ANN TARCA,* MELISSA MOY AND RICHARD D. MORRIS

An Investigation of the Relationship Between Use of International Accounting Standards and Source of Company Finance in Germany

*Contact author: Dr Ann Tarca, Accounting and Finance, Business School, University of Western Australia, 35 Stirling Hwy, Crawley, WA 6009. Telephone: +61 6488 3868 Fax: 61 6488 1047 Email: Ann.Tarca@uwa.edu.au

Ann Tarca is a Senior Lecturer at the University of Western Australia. Melissa Moy is an honours graduate from the University of Western Australia. Richard Morris is an Associate Professor at the University of New South Wales.

The authors express their gratitude to Olaf Reinhardt for translation services. We wish to thank the referees, Philip Brown, Martin Glaum, Sid Gray, Chris Nobes and seminar participants at the EAA 2005 conference at Göteborg, Sweden, the Justus-Liebig-Universität Giessen, the University of Sydney and the University of Western Australia for their helpful comments.

An Investigation of the Relationship Between Use of International Accounting Standards and Source of Company Finance in Germany

ABSTRACT

This study examines the relationship between use of international accounting standards and companies' source of finance. We investigate the proposition contained in Nobes' (1998) model which postulates outsider companies (those with a higher level of public finance) in weak equity-outsider markets (capital markets where public equity finance is not the dominant source of finance) are more likely to change their type of accounting system from one focused on information for creditors and tax authorities to one that meets the needs of external financiers. We considered 176 German listed companies during the financial year 1999. Our results support Nobes' (1998) model as we found companies with more outsider finance (represented by the proportion of shares held by outsiders and the amount of public debt) were more likely to use international standards (US GAAP or IAS). Considering companies' choice of US GAAP or IAS, we found companies selecting US GAAP rather than IAS were more likely to have a higher level of outsider finance.

Key words: international accounting standards; IAS/IFRS, US GAAP; source of company finance.

INTRODUCTION

The aim of this study is to investigate the relationship between use of international accounting standards and companies' sources of finance. The growth of international capital markets has created demand for more transparent and comparable financial information. International Accounting Standards (IAS) developed by the IASB (and its predecessor organisation the IASC) are being promoted as a way to meet this demand.[1] However, it is likely the motivation to provide more transparent and comparable information will vary between companies. For example, Nobes (1998) suggested companies more reliant on public rather than private sources of finance are more likely to provide information for parties external to the company. In countries where accounting systems have not traditionally focused on providing information to capital markets, use of international standards is one way to provide useful information to public financiers. This study aims to test Nobes' (1998) proposition by considering whether there is a relationship between a company's use of international standards and its level of financing from public sources.

Nobes' model draws from literature which documents differences between countries in the extent to which finance is provided by a market-oriented or bank-dominated financial system. La Porta et al. (1998) noted many differences in how companies are financed, and proposed that the extent of legal protection of investors could explain these differences. The authors found parties external to the firm were more likely to provide finance in settings where their rights were more protected. Other studies have argued that companies seeking capital from external parties are more likely to provide more information to obtain finance on the most favourable terms (Choi, 1973; Diamond and Verrecchia, 1991; Botosan, 1997). When finance providers are external to the firm, information asymmetry exists between them and the firm's managers. Agency theory (Jensen and Meckling, 1976) suggests managers will provide information to reduce information asymmetry, avoid agency costs and obtain capital at the most favourable price. The concept underpinning Nobes' model, namely that companies more dependent on finance from external sources are more likely to use accounting systems which provide a greater amount of information, is consistent with the studies noted above.

The issue of companies' voluntary use of international standards is of interest because it considers whether use of international standards is more relevant for companies with particular financial attributes. This issue is important because of the widespread adoption of IAS in countries throughout the world (IAS Plus, 2005). There are many arguments to support adoption of IAS (Gernon and Meek, 2001, p. 40). However, it is possible use of IAS is more beneficial for some companies than for others, and our study addresses this issue.

We investigate the extent to which use of international accounting standards (defined as IAS or US GAAP in this study)[2] was associated with higher levels of finance from public sources by considering a sample of German listed companies in the 1999 financial year. German companies were chosen because the German environment provided a unique situation for investigation. From 1998 German listed companies were legally permitted to prepare consolidated financial statements according to IAS or US GAAP instead of following the German national system, based on the Commercial

Code or Handelsgesetzbuch (HGB) (Eggert, 1998). The German setting featured a highly developed industrial economy with various sources of public and private finance. German companies were given the choice to use non-national standards, which aimed to provide information for capital market investors, rather than the national accounting system that focused on the information needs of creditors and tax authorities (Nobes and Parker, 2004, p. 23). We considered only the year 1999 because the announcement in 2000 of the European Union's (EU) plans to adopt IAS may have affected companies' decisions to use IAS or US GAAP. After 1999, companies' use of international standards could reflect the fact IASB standards are mandatory for the consolidated financial statements of all listed companies of EU countries from 1 January 2005 (EU Regulation 1606/2002).

We found that companies with more outsider finance (represented by the proportion of shares held by outsiders and the amount of public debt) were more likely to use international standards (US GAAP or IAS). The result reflected companies which were listed on stock exchanges which required the use of international standards (the Neuer Markt) or reconciliation to US GAAP (NYSE and NASDAQ). While choosing to list on these exchanges was voluntary, once listed the use of international standards was either required (in the case of the Neuer Markt) or promoted (in the case of the NYSE and NASDAQ) by stock exchange requirements. Companies using international standards were more likely to have a higher level of foreign revenue, a lower level of leverage and to be less likely to have a banker as a member of their supervisory board. Considering companies' choice of US GAAP or IAS, we found companies selecting US GAAP rather than IAS were more likely to have a higher level of outsider equity. The results support Nobes' (1998) proposition that outsider companies from weak-equity market countries will change their type of accounting system (in this case from German national GAAP to IAS or US GAAP).

The contribution of our study is to probe deeper into reasons why companies change from national to international standards. Our study extends research suggesting particular company attributes such as size, leverage and internationality are associated with use of international standards (Dumontier and Raffournier, 1998; Murphy, 1999; Ashbaugh, 2001; Tarca, 2004; Cuijpers and Buijink, 2005). We consider specifically the relationship of a company's source of finance and the use of international standards. It has been argued that a country's system of finance could be related to its legal system (LaPorta et al.,1997; 1998) and may impact on attributes of accounting information (Ball et al., 2000). We extend this area of research by considering the relationship between source of finance and accounting system.

Another major contribution of the study is to provide an empirical test of one of the theoretical propositions of Nobes' (1998) model. This model is useful because it provides an analysis that goes beyond a classification of accounting systems based on country. Nobes' (1998) model examines company attributes, not just country attributes, as explanatory factors for use of a particular accounting system. Thus the model is useful for understanding the demand for, and supply of, accounting information. Our tests provide some insight about the relationship between obtaining finance from external parties (or outsiders) and the type of information provided by companies. Thus the results provide evidence of the link between finance from outsiders and provision of accounting information via a particular type of accounting system.

