS income as the dependent variable is 16.6% vs. 6.0% for the model with HGB income. However, we are unable to test the statistical significance of the difference in adjusted-R^2 because the dependent variables are different.[27]

[27] Cramer (1987) shows that the standard error of R^2 for a sample of 60 and 4 regressors and a "true" R^2 of around 0.33 is about 0.10. Under these distributional assumptions, the R^2 differences between IAS and HGB that we report are unlikely to be statistically significant given our sample size and the R^2s for IAS and HGB.

Table 6 Timeliness and conservatism of income under HGB and IAS[a]

Regression Model: $NI = a_0 + a_1RET + a_2NEG + a_3RET*NEG + a_4Lambda + e_{it}$

	Intercept	RET	NEG	RET*NEG	Lambda	Adj. R^2%	*N*
HGB	0.05 (0.18)	0.01 (0.35)	0.02 (0.63)	0.17 (0.05)	0.04 (0.18)	6.0%	60
IAS	0.02 (0.62)	0.01 (0.47)	0.03 (0.38)	0.25 (<0.01)	0.05 (0.05)	16.6%	60
IAS-HGB		0.00 (0.71)	0.01 (0.66)	0.08 (0.19)		10.6%	

Notes:

[a] Two-tailed *p*-values are in parentheses. The tests in coefficients are based on *t*-tests. The tests in the difference in coefficients are based on *F*-tests

Variable definitions: NI is net income, scaled by lagged market value; RET is 12-month holding period returns over the fiscal year; NEG is a dummy variable equal to 1 if RET is less than zero and equal to 0 otherwise; Lambda is the Inverse Mills Ratio in the Heckman two-stage regression model (Heckman 1979)

The coefficients on the interactive term (a_3) in Table 6 are significantly positive at better than $p \leq 5\%$ (two-tailed) under both the HGB and IAS models, suggesting that both IAS and HGB are conditionally conservative in the sense of asymmetrically recognizing bad news in a more timely manner than good news. However, the difference in the coefficients on these interactive terms (a_3) is not statistically significant at conventional levels, although the magnitude of a_3 under IAS is about 50% larger than under HGB. Thus, while not conclusive, there is weak evidence suggesting that IAS may incorporate bad news into income in a more timely manner than HGB, that is, IAS income is more conditionally conservative.

Overall, we find weak evidence suggesting that IAS income recognizes economic losses in a more timely manner (that is, exhibits greater conditional conservatism) than HGB income.[28] However, these results are not statistically significant at conventional levels.

Our results on asymmetric income timeliness (that is, conditional conservatism) in this section may appear to contradict our analyses in Sect. 3, where we find strong evidence that HGB balance sheets are more conservative than IAS. We note that greater balance sheet conservatism (that is, unconditional conservatism) does not necessarily result in greater income conservatism (that is, conditional conservatism). As Ball et al. (2000) point out, while companies in stakeholder-oriented economies such as Germany generally report lower book values (that is, greater unconditional conservatism), they are also more likely to boost income in bad years and therefore reduce the asymmetric timeliness of accounting income (that is, lower conditional conservatism). In addition, our results suggesting IAS income is weakly timelier than HGB income may appear to contradict our value relevance results that suggest that IAS income is less value relevant. However, we note that in a price model with the presence of book value, income's value relevance arises primarily from its

[28] While speculative, our evidence is consistent with conditional conservatism arising more from the application of rules than the rules themselves, and with institutional factors such as shareholder protection or the legal system playing a more important role than accounting standards in determining conditional conservatism of accounting earnings (Ball et al. 2003). However, these inferences are subject to the alternative explanation that our tests lack power to detect differences in asymmetric timeliness across the two systems.

persistence. Our value relevance results show that IAS income is less persistent, which is consistent with it being more timely in incorporating economic information (Ball et al. 2000; Basu 1997).

7 Additional analyses and robustness tests

7.1 Future price-based tests

In our value relevance and asymmetric timeliness tests, we implicitly assume that stock prices aggregate value relevant information independent of the nature and form of information disclosed in financial statements. While this is a common assumption in market-based accounting research (for example, Basu 1997), it is particularly crucial for our analysis because the restated IAS numbers are not available when we conduct our analyses (note that we conduct our analyses for the year *prior* to IAS adoption). To the extent that IAS adoption actually *affects* stock prices (for example, Karamanou and Nishiotis 2005), our tests are potentially biased because our dependent variable does not incorporate these adoption effects. We mitigate potential bias by examining stock prices (and returns) as of the end of the fiscal year (when the HGB numbers for the year are also unavailable). However, we acknowledge that our results could be potentially biased in favor of HGB to the extent that stock prices are affected by IAS adoption.