Our study is relevant because of growth of global capital markets and demand for internationally comparable accounting information. Considerable resources are being devoted to increasing the similarity in accounting systems to improve the comparability of accounting information. However, little attention has been given to factors that may limit the effectiveness of the present approach which requires the adoption of a common set of IAS for all listed companies from countries in the EU and elsewhere. Understanding the reasons why companies use IAS is important because their motivations may impact on the way companies use IAS and the resulting quality of information produced. While we consider only German companies in a particular period, it is possible companies in other countries may also differ in their motivation to use IAS. These differences could influence quality of financial reporting under IAS, which is a matter of interest for future research.

The remainder of the paper is organised as follows. The next section discusses the background to the study and relevant prior studies. The third section proposes hypotheses for investigation. Data and method are explained in the fourth section and results presented in the fifth. Conclusions, limitations and suggestions for further research conclude the paper.

BACKGROUND AND PRIOR LITERATURE

There are many reasons why companies use international accounting standards and they are described below. We also outline changes in Germany promoting the use of international accounting standards.

<u>Reasons for use of international accounting standards</u>

Proponents of harmonization of accounting standards consider there are many potential benefits arising from use of one common set of accounting standards throughout the world. These include improved transparency, comparability and quality in financial reporting, leading to lower preparation costs, more efficient investment decisions and cheaper cost of capital for companies (Saudagaran and Meek, 1997).

European company executives provided several reasons why their companies would want to change from national standards to IAS or US GAAP (KPMG, 2000). These included (in order of importance): 1) the possibility of increasing the availability of capital; 2) the quality of the standards; 3) the preferences of institutional investors; 4) the possibility of lowering the cost of capital; and 5) the preferences of analysts. Cuijpers and Buijink (2005) investigated EU companies which had adopted non-local GAAP by 1999. They found these companies were more likely to be listed in the U.S.A. or EASDAQ Brussels, to have more geographically dispersed operations and to originate from a country with lower quality financial reporting and where use of non-local GAAP is allowed. They did not find evidence of lower information asymmetry among non-local GAAP users and suggested that benefits of adopting international standards may take time to materialise.

Research has provided some evidence of benefits following from the use of US GAAP or IAS instead of national standards, which suggests that international standards may reduce information asymmetry in capital markets. Leuz and Verrechia (2001) reported that German companies using US GAAP or IAS had lower bid-ask spreads and increased liquidity compared to companies using national standards. Considering an international sample of non-US companies, Ashbaugh and Pincus (2001) found analyst forecast accuracy improved for companies adopting IAS. In relation to the choice of US GAAP or IAS, Tarca (2004) found German firms using US GAAP were more likely to be listed in the NYSE, while firms using IAS were more likely to be larger firms with foreign stock exchange listings other than NYSE and NASDAQ. Leuz (2003) investigated the difference between Neuer Markt companies which chose IAS or US GAAP. He concluded that choice of one or the other of these standards had little consequence for information asymmetry and market liquidity.

Recent developments in use of international standards in Germany

Glaum (2000) reported an increase in use of international standards by large German companies and a preference among German managers for IAS over US GAAP. Tarca (2004) found among a sample of the largest 100 listed German companies 35% were using IAS or US GAAP in 1999. By 2002 53% of companies on the Deustche Börse's Prime Standard were using IAS and 35% US GAAP (Nobes and Parker, 2004, p. 254). Various reports suggest the importance of public sources of equity finance has increased in Germany (Evans, 1996; Hanes, 1999; Jones, 1999; Hutter and Leppert, 2001). The number of German companies cross-listing on foreign stock exchanges has increased from 60 to 77 over the period 1986-1997 (Pagano et al., 2002). Radebaugh *et al.* (1995) described a notable example, the listing of Daimler-Benz on the New York Stock Exchange (NYSE) in 1993. The company's use of an alternative accounting system (in this case US GAAP) caused a large decrease in reported profit and a large increase in equity. The changes reflected significant differences between the German national accounting system and US GAAP.

HYPOTHESES

Nobes' (1998) model is relevant to an examination of why companies use international standards. The model proposes that culture influences the financing system in a country, which in turn influences the accounting system. Countries were classified as culturally self-sufficient and culturally dominated. In culturally self-sufficient countries, the culture of a country will determine the strength of the equity financing system and the accounting system will follow. The concept of 'insider' and 'outsider' companies was developed and related to source of finance. Both insiders and outsiders may supply finance to a company, in the form of debt and equity. Insiders are defined as 'governments, banks, families and other companies [that] are all likely to have close, long-term relationships with their investees'. Outsiders 'are not members of the board of directors and do not have a privileged relationship with the company' (Nobes, 1998, p. 166-7). Nobes further explained outsiders are private individuals and institutional investors investing in the company as part of their diversified portfolio management.

Two classes of accounting, Class A and Class B, are proposed by Nobes (1998). Class A accounting occurs where there is a strong equity market and many outside shareholders and investors. Class B accounting is found where equity markets are weaker and there are core insider shareholders. Differences in source of finance lead to differences in the purpose of accounting. Nobes (1998) emphasised that it is the difference in the purpose of accounting that determines whether a country or company uses Class A or Class B accounting. Examples of Class A (UK GAAP, Australian GAAP, IAS, and US GAAP) correspond with market-oriented financing systems and legal systems derived from common law. Examples of Class B (standard French, German and Italian accounting systems) correspond with bank oriented financing and code law legal systems. Xiao et al. (2004) proposed that an additional distinguishing element in Nobes' model is that Class A systems feature accounting standards set by independent standard setters while Class B systems encompass more detailed guidance on bookkeeping and accounting processes.

Nobes' (1998) model is relevant to an investigation of use of international standards as it proposes an explanation for why companies choose to follow an accounting system that is different from the national system in their country of origin. Nobes' (1998) classification of accounting systems uses a company-level analysis, not a country-level analysis. Thus it is applicable in a situation such as Germany where companies within the same country follow different accounting systems, in this case, IAS, US GAAP or the German national system (HGB).

Five separate propositions to explain the link between culture, strength of equity markets and subsequent class of accounting are presented in Nobes' (1998) model. This study tests Proposition Number Five (P5), which is stated as: 'Outsider companies in countries with weak equity-outsider markets will move to Class A accounting' (Nobes 1998, p. 178).

Nobes (1998) proposes that an entity's source of finance will determine its type of accounting system. He suggests companies in countries with weak equity-outsider markets are insider companies and will use Class B accounting, that is, accounting for insiders. Because their predominant source of finance is debt and/or equity from parties with whom the company has an insider relationship, the companies are not motivated to make disclosures to provide information for outsiders. However, if companies become outsider companies (that is, their major source of finance is from parties external to the company who do not have a close, information-sharing relationship with the company) they will move to Class A accounting. By using a Class A accounting system such as IAS or US GAAP the company can provide information useful for outsiders' decision making processes, in a form acceptable to the outsiders. Thus, P5 of Nobes' model will be supported if we observe German companies using international standards have a higher proportion of outsider finance than companies not using international standards. The hypothesis can be formally stated as:

> Companies with relatively more outsider finance are more likely to use international accounting standards.

Prior studies have not specifically investigated the relationship between outsider finance and use of international standards. However, the association between extent of leverage (that is, the proportion of debt compared to equity) and level of disclosure or use of international standards has been considered. The expected relationship is that as a company's leverage decreases, more equity holders are present. If these shareholders are outsiders, more disclosure is demanded. The use of international standards allows companies from countries with Class B accounting systems to provide relatively more disclosure. Leverage has been found to be associated with greater disclosure in annual reports of an international sample of companies (Zarzeski, 1996). Leverage was a significant explanatory factor for use of IAS or US GAAP (El-Gazzar et al., 1999) and among German companies (Tarca, 2004) but it was not significant for Swiss IAS adopters (Dumontier and Raffournier, 1998; Murphy, 1999) or among European companies studied by Cuijpers and Buijink (2005).

Particular company attributes appear to be associated with use of international standards. Several studies have shown companies using IAS or US GAAP are more likely to be foreign listed (Dumontier and Raffournier, 1998; Ashbaugh, 2001; Tarca 2004; Cuijpers and Buijink, (2005) and to raise more equity capital than domestic listed companies (Ashbaugh, 2001). Bradshaw and Miller (2002) reported non-U.S.A. companies using US GAAP were likely to be listed on more U.S. exchanges. Companies raising capital and trading on the NYSE and NASDAQ stock markets in the U.S.A. have an incentive to use US GAAP to avoid additional costs associated with the SEC's required reconciliation from national standards (and IAS) to US GAAP (Saudagaran and Meek, 1997). Companies with a higher proportion of foreign revenue provide greater disclosure (Zarzeski, 1996) and are more likely to use IAS or US GAAP (Dumontier and Raffournier, 1998; Tarca, 2004). Based on these findings, it is expected that cross-listed companies and those with a greater proportion of foreign revenue are more likely to use international standards.

The use of international standards may increase disclosure where companies change from Class B to Class A accounting. Many studies have found that larger companies are more likely to provide more disclosure, for example Cooke (1991), Hossain, Tan, and Adams (1994) and Zareski, (1996). Ashbaugh (2001), Tarca (2004) and Cuijpers and Buijink (2005) found larger firms were more likely to use IAS or US GAAP. Larger companies have access to more resources to enable the conversion from a Class B to Class A accounting system. Therefore it is expected larger companies are more likely to use international standards.

Type of auditor is another variable considered in prior disclosure studies which could be related to use of IAS or US GAAP. Dumontier and Raffournier (1998) suggested if companies wanted to increase the credibility of their financial statements based on international standards, then they are likely to use a large audit firm. Glaum and Street (2003) found a higher level of compliance with IAS and US GAAP by German companies listed on the Neuer Markt when they were audited by a Big Five auditor. Thus, use of international standards may be associated with audit by a large audit firm. Dumontier and Raffournier (1998) also argued companies with Big 6 auditors could be encouraged by their auditors to use international standards so the auditors can demonstrate their technical competence and improve their reputation. Glaum and Street (2003) studied firms listed on the Neuer Markt and found those with a Big Five auditor were likely to have higher levels of compliance with IAS or US GAAP. Al-Basteki (1995) and Tarca (2004) found a positive association between use of IAS and audit by a Big Six auditor.[3] However, Dumontier and Raffournier (1998) and Murphy (1999) did not find this relationship. Since large audit firms are more likely to have greater expertise in IAS and US GAAP, it is expected companies using international standards are more likely to be audited by a large audit firm.

DATA AND METHOD

Sample selection

The hypotheses proposed in this study investigate explanatory factors for use of international standards using proposition P5 developed by Nobes (1998). Several elements must be present in an experimental setting in order to test proposition P5. These include: a weak equity-outsider market, use of Class B accounting and the ability to change to Class A accounting. (These terms and proposition P5 have been outlined in the previous section). Companies from Germany met these requirements. As noted above, from 1998 German companies were permitted (but not required) to use IAS or US GAAP (Class A accounting systems) instead of German GAAP (Class B). Therefore these companies were able to change their type of accounting system from Class B to Class A. Statistics provided by Nobes (1998) indicate Germany could be classified as a country with a weak equity-outsider market.[4] Based on measures of market capitalization/GDP and ownership concentration, Xiao et al. (2004) also classified Germany as a weak equity outsider market. Therefore German companies provide a suitable sample for testing Nobes' (1998) proposition P5.

We included the year ended 1999 in this study as the most representative year in relation to voluntary use of international standards. The law permitting the use of ‘internationally recognised accounting principles’ (section 292a of the HGB) was drafted in 1996 and ratified in March 1998 (Eggert, 1998; Bonthrone, 2000). By selecting 1999, we include the maximum number of companies using IAS or US GAAP before the announcement in 2000 of future mandatory use of IAS. Since this announcement could influence companies’ decisions to use IAS, financial years after 1999 are not considered.

The Datastream database provided names of the largest 300 German listed companies. We sought reports from largest companies because prior research has shown larger companies are more likely to use international standards (Dumontier and Raffournier, 1998; Ashbaugh, 2001; Tarca, 2004). We deleted 23 duplicate listings and excluded 32 banks and insurance companies from the sample because the nature of their liabilities (which include amounts owed to customers) is different from the category of loans from outsiders being considered in this study. Annual reports for the 1999 financial year were obtained from the Mergent database, company websites or directly from companies but we were unable to obtain reports for 69 companies on the list. The final sample included 176 companies, of which 138 produced both German and English language annual reports and 38 produced only German language reports (Table 1).

[Insert Table 1 about here]

Data collection

The data for the study was obtained mainly from the annual reports collected.[5] We recorded whether a company followed the German national system (HGB), IAS or US

GAAP based on information stated in the accounting policy note included in the notes to the financial statements or the audit report. We defined use of international standards as either adoption or supplementary use. Adoption of international standards occurred when a company used IAS or US GAAP instead of HGB. Supplementary use occurred in the following situations: a) a company provided two sets of financial statements (based on HGB and international standards); b) a company used HGB standards but also made reference to one or more specific international standards; or c) the company provided a reconciliation from HGB to international standards.