To ensure that our inferences are not affected by this problem, we conduct sensitivity tests along the lines proposed by Aboody et al. (2002). Aboody et al. argue that any mispricing of current information (or inability to price information that is not contemporaneously available to the market, as in our case) will be corrected (or incorporated) in future prices, and hence the use of future prices (or future returns) as the dependent variable in the value relevance analysis will correct for any bias that arises from using current prices (or returns). While future prices also reflect the effects of future information (that is, future economic events), such future information merely adds uncorrelated measurement error to the dependent variable and therefore should not affect our inferences. Accordingly, we replicate our value relevance and timeliness analyses by replacing contemporaneous market value (returns) with future market value (returns).

We first replicate our value relevance analyses after replacing contemporaneous market value with market value eight months after the fiscal year-end of the following year as the dependent variable.[29] Results of this sensitivity analysis (not tabulated) are qualitatively similar to our main value relevance results and our overall inferences do not change. Specifically, in the relative value relevance tests, the explanatory power of the model with HGB measures is higher than that with IAS numbers; the coefficient on IAS income is lower than that on HGB income and the coefficient on IAS book value is higher than its HGB counterpart (both significant at

[29] We choose eight months after the fiscal year-end because German companies are required to report their annual earnings to the public within eight months of the fiscal year-end (Alford et al. 1993). Thus, examining eight months after the fiscal year-end of the following year ensures that both IAS and HGB information is available to the stock market.

better than $p = 1\%$, two-tailed). In the incremental value relevance tests, incremental IAS adjustments to book value are value relevant (significant at $p = 10\%$, two-tailed) but adjustments to income are value irrelevant (insignificant at conventional levels). Overall, the results of this sensitivity test suggest that our inferences regarding the value relevance of IAS versus HGB numbers are unlikely to be affected by the inability of prices to incorporate the effects of IAS adoption.

Next, we replicate our income timeliness and asymmetric timeliness analyses after replacing contemporaneous returns with a measure of returns that also includes future returns. Specifically, we extend the return window from a 12-month holding period over the fiscal year to a 32-month holding period starting with the beginning of the current fiscal year and ending eight months after the fiscal year-end of the following year (we choose 32 months to ensure that the IAS news is available to the markets). We measure the dummy variable indicating negative stock returns alternatively based on the 12-month holding period returns and 32-month holding period returns, since we are not sure which is the appropriate return window to measure conservatism. The analysis (not tabulated) generates results qualitatively similar to those reported in our main analysis. Specifically, under both return windows for measuring the conservatism dummy, the adjusted-R^2 under IAS is only slightly higher than that under HGB and the coefficient on the interaction term capturing asymmetric timeliness is not significantly different across IAS and HGB. Thus, our inferences related to income timeliness and conservatism of IAS versus HGB are not affected by the inability of prices to incorporate the effects of IAS adoption.

7.2 Transitioning gradually from HGB to IAS

Lang et al. (2003) note that firms planning to cross-list in the United States may gradually change their accounting reporting behavior before cross-listing. If our sample firms behave as predicted by Lang et al. while planning to adopt IAS, it is possible that our tests—which are conducted for the year prior to adoption—understate differences between IAS and HGB. Barth et al. (2005) suggest that our inability to find that IAS generates more value relevant financial statements than HGB is likely attributable to this phenomenon. We acknowledge this weakness in our study. However, as we show in this section, it is unlikely that our results are driven by this effect.[30]

To begin, we highlight the significant differences between HGB and IAS in the year before adoption that we study. First, our results in Panel B of Table 3 suggest large differences between IAS and HGB summary measures. For example, mean IAS book values are 50% higher than mean HGB values and the standard deviation of IAS book values is almost twice that of HGB. Second, our value relevance results in Table 5 indicate substantial differences between IAS and HGB models. For example, the adjusted-R^2 and coefficients on book value and net income are all

[30] We also note that prior studies have not been able to document that firms significantly change their accounting reporting behavior before cross-listing in the United States or adopting IAS. For example, Lang et al. (2003, Footnote 11) do not find significant changes in accounting quality over the two years before cross-listing. In addition, if our sample firms voluntarily adopt IAS to signal increased accounting quality, it is unclear that these firms would try to minimize the reporting differences between local standards and IAS before IAS adoption.

significantly different between the IAS and HGB specifications. In particular, the net income coefficient is around 10 for HGB but close to zero for IAS.