Data relating to the level of outsider finance was collected from the annual reports, company websites, directly from companies and from the Thomson Financial database. The measure of outsider finance was based on the proportion of both outside equity and outside debt. The outsider equity measure was the proportion of equity (including ordinary and preference shares) held by outsiders to the company. This was determined based on information about shareholder structure provided by the company. Individuals, companies, banks and institutions with a privileged relationship with the company (for example, a founding or majority shareholding or being an associated company or provider of debt finance) were classified as insiders. Individuals, companies and institutions without this type of relationship were classified as outsiders. The information about shareholders was collected from companies (via annual reports, web sites and email) and from the Thomson Financial database.

A dummy variable BANKER (coded 0 where the company has one or more representatives of a bank on their supervisory board, 1 otherwise) was also included.[6] A banker on the supervisory board indicates a relatively closer relationship between the bank and company and may indicate information about the company is obtained more from internal rather than external sources. Thus we expect companies using international standards to be <u>less</u> likely to have a banker on their supervisory board.

Shareholder information was collected for 1999 for 126 (87%) of the 138 companies with English language reports. For the remaining 12 English language companies, shareholder information was available only for a later year (2000 – 3 companies; 2001 – 1 company; 2003 – 8 companies). It is possible a company's shareholder structure could have changed between 1999 and the later year, thus introducing error into the measurement of outsider equity. However, since later year measurements were used for only 12 companies any errors are unlikely to substantially influence the results. Shareholder information for 1999 was obtained for only three of the companies with German language reports. Subsequent year information was obtained for a further 33 companies (2000 – 8 companies; 2001 – 9 companies; 2002 – 6 companies; and 2003 – 10 companies). Possible error in measurement of outsider equity for the companies with German language annual reports is unlikely to bias the results in favour of a significant finding for outsider equity because these companies tend to have a high level of insider equity.[7] Where shareholdings by institutional investors (outsiders) and banks (insiders) were not separately disclosed the whole amount was classified as insider equity. This may mean outsider equity is understated, resulting in a non-significant result in the statistical tests.

Outsider debt was measured by the proportion of long-term debt held by parties who were outsiders to the company compared to the total long-term debt of the company. The information was obtained from the balance sheet and notes to the accounts. Insider debt was considered to be liabilities owed by the company to banks (such as loans and overdrafts), credit institutions, trade accounts payable, liabilities to associated companies,[8] amounts owed to companies in which investments were held, profit participation certificates (for example, to associated companies) and other liabilities. Outsider debt was defined as the amount of long term debt that is sourced from the public capital market, namely bonds and debentures.[9]

Information in other variables (foreign revenue, leverage and type of audit firm) was also derived from annual reports.[10] Details of stock exchange listings and equity issues were obtained from annual reports or companies' websites. Market capitalization data was gathered from the Datastream database. Variables are defined in Table 2.

[Insert Table 2 about here]

Statistical tests

Binary logistical regression was used to examine the relationship between use of international standards and level of finance and subsequently outsider equity and outsider debt. A dichotomous dependent variable represented use of the national system (HGB) or international standards (IAS or US GAAP). A second dependent variable was based on companies' choice of international standards, namely IAS or US GAAP. As a robustness measure, ordinal regressions, where the dependent variable was one of three options (HGB, IAS or US GAAP) were also performed.

RESULTS

Descriptive statistics

Table 3 shows mean outsider finance was 43% (median 38%). Mean outsider equity was 36.5% and mean outsider debt was 6.4%. A large number of companies (146 or 83%) did not report any long-term outsider debt. Based on the 30 companies with outsider debt, the mean was 38%. Mean foreign revenue was 35.5%, reflecting the 125 companies (71% of the sample) that derived revenue from outside Germany. The mean market capitalization of €3816 million was influenced by large companies in the sample. Median market capitalization was €597 million. Mean leverage was 56.8%. Companies using international standards (US GAAP or IAS) had significantly higher levels of outsider finance ($p < 0.01$) (and outsider equity and debt) providing support for our hypothesis that companies with more outsider finance are more likely to use international accounting standards. In addition, these companies had significantly more foreign revenue ($p < 0.01$) and larger market capitalization ($p < 0.05$). They also had significantly lower levels of leverage ($p < 0.05$), which may reflect company attributes but can also occur because the use of international standards will cause financial statement numbers to change and thus affect leverage ratios.[11] Significant Spearman's correlations ($p < 0.01$) were observed between outsider finance and foreign revenue (0.455) and market capitalization (0.326) and between foreign revenue and market capitalization (0.304) and leverage (0.197).

[Insert Table 3 about here]

Frequencies of the dichotomous variables are reported in Table 4. The dummy variable for banker shows a bank representative was a member of the supervisory board in 106 cases (60%). Sixty-two companies (35%) were cross-listed, but only 12 of these companies (7% of the full sample) were listed on a U.S.A. stock exchange with Form 20-F requirements. Thirty-eight companies (22%) were listed on the Neuer Markt and required to use international standards.[12] There were 45 companies (26%) which raised additional public finance or made a new stock exchange listing in the financial year. A large proportion of companies (123 or 70%) were audited by a Big 5 audit firm. Companies using international standards were more likely to be foreign listed (χ^2 = 17.760, $p < 0.01$) or to have raised public finance during the year (χ^2 = 5.451, $p < 0.05$).

[Insert Table 4 about here]

Table 5 shows that 87 (49%) of the 176 companies used international standards. Thirty-nine companies (22%) adopted IAS and 31 companies (18%) adopted US GAAP instead of HGB. Supplementary users (16 companies or 8.5%) used IAS or US GAAP in conjunction with HGB, provided a reconciliation statement to international standards or provided two sets of financial statements. Eighty nine companies (51%) used HGB only.

[Insert Table 5 about here]

Regression results

Table 6 reports results for binary logistic regression models investigating the relationship of use of international standards and proportion of outsider finance and various company attributes. Model I includes outsider finance and other control variables (banker, proportion of foreign revenue, auditor, size and leverage). The model is significant overall ($\chi^2 = 41.39$, $p < 0.001$) with $R^2 = 0.288$ and correct prediction of 69.4% of cases (based on a 50% cut-off). OUTFINANCE is positive and significant ($p = 0.030$) providing support for the hypothesis that companies with more outsider finance are more likely to use international standards. BANKER, FREV and LEVERAGE are also significant, indicating companies using international standards are less likely to have a banker on the supervisory board, have more foreign revenue and lower levels of leverage.[13] The foreign revenue result is consistent with Dumontier and Raffournier (1998) and Tarca (2004) and the leverage result is consistent with El-Gazzer et al. (1999) and Tarca (2004). The constant term is significant in both Models I and II, suggesting there are omitted variables. This result reflects the reality that there are many reasons why a company may adopt international standards (KPMG, 2000) which are not captured in the models.

[Insert Table 6 about here]

To further explore the results of Model I, OUTFINANCE is replaced with two variables representing outsider equity and outsider debt in Model II. Table 6 shows OUTEQUITY is significant ($p = 0.026$) while OUTDEBT is not. The results for other variables are consistent with Model I. The lack of significance of OUTDEBT is not surprising given only 30 companies (17%) reported outsider debt and, as noted above, mean outsider debt was only 6.4%.