To examine the gradual transition issue, we investigate whether there were changes made by companies in the years before adoption. First, we examine the cross-sectional variation in HGB book value up to three years before IAS adoption.[31] This analysis (not tabulated) finds no statistically or economically significant changes in either the mean or standard deviation of book value three or two years before the adoption. Thus, the difference between the IAS and HGB numbers in the year prior to adoption dominates any changes to book value before that year. Second, we examine value relevance of book value and income up to three years before adoption. While there is some understandable variation in the coefficients, we note the following: (1) there are no patterns in the coefficients suggesting that the properties of HGB numbers are gradually moving towards the properties of IAS numbers three or two years before adoption; and (2) there is consistency in the value relevance properties of HGB numbers for all years examined—in particular, the coefficient on HGB income is very high (approximately 10 or above) in every year, suggesting that there is considerable earnings persistence, in contrast to the low IAS income coefficient (close to zero). Overall, our additional analyses cannot find evidence that companies started significantly narrowing differences between HGB and IAS in the years before IAS adoption.

7.3 Deleting firms listed in the New Market

We note that 20 of our 80 firms are traded in the New Market (or Neuer Market). The New Market, now defunct, was launched in 1997 as a new German stock market segment geared toward small- and medium-sized companies in innovative and fast-growing industries (Leuz 2003). According to the regulations of the Deutsche Börse, financial statements for New Market firms have to be prepared in accordance with either IAS or U.S. GAAP. Some of these firms are identified as first-time IAS adopters and hence are included in our sample because, in its early days, the New Market allowed some firms to provide German GAAP financial statements for a limited time if they were temporarily unable to prepare them according to IAS or U.S. GAAP.

Firms listed in the New Market likely differ from "typical" publicly traded German firms. Accordingly, we test the sensitivity of the results in Tables 5 and 6 to excluding these firms. The analysis (not tabulated) shows that the signs and significance levels of our treatment coefficients are qualitatively unchanged with minor exceptions.[32] Thus, our overall inferences regarding differences in the

[31] We examine book value, rather than income, because book value is more stable over time and *relatively* less sensitive to changing economic circumstances. Because of this inherent stability, it is easier to examine the effects of accounting changes.

[32] The exceptions are as follows: (1) the difference in the book value coefficients under IAS and HGB in Panel A of Table 5 becomes significant at only $p = 14\%$ (two-tailed); (2) the coefficient on book value adjustments in Panel B of Table 5 becomes significant at only $p = 16\%$ (two-tailed); and (3) the coefficients on the interaction terms between RET and NEG in Table 6 become insignificant at conventional levels under the HGB income model.

properties of HGB and IAS numbers are not affected after excluding the New Market firms.

7.4 Alternative significance tests

A potential problem with statistical inferences in small samples is the validity of the normal distribution assumption. To address this concern, we apply the bootstrapping approach to the estimations of the full regression models in Tables 5 and 6 (Efron and Tibshirani 1993). Specifically, we bootstrap the residuals, construct 1,000 random samples and assess the 5% and 95% confidence limits based on 1,000 random parameter estimates. The results (not tabulated) show that the inferences from these confidence limits are qualitatively similar to those derived from our parametric estimation methods in Tables 5 and 6.

7.5 Deflation by lagged market value

A key concern for the price specification in our value relevance tests is that it is prone to econometric problems such as scale bias. Thus, to test the sensitivity of our results, we repeat our regression models in Table 5 after scaling all variables by lagged market value (Easton 1998). The analysis (not tabulated) indicates that the signs and significance levels of our treatment coefficients are qualitatively unchanged, with the following exceptions: (1) the difference in book value coefficients under IAS and HGB in Panel A of Table 5 becomes insignificant at conventional levels; (2) the coefficient on book value adjustments in Panel B of Table 5 becomes insignificant at conventional levels.[33] In addition, the difference in adjusted-R^2 between HGB and IAS models in Panel A of Table 5 becomes insignificant. Thus, while our results on the different pricing weights of book value and the different incremental value relevance of book value adjustments become insignificant, our general conclusions are unaffected after such deflation.

8 Conclusion

This study investigates the financial statement implications of adopting IAS for firms in Germany, a country with a stakeholder-oriented and tax-driven accounting system. By implementing a superior research design that compares

[33] We note that this analysis is based on a sample of 60 observations due to missing values in lagged market values. Thus, the loss of significance could result from the relatively low power in the reduced sample. Additional analysis restricting the tests in Tables 5 and 6 to the subsample with available lagged market values indicates that the significance levels are lower. Specifically, the analysis (not tabulated) shows that (1) the difference in book value coefficients under IAS and HGB in Panel A of Table 5 becomes significant at only $p = 10\%$ (two-tailed); (2) the coefficient on book value adjustments in Panel B of Table 5 becomes insignificant at conventional levels; and (3) the difference in adjusted-R^2 between the HGB and IAS models in Panel A of Table 5 becomes insignificant at conventional levels.

information under both the HGB and IAS models for the *same set of firm-years*, we document the financial statement changes precipitated by adopting IAS and examine the effects of such adoption on key financial measures and the properties of financial statement information. Our findings are generally consistent with HGB's balance sheet conservatism and income-smoothing orientation and IAS' fair-value orientation. In addition to quantifying the key accounting differences between IAS and HGB, we document four main findings: (1) total assets and book value of equity, as well as variation in book value and net income, are significantly higher under IAS than under HGB; (2) book value (net income) plays a more (less) important valuation role under IAS than under HGB, although there is no evidence suggesting that IAS has improved the relative value relevance of book value and net income; (3) the IAS adjustments to book value are value relevant, while the adjustments to net income are value irrelevant; and (4) there is weak evidence that the timeliness and asymmetric timeliness (conditional conservatism) of IAS income may be higher than that of HGB income.

Overall, our analyses portray a consistent picture of the financial statement effects of shifting from a stakeholder-oriented accounting system such as HGB to the shareholder-oriented IAS. Our analysis of specific accounting differences is consistent with HGB emphasizing the prudence principle and income smoothing and IAS emphasizing fair values and balance sheet valuation. While this difference is not widely appreciated in the prior academic literature, it has been highlighted by practitioners (Ernst and Young 2004). Further, although IAS significantly increases the relative importance of book values vis-à-vis net income (which is consistent with the greater fair-value orientation of IAS), there is little evidence suggesting that moving from HGB to IAS increases the value relevance of book value and net income or significantly improves the timeliness with which economic events are incorporated into accounting income.

Our study provides timely and relevant insights into the potential consequences of IAS adoption by listed companies throughout the European Union, which arguably is one of the most important events in the history of financial reporting. We also add to the literature on international accounting differences by comparing stakeholder-oriented and shareholder-oriented accounting models in the same institutional setting. Despite the large impact on financial statements, our results suggest that accounting standards per se do not have a major impact on the value relevance and timeliness of financial statement information. This finding highlights the importance of institutional factors such as shareholder protection playing a crucial role in explaining cross-country variation in the value relevance or timeliness of accounting information (Ball et al. 2003).

We acknowledge several limitations of our study. First, since our study focuses exclusively on Germany our results may not generalize to other countries. While focusing on Germany helps us better understand the accounting differences between stakeholder-oriented and shareholder-oriented accounting systems, our results have little implication for IAS adoption in shareholder-oriented countries such as the United Kingdom. In addition, since Germany has strong law enforcement, our results might not hold in countries with weak

enforcement. Second, most of our analyses have low power because of our relatively small sample size compared with typical market-based analyses. Thus, some of our findings of no differences across the two accounting models may be driven by lack of power. Third, although we control for self-selection bias, we acknowledge that our sample firms voluntarily adopt IAS and thus our results may not reflect the effects of mandatory adoption. Finally, the development of IAS continues, and IASB has recently passed several rules affecting recognitions of important economic activities (for example, IFRS 2: Share-based Payment). While we believe that the new rules are consistent with the balance sheet- and fair value-orientation of IAS, they will nonetheless cause additional financial statement changes for IAS adopters in the future. Thus, we acknowledge that our results should be interpreted as suggestive and subject to the current regulatory structure.