Models IIIa and IIIb (Table 6) consider two sub-groups within the sample, based on whether the use of international standards is voluntary. Model IIIa includes companies where use is voluntary, while Model IIIb includes companies which are required to use (or reconcile to) international standards. Thus, Model IIIb includes Neuer Markt companies which are required to use international standards (Glaum and Street, 2003) and companies listed on the NYSE or NASDAQ which must reconcile their accounts to US GAAP (the Form 20-F reconciliation) and Model IIIa includes all other companies. Results for Model IIIa show that use of international standards is associated with more foreign revenue and larger size. OUTFINANCE is not significant. In Model IIIb OUTFINANCE is significant ($p = 0.011$), as are size and leverage. The result suggests a relationship between level of outsider finance and likelihood of being listed on the Neuer Markt or the NYSE or NASDAQ. It supports the argument that international standards (or Class A accounting) is more likely to be used by companies seeking greater external finance, possibly through stock market listings. The result is consistent with research suggesting cross-listed companies and those raising capital are more likely to use international standards (Dumontier and Raffournier, 1998; Ashbaugh, 2001; Tarca 2004; Cuijpers and Buijink, 2005).

In subsequent regressions we included only companies using international standards and investigated the relationship between choice of standards (US GAAP or IAS) and outsider finance (Models IV and V, Table 7). To recognize factors which could influence choice of standards, we included FLIST, NLIST, ISSUE, FREV, BIG5, SIZE and LEVERAGE as control variables. Companies listed on NYSE/NASDAQ were excluded because the 20-F reconciliation requirements were likely to promote the choice of US GAAP over IAS. Model IV shows the choice of US GAAP was associated with a greater proportion of outsider finance (OUTFINANCE was positive and significant, $p = 0.061$) and being listed on the Neuer Markt. Model IV is significant overall ($\chi^2 = 15.71$, $p < 0.047$) with $R^2 = 0.235$ and correct prediction of 64.2% of cases (based on a 50% cut-off). Model V shows companies choosing US GAAP are more likely to have a higher proportion of outside equity ($p = 0.044$). OUTDEBT is not significant.

[Insert Table 7 about here]

Results for ordinal regressions (not reported in detail) are consistent with those presented for the binary regression models. Significant explanatory variables for choice of standards include outsider finance, foreign revenue and leverage. When listing variables (FLIST, NLIST, LIST 20-F) are added to the model, OUTFINANCE is no longer significant but FLIST and NLIST as well as size are significant.

CONCLUSIONS

This study investigated whether use of international accounting standards was associated with a company's level of outsider finance. We sought to test empirically the notion that companies with greater dependence on finance from outsiders are more likely to use international standards as a way of communicating more transparent and comparable information to these parties. Outsiders are considered to be parties without private access to information about the company who rely on publicly available information. A relationship between company financing and disclosure of accounting information has been proposed in the literature (Choi, 1973; Diamond and Verrecchia, 1991, Botosan, 1997). Nobes (1998) developed a model to represent the relationship of type of accounting system and source of finance. He proposed that outsider companies (those for which outsider finance is more important) in weak equity-outsider markets are more likely to change their accounting system from Class B (accounting for creditors and tax authorities) to Class A (accounting for investors and shareholders without a privileged relationship with the company).

German companies in 1999 provided an opportunity to investigate this proposition. Germany was a country with a weak equity-outsider capital market (Nobes, 1998). German companies used Class B accounting but were permitted to use Class A accounting from 1998. We examined 176 German listed companies in the financial year 1999 that used IAS or US GAAP (87 companies) or followed only the national system (HGB) (89 companies).

The results provide support for our hypothesis and proposition P5 of Nobes' (1998) model as they show outsider companies from a weak equity-insider market will change to Class A accounting. We found companies with more outsider finance, measured as outsider equity (the proportion of shares held by outsiders) and outsider debt (the proportion of public debt) were more likely to use international standards (US GAAP or

IAS). However, an important caveat is that the result reflected companies which were listed on stock exchanges which required the use of international standards (the Neuer Markt) or reconciliation to US GAAP (NYSE, NASDAQ). While choosing to list on these exchanges was voluntary, once listed the use of international standards was either required (in the case of the Neuer Markt) or promoted (in the case of the NYSE and NASDAQ) by stock exchange requirements.

Companies using international standards were likely to have a higher level of foreign revenue, a lower level of leverage and to be less likely to have a banker as a member of their supervisory board. The use of international standards was more prevalent among cross-listed companies, consistent with the notion that international standards are more transparent than national GAAP and assist companies seeking more outsider finance. Considering the choice of international standards (US GAAP or IAS) companies using US GAAP were more likely to have a higher level of outsider equity. The findings suggest that in the place and time covered by this study, there was a stronger association between use of US GAAP than IAS and provision of outsider finance.

Our study contributes to the literature by providing empirical evidence to support Nobes' (1998) model. We show the expected link between a company's source of finance and capital market activities and use of an accounting system with an investor focus rather than a creditor/tax focus. The results suggest use of international standards is more relevant for some companies than others. An extension of the study would be to investigate the effect of company differences on the extent to which companies comply with IAS and the quality of reporting under IAS following mandatory adoption in listed companies' consolidated accounts from 2005.

The findings extend studies of use of international standards by showing a link to source of finance. However, a limitation of the study is that it investigated only German companies in 1999. Further research could consider Nobes' (1998) proposition in other settings. In addition, there are other propositions in the model that have not been tested in this study because they could not be investigated in the German setting. These could be investigated empirically elsewhere.

REFERENCES

Al-Basteki, H., 'Voluntary Adoption of International Accounting Standards by Bahraini Corporations', *Advances in International Accounting,* Vol. 8, 1995.

Ashbaugh, H., 'Non-US Firms' Accounting Standard Choices', *Journal of Accounting and Public Policy*, Vol 20, 2001.

Ashbaugh, H. and M. Pincus, 'Domestic Accounting Standards, International Standards and the Predictability of Earnings', *Journal of Accounting Research*, Vol. 39, No. 3, 2001.

Ball, R. S. Kothari and A. Robin., 'The Effect of International Institutional Factors on Properties of Accounting Earnings', *Journal of Accounting and Economics*, Vol. 29, No. 1, 2000.

Bonthrone, R., 'German Financial Accounting and Reporting: FAQs and Fallacies', *Translation Journal*, Vol. 4, No. 3, 2000. http://accurapid.com/journal/13finan.htm

Botosan, C., 'Disclosure Level and the Cost of Capital', *The Accounting Review,* Vol. 72, No. (3), 1997.

Bradshaw, M. T. and G. S. Miller., "Will Harmonising Accounting Standards Really Harmonize Accounting? Evidence from non-U.S. firms adopting US GAAP." Working paper, Harvard Business School, 2003.

Cooke, T. E., 'An Assessment of Voluntary Disclosure in the Annual Reports of Japanese Corporations', *The International Journal of Accounting,* Vol. 26, No. 3, 1991.

Choi, F., 1973. 'Financial Disclosure in Relation to a Firm's Capital Costs', *Accounting and Business Research,* Autumn, 1973.

Cuijpers, R. and W. Buijink, ‘Voluntary adoption of non-local GAAP in the European Union: A study of determinants and consequences’, *European Accounting Review*, Vol. 14, No. 3, 2005.

Diamond, D.W. and R.E. Verrecchia. ‘Disclosure, Liquidity and the Cost of Capital’, *Journal of Finance*, Vol. XLVI, No. 4, 1991.

Dumontier, P. and B. Raffournier, ‘Why Firms Comply Voluntarily with IAS: An Empirical Analysis with Swiss Data’, *Journal of International Financial Management and Accounting*, Vol. 9, No. 3, 1998.

Doupnik, T. and S. Salter, ‘External Environment, Culture and Accounting Ppractice: A Preliminary Test of a General Model of International Accounting Development’, *The International Journal of Accounting*, Vol. 30, 1995.

Eggert, R. ‘International Update: Germany’, *International Tax Review*, Vol. 9, No. 7, 1998.

El-Gazzer, S., P. Finn and R. Jacob, ‘An Empirical Investigation of Multinational Firms’ Compliance with International Accounting Standards’, *The International Journal of Accounting*, Vol. 34, No. 2, 1999.

Evans, R., ‘Brave New Welt’, *Barron’s*, Vol. 76, No 52, 1996.

Glaum, M., ‘Bridging the GAAP: The Changing Attitude of German Managers Towards Anglo-American Accounting and Accounting Harmonization’, *Journal of International Financial Management and Accounting*, Vol. 11, No. 1, 2000.

Glaum, M. and D. Street, ‘Compliance with the Disclosure Requirements of Germany’s New Market: IAS versus US GAAP’, *Journal of International Financial Management and Accounting*, Vol. 14, No. 1, 2003.

Gernon, H. and G. Meek., *Accounting: An International Perspective*, 5th Edition, Irwin, McGraw Hill, Boston, 2001.

Gray, S., 'Towards a Theory of Cultural Influence on the Development of Accounting Systems Internationally', *Abacus*, Vol. 24, No. 1, 1988.

Gray, S. and H. Vint., 'The Impact of Culture on Accounting Disclosures: Some International Evidence, *Asia-Pacific Journal of Accounting,* December,1995.

Hanes, K., 'Remaking Germany', *Global Finance*, Vol. 13, No. 1, 1999.

Hossain, M., L. M. Tan and M. Adams. 'Voluntary Disclosure in an Emerging Capital Market: Some Empirical Evidence from Companies listed on the Kuala Lumper Stock Exchange', *The International Journal of Accounting,* Vol. 29, No. 4, 1994.

Hutter, S. and M. Leppert, 'Recent Developments in Equity Capital Markets', *Corporate Finance*, No. 200, July, 2001.

IAS Plus, 'Use of IFRS for Reporting by Domestic Listed Companies by Country', http://www.iasplus.com/country/useias.htm, accessed 19 March, 2005.

Jensen, M. and W. Meckling., 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure', *Journal of Financial Economics,* Vol. 3, No. 3, 1976.

Jones, M., 'Financial Reporting in Germany - An Accounting System in Change', *International Accountancy*, 10 August, 1999.

KPMG, *Global financial accounting IAS or US GAAP? European Survey,* KPMG , London, April, 2000.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R., 'Legal Determinants of External Finance', *The Journal of Finance*, Vol. 1131, 1997.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R., 'Law and Finance', *Journal of Political Economy,* Vol. 106, No. 6, 1998.

Leuz, C. 'IAS versus US GAAP: Information asymmetry-based evidence from Germany's New Market', *Journal of Accounting Research*, Vol. 41, No. 3, 2003.

Leuz, C. and R. Verrecchia, 'The Economic Consequences of Increased Disclosure', *Journal of Accounting Research*, No. 38, Supplement, 2001.

Matthew Bender, *World Accounting,* Matthew Bender, New Jersey, 2001.

Murphy, A., 'Firm Characteristics of Swiss Companies that Utilize International Accounting Standards,' *The International Journal of Accounting*, Vol. 34, No. 1, 1999.

Mueller, G., *International Accounting,* Macmillan, London, 1967.

New York Stock Exchange (NYSE), http://www.nyse.com/international/international.htm, 2004.

Nobes, C., 'A Judgemental International Classification of Financial Reporting Practices,' *Journal of Business Finance and Accounting*, Vol. 10, No. 1, 1983.

Nobes, C., 'Towards a General Model of the Reasons for International Differences in Financial Reporting', *Abacus*, Vol. 34, No. 2, 1998.

Nobes, C. and R. Parker, *Comparative International Accounting,* 8th edition, Prentice Hall, London, 2004.

Nobes, C. and A. Roberts, 'Towards a unifying model of systems of law, corporate financing, accounting and corporate governance', *Australian Accounting Review*, Vol. 10, No. 1, 2000.

Pagano, M., A. Röell and J. Zechner, 'The Geography of Equity Listing: Why Do Firms List Abroad', *The Journal of Finance,* Vol. LVII, No. 6, 2002.

Radebaugh, L. H., G. Gebhardt and S. J. Gray, 'Foreign Stock Exchange Listings: A Case Study of Daimler-Benz', *Journal of International Financial Management and Accounting*, Vol. 6, No. 2.

Radebaugh, L. H. and S. J. Gray, *International Accounting and Multinational Enterprises,* 4th edition, John Wiley, New York, 1997.

Salter, S. and F. Niswander, 'Cultural Influence on the Development of Accounting Internationally: A Test of Gray's 1988 theory', *Journal of International Business Studies*, Second Quarter, 1995.

Saudagaran, S. and G. Meek, 'A Review of the Research on the Relationship Between International Capital Markets and Financial Reporting by Multinational Firms', *Journal of Accounting Literature*, Vol. L16, 1997.

Tarca, A., 'International Convergence of Accounting Practices: Choosing Between IAS and US GAAP', *Journal of International Financial Management and Accounting*, Vol. 15, No. 1, 2004.

Xiao, J. Z., P. Weetman and M. Sun, 'Political Influence and Coexistence of a Uniform Accounting System and Accounting Standards: Recent Developments in China', *Abacus*, Vol. 40, No. 2, 2004.