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Appendix 1

Case 1: Excerpts from the notes to the group financial statements in the BMW 2001 Annual Report

[1] Basis of preparation

The consolidated financial statements of BMW AG ("BMW Group financial statements" or "Group financial Statements") at 31 December 2001 have been drawn up for the first time in accordance with the standards valid on the balance sheet date issued by the International Accounting Standards Board (IASB), London. All International Accounting Standards (IAS) and interpretations of the Standing Interpretations Committees (SIC) which were mandatory for fiscal year 2001 were applied...

[7] The impact of the adoption of IAS for financial reporting

The BMW Group financial statements have been prepared and presented as if they had always been prepared in accordance with IAS and IAS Interpretations. The adjustment resulting from the conversion to IAS has been treated as an adjustment to the opening balance of equity...

Equity

Equity under IAS increases by euro 4,536 million (+92.6%). The following summary shows the recognition and measurement differences between HGB and

IAS and reconciles the equity at 31 December 2000 under HGB to the equity on the first day of the following year, 1 January 2001, under IAS:

in euro million	
Equity at 31.12.2000 under HGB	4,896
Capitalisation of development costs	+2,054
Deferred taxes	+723
Inventory valuation	+691
Derecognition and different measurement of other provisions	+673
Depreciation on non-current assets	+669
Reclassification of operating leases to finance leases	+306
Release of allowances on receivables	+169
Fair value measurement of financial instruments	−1,074
Other recognition and measurement differences	+325
Equity at 1.1.2001 under IAS	9,432

The net profit under IAS is euro 183 million (+17.8%) higher than under HGB. The net profit for IAS and HGB is reconciled as follows:

In euro million	
Net profit for 2000 under HGB	1,026
Capitalisation of development costs	+236
Deferred taxes	−186
Inventory valuation	+69
Derecognition and different measurement of other provisions	−485
Depreciation on non-current assets	+198
Effect of asset backed financing transactions and lease arrangements	+242
Release of allowances on receivables	+55
Fair value measurement of financial instruments	+56
Other recognition and measurement differences	−2
Net profit for 2000 under IAS	1,209

Case 2: Excerpts from the notes to the group financial statements in the Washtec 2001 Annual Report

Financial statements

The consolidated financial statements of WashTec AG (as the ultimate parent company) have been drawn up in accordance with the International Accounting Standards (IAS) of the International Accounting Standard Board (IASB) in force at the balance sheet date, with due regard to the interpretations of the Standing Interpretations Committee (SIC). The financial statements are in compliance with EU Directive 83/349/EWG on consolidated financial statements.

No accounting and valuation methods under German law were applied which are not compliant with IAS or SIC.

The requirements of section 292a of the German Commercial Code (HGB) for release from the obligation to draw up consolidated financial statements under the HGB are satisfied. Evaluation of these requirements is based on the German Accounting Standard No. 1 (DRS 1) published by the German Standardisation Council.

The previous year's consolidated financial statements were drawn up under the HGB regulations, and the financial statements in the year under review are the first to be drawn up under IAS regulations...

Conversion of shareholders' equity presentation to IAS:

	in T€
Shareholders' equity to HGB as at 31.12.1999	18,305
Revised valuation of pension reserve	−13
Revised tax liability	−225
Accounting for leasing contracts	257
Capitalising deferred tax on loss carry-forwards	49
Other changes	−67
Reclassification of minority interests	−31
Shareholders' equity to IAS as at 01.01.2000 before acquisition of California-Kleindienst Group	18,275

Conversion of the income statement for FY 2000 to IAS:

	HGB (in T€)	IAS (in T€)	Difference (in T€)
Sales	266,549	267,040	491
Change in inventories, capitalised own work and other operating income	4,426	2,922	−1,504
Total income	270,975	269,962	−1,013
Cost of materials	−111,900	−111,150	750
Personnel costs	−90,476	−96,350	−5,874
Depreciation	−8,649	−11,003	−2,354
Other operating expenses and taxes	−47,253	−44,818	2,435
Operating result	12,697	6,641	−6,056
Results of financial activities	−5,539	−8,141	−2,602
Extraordinary result	−4,664	0	4,664
Taxes on income	1,319	−8,385	−9,704
Other taxes	−624	0	624
Consolidated net income/loss	3,189	−9,885	−13,074

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