Zarzeski, M., 'Spontaneous Harmonization Effects of Culture and Market Forces on Accounting Disclosure Practices', *Accounting Horizons*, Vol. 10, No. 1, 1996

TABLE 1
SAMPLE SELECTION

German listed companies	
Datastream list of 300 largest companies[a]	300
Less duplicate listings (separate listing for preference shares)	23
Less banks and insurance companies	32
Total of companies for which financial statements were sought	245
Less companies where financial statements were not obtained (company did not have a website, was not located on Mergent database, a contact address was not available or did not respond to requests for financial statements)	69
Sample companies	176
Comprising	
English language reports	138
German language reports	38

[a] Based on market capitalization

TABLE 2
DEFINITIONS OF VARIABLES

Variable	Definition
OUTFINANCE (Outsider finance)	The proportion of outsider equity and outsider debt
OUTEQUITY (Outsider equity)	The proportion of ordinary and preference share capital held by outsiders to a company to total share capital
OUTDEBT (Outsider debt)	The proportion of long term debt held by outsiders to total long term debt
BANKER (Banker on the supervisory board)	The company has at least one bank representative on their supervisory board. Dummy variable coded 1 = no banker on the supervisory board, 0 otherwise
FLIST (Foreign listing)	The company lists on a stock exchange outside Germany. Dummy variable coded 1 = lists on an exchange outside Germany, 0 = one or more domestic listings only
LIST 20-F (List 20-F)	The company must provide a 20-F reconciliation statement as it is listed on NYSE or NASDAQ. Dummy variable coded 1 = lists on NYSE or NASDAQ, 0 = lists elsewhere (domestic, other foreign)
NLIST (Neuer Markt listing)	The company is listed on the Neuer Markt. Dummy variable coded 1 = lists on Neuer Markt, 0 = otherwise
ISSUE	The company made a share issue, a new listing of its shares, an initial purchase offering or a public bond issue within the year. Dummy variable coded 1 = public equity or debt issue in the year, 0 otherwise
FREV (Foreign revenue)	The proportion of a company's foreign revenue to total sales revenue
BIG5 (Auditor)	The company uses a Big 5 auditor. Dummy variable coded 1 = uses a Big 5 audit firm, 0 otherwise
SIZE (Market capitalization)	Log of market capitalization (German currency converted to millions of Euro at government fixed exchange rate 1EU=1.95583 DM).
LEVERAGE	Total liabilities as a proportion of market value of equity (market capitalization at financial year end)

TABLE 3
DESCRIPTIVE STATISTICS

	Full sample N = 176		Companies using IAS or US GAAP N = 87		Companies using HGB only N = 89		Mann-Whitney U test	
	Mean (Std Dev)	*Median*	*Mean (Std Dev)*	*Median*	*Mean (Std Dev)*	*Median*	*Z*	
Outsider finance (proportion of outsider equity and outsider debt)	0.430 (0.334)	0.381	0.521 (0.324)	0.440	0.339 (0.320)	0.276	4.043	***
Outsider equity (proportion shares held by outsiders)	0.365 (0.249)	0.343	0.466 (0.203)	0.430	0.369 (0.235)	0.318	3.776	***
Outsider debt (proportion debt held by outsiders)	0.064 (0.179)	0.000	0.087 (0.202)	0.000	0.042 (0.149)	0.000	2.039	**
Foreign revenue (foreign revenue/total revenue)	0.355 (0.319)	0.354	0.466 (0.306)	0.510	0.258 (0.294)	0.090	4.339	***
Market capitalization (Euro million)	3816.00 (12006.9)	597.00	6210.00 (16513.90)	806.85	1502.38 (3259.82)	495.00	2.483	**
Leverage (total debt/market value of equity)	0.568 (0.219)	0.610	0.530 (0.209)	0.547	0.642 (0.199)	0.683	2.563	**

Descriptive statistics for the full sample and for companies using international standards (IAS and US GAAP) or national standards (HGB) only. Mann-Whitney U tests compare means of the two groups. *** significant at $p <$ 0.01. ** significant at $p < 0.05$ (two-tailed tests).

TABLE 4
DICHOTOMOUS VARIABLES

	Full sample		Companies using IAS or US GAAP		Companies using HGB only		Chi-square	
	N = 176	%	N = 87	%	N = 89	%		
<u>Banker on supervisory board</u>								
Has banker on supervisory board	106	60	49	58	57	65		
No banker on board	67	38	36	42	31	35	0.925	
Not stated	3	2						
<u>Foreign listing</u>								
Lists on non-German exchange	62	35	44	51	18	20		
List only in Germany	114	65	43	49	71	80	17.760	***
<u>Lists on NYSE or NASDAQ</u>								
Lists on 20-F exchange	12	7	5	6	7	8		
Cross-listed elsewhere or domestic only listing	164	93	82	94	82	92	0311	
<u>Neuer Markt listing</u>								
Lists on <u>Neuer Markt</u>	38	22	38	44	0	0		
Does not list on <u>Neuer Markt</u>	138	78	49	56	89	100	49.578	***
<u>Made an issue in the year</u>								
Made an issue in the year	45	26	29	33	16	18		
Did not make an issue in the year	131	74	58	67	73	82	5.451	**
<u>Big 5 Auditor</u>								
Uses a Big 5 auditor	123	70	66	76	57	64		
Does not use a Big 5 auditor	53	30	21	24	32	36	2.919	

Frequencies for dichotomous variables for the full sample and for companies using international standards (IAS and US GAAP) or national standards (HGB) only. Chi-square tests compare frequencies of the two groups. *** significant at $p < 0.01$ ** significant at $p < 0.05$ (two-tailed tests).

TABLE 5
USE OF ACCOUNTING STANDARDS (CONSOLIDATED FINANCIAL STATEMENTS)

Choice of standards	Number of companies	Proportion of sample (%)
Use international standards = adopts or makes supplementary use of international standards	87	49
Adopters:		
Adopt IAS	39	22
Adopt IAS (with a US GAAP reconciliation)	1	1
Adopt US GAAP	31	18
Supplementary Users:		
Use IAS in conjunction or reconciles with HGB	4	2
Use two sets - IAS and HGB	2	1
Use US GAAP in conjunction or reconciles with HGB	7	4
Use two sets - US GAAP and HGB	1	1
Use "International"[a] in conjunction with HGB	2	1
Use HGB only	89	51
Total number	176	100

[a] "International standards" were used by one company without defining the choice of standards. The other company used HGB but provided two reconciliation statements – one to IAS and the other to US GAAP.

TABLE 6
REGRESSION RESULTS – USE OF INTERNATIONAL STANDARDS

Variable (expected relationship)	Model I Coeffic.	Wald	One-tailed p-value	Model II Coeffic.	Wald	One-tailed p-value	Model IIIa Coeffic.	Wald	One-tailed p-value	Model IIIb Coeffic.	Wald	One-tailed p-value
OUTFINANCE (+)	1.152	3.529	0.030				0.115	0.021	0.442	9.943	5.229	0.011
OUTEQUITY (+)				1.479	3.730	0.026						
OUTDEBT (+)				0.000	0.412	0.260						
BANKER (+)	0.614	2.454	0.059	0.575	2.122	0.073	0.323	0.316	0.287	0.541	0.177	0.337
FREV (+)	2.155	10.939	0.000	2.165	10.831	0.000	3.383	13.595	0.000	0.882	0.130	0.359
BIG5 (+)	0.361	0.825	0.182	0.363	0.818	0.183	0.501	0.566	0.226	-0.177	0.021	0.442
SIZE (+)	0.178	1.516	0.178	0.177	1.388	0.120	0.669	10.919	0.000	-1.653	4.745	0.015
LEVERAGE (-)	-0.850	9.029	0.001	-0.796	8.144	0.002	-0.163	0.368	0.272	-2.100	2.617	0.053
Constant	-2.425	5.471	0.008	-2.510	5.231	0.011	-7.272	20.969	0.000	10.299	4.838	0.014
Nagelkerke R^2	0.288			0.293			0.482			0.577		
% correctly predicted (based on 50% cut-off)	69.4			70.6			81.8			85.7		
Model Chi-square	41.39			42.25			52.03			19.11		
p value	0.000			0.000			0.000			0.004		
Number of companies	173			173			123			50		
1 = use IAS or US GAAP	86			86			43			43		
0 = use HGB only	87			87			80			7		

Results of binary logistic regressions examining the relationship of use of international standards (IAS or US GAAP) and company attributes. Model I includes OUTFINANCE and relevant variables. Model II includes OUTEQUITY and OUTDEBT and relevant variables. Model IIIa excludes companies with 20-F or Neuer Markt listings. Model IIIb includes only companies with 20-F and Neuer Markt listings. OUTFINANCE = Proportion of outsider equity and outsider debt; BANKER = 1 where Banker on supervisory board, 0 otherwise; OUTEQUITY = Proportion of shares held by outsiders; OUTDEBT = proportion of public long-term debt; FREV = proportion of foreign revenue to total revenue; BIG 5 = 1 where company is audited by Big 5 audit firm, 0 otherwise; SIZE = log of market capitalization; LEVERAGE = total liabilities/market value of equity.

TABLE 7
REGRESSION RESULTS – CHOICE OF US GAAP OR IAS

	Model IV Coeffic.	Wald	One-tailed *p* value	Model V Coeffic.	Wald	One-tailed *p* value
OUTFINANCE (+)	1.449	2.401	0.061			
OUTEQUITY (+)				2.252	2.894	0.044
OUTDEBT (+)				0.000	1.153	0.142
FLIST (+)	-0.067	0.012	0.456	-0.157	0.064	0.400
NLIST (+)	1.721	3.645	0.028	1.587	2.920	0.044
ISSUE (+)	0.559	0.889	0.173	0.611	0.956	0.164
FREV (+)	1.122	1.182	0.138	1.410	1.652	0.099
BIG5 (+)	0.738	1.317	0.126	0.807	1.507	0.110
SIZE (+)	0.031	0.022	0.442	-0.049	0.046	0.415
LEVERAGE (-)	-0.310	0.329	0.283	-0.314	0.317	0.287
Constant	-3.053	2.487	0.057	-2.896	1.789	0.091
Nagelkerke R^2	0.235			0.288		
% correctly predicted	64.2			66.7		
(based on 50% cut-off						
Model Chi-square	15.71			19.72		
p value	0.047			0.020		
Number of companies	81			81		
1= US GAAP	38			38		
0 = IAS	43			43		

Results from the binary logistic regression examining the choice of US GAAP or IAS and company attributes. Model IV includes OUTFINANCE and relevant variables. Model V includes OUTEQUITY and OUTDEBT and relevant variables. LIST 20-F companies are excluded from both models. OUTFINANCE = Proportion of outsider equity and outsider debt; BANKER = 1 where Banker on supervisory board, 0 otherwise; OUTEQUITY = Proportion of shares held by outsiders; OUTDEBT = proportion of public long-term debt; FLIST = 1 where company is cross-listed, 0 otherwise; NLIST = 1 where company lists on the Neuer Markt, 0 otherwise; ISSUE = 1 where company has issued public debt or equity in the financial year, 0 otherwise; FREV = proportion of foreign revenue to total revenue; BIG 5 = 1 where company is audited by Big 5 firm, 0 otherwise; SIZE = log of market capitalization; LEVERAGE = total liabilities/market value of equity.

FOOTNOTES

[1] The International Accounting Standards Board (IASB) is responsible for the promulgation of International Financial Reporting Standard (IFRS) to add to the international accounting standards (IAS) that were produced by its predecessor organisation the International Accounting Standards Committee (IASC) (IASB, 2004). In 1999 companies used IAS rather than IFRS so the term IAS is used in throughout this study.

[2] US GAAP: the generally accepted accounting principles of the United States of America (U.S.A.).

[3] In 1998, the Big Six auditors were Arthur Andersen, Coopers & Lybrand, Deloitte Touche Tohmatsu, Ernst & Young, KPMG, and Price Waterhouse. In 1999 a merger between Coopers & Lybrand and Price Waterhouse to form PricewaterhouseCoopers meant that the Big Six became the Big Five.

[4] Considering market measures for eight European countries obtained from the European Stock Exchange Statistics Annual Report, 1995, Germany ranks seventh in both domestic equity market capitalization/GDP and domestic listed companies per million of population (Nobes, 1998, p. 187).

[5] Data from English language reports were collected by one researcher and data from German language reports by another researcher. To ensure consistency, both researchers

followed common instructions for data collection and were supervised by the same chief researcher.

[6] The supervisory board of a German company appoints and dismisses the members of the company's management board, supervises the latter board and approves the financial statements (Nobes and Parker, 2004, p. 255). They act as part of the internal corporate governance mechanism (Nobes and Roberts, 2000).

[7] Among the 38 companies with German language annual reports, 23 have more than 90% insider equity, six have more than 75% and seven have more than 50%. (Insider equity information was not available for the other two companies.)

[8] An associated company is one in which the sample company holds shares, but it is not part of the consolidated group of companies.

[9] Information about whether public finance was from national or international providers would have been useful for hypothesis testing but was not available in sample companies' annual reports.

[10] Foreign revenue was based on export sales as this was the figure most commonly reported by companies. Only 12% of companies disclosed foreign revenue based on sales by foreign subsidiaries.

[11] For example, see Daimler-Benz financial statements in Radebaugh and Gray (1997, pp. 480-83).

[12] The Neuer Markt segment of the Frankfurt Stock Exchange ceased operation in 2003 and companies transferred to other segments such as TECDAX.

[13] As a robustness test, alternative measures of leverage (total debt/total assets; total long term debt/total assets; total long term debt/market value of equity) were substituted in the model and found to be significant.