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Accounting quality of German and UK cross-listings

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Abstract

Purpose – This paper aims to compare the quality of financial reporting (or accounting quality) of firms cross-listed in Germany and the United Kingdom relative to domestic firms that are not cross-listed in Germany and the United Kingdom.

Design/methodology/approach – The authors assess financial reporting quality based on five measures of earnings management; two measures of timely loss recognition; and the explanatory power (R^2) of three models of stock price and returns association with accounting data. Accounting quality is associated with less earnings management, more timely loss recognition and higher stock price/returns association with accounting data.

Findings – The authors find that there is no difference in financial reporting quality of firms cross-listed in Germany and the United Kingdom and domestic firms that do not cross-list in these countries. They further find that German and UK cross-listing firms have lower accounting quality than US cross-listing firms.

Research limitations/implications – The study is subject to some limitations. Cross-listing firms may be different from non-cross-listing firms in characteristics other than country, size and cross-listing, the variables used to match the firms. The authors also lose quite a number of observations due to the matching process and therefore are limited by a small sample size.

Originality/value – This paper contributes to a growing literature on cross-listing and quality of financial reporting. The authors extend Lang *et al.*'s work to exchanges outside of the USA. They provide further support for Coffee, and Lang *et al.* that firms cross-listed in the USA conform to higher reporting standards than others, in particular in comparison with firms cross-listed in Germany.

Keywords Accounting, Financial reporting quality, Cross-listings, Germany, United Kingdom

Paper type Research paper

1. Introduction

This paper compares the quality of financial reporting of firms cross-listed in Germany and in the UK relative to domestic firms that are not cross-listed in Germany and in the UK. Lang *et al.* (2003) compare the accounting quality of firms cross-listed (CL) in the USA and firms not cross-listed (NCL) in the USA, finding evidence of earnings management with NCL firms. According to Coffee (2002) and Lang *et al.* (2003), cross-listing may serve a bonding role, causing systematic differences in terms of

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transparency between firms cross-listed in the US stock exchanges and other firms listed in their domestic markets. Specifically, CL firms face:

- increased enforcement by the Securities and Exchange Commission (SEC);
- a more demanding litigation environment; and
- enhanced disclosure and reconciliations to US generally accepted accounting principles (GAAP).

Coffee (2002) suggests that firms do not appear to view cross-listing in non-US markets as a close substitute for US cross-listing, which he attributes to differences in regulatory environments.

This paper extends Lang *et al.* (2003) to a non-US setting to examine whether the regulatory environments of other stock exchanges provide the same impact on accounting quality. We chose stock exchanges located in Germany and the UK for a number of reasons. First, as of 1998, the UK and Germany had the largest number of cross-listings after the USA, 406 and 179 firms, respectively, (Sarkissian and Schill, 2004)[1]. In recent years, the London Stock Exchange (LSE) has attracted more foreign firms to cross-list than has the New York Stock Exchange (NYSE). In 1998, the NYSE's share of cross-listings exceeded London's share by 74 percent; by 2005, the NYSE's share exceeded London's share by only 59 percent (Doidge *et al.*, 2009).

Stock exchanges in these two countries also play an important role in the global financial market. In the 2008 Annual Report of World Federation of Exchanges, the LSE was the fifth largest market in equity market capitalization, and Deutsche Börse was the eighth. They were among the top five largest exchanges by total value of share trading in 2008[2].

Lastly, Germany and the UK provide an interesting setting to explore whether a host country's legal and institutional characteristics impact the financial reporting quality of cross-listed firms (Leuz *et al.*, 2003). Germany has the legal origin of the code law, while the UK is of the common law. In terms of disclosure requirements, firms listed on the LSE are required to file annual reports that comply with International Accounting Standards. Except for the USA, no other world exchanges add to the disclosure requirements of the LSE (Meek and Gray, 1989). La Porta *et al.* (2006) demonstrate that Germany lags behind the UK in the area of disclosure requirements, public enforcement, and private enforcement. While the UK has one of the strongest disclosure systems in the world, Germany has less stringent reporting requirements than the USA or the UK. As such, the empirical question is whether varying regulatory environments of host countries impact accounting quality of cross-listed firms. We further examine whether a difference exists in financial reporting quality of firms cross-listed on these non-US stock exchanges versus firms cross-listed in the USA.

Our findings show no evidence that firms cross-listed in Germany or the UK have better accounting quality than matched firms not cross-listed in these two countries. The results of our comparison of German/UK cross-listings with US cross-listings indicate lower accounting quality in German/UK CL firms than that of US CL firms. Hence, in a non-US setting, the accounting quality of CL firms does not seem to be affected by the legal origin or institutional features of a host country.

Our paper contributes to the literature on cross-listing and quality of financial reporting. We extend Lang *et al.* (2003) to exchanges outside of the USA. Furthermore, we do not limit our samples to European firms, as in Pagano *et al.* (2002) or

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Cabán-García (2009). Cabán-García (2009) finds little support for an association between securities regulation and earnings quality of European firms cross-listed in 13 European stock exchanges. Our results offer additional evidence to that effect. We also provide support for Coffee (2002) and Lang *et al.* (2003) that firms cross-listed in the USA conform to higher reporting standards than others, particularly in comparison with firms cross-listed in Germany.

The remainder of our paper is organized as follows. Section 2 discusses prior literature. Section 3 presents our hypotheses and models. In Section 4, we discuss our sample and data. Our results are presented in Section 5. Section 6 concludes the paper.

2. Literature review

Biddle and Saudagaran (1989) and Saudagaran and Biddle (1992) find that firms are less likely to list their shares on foreign stock exchanges with higher disclosure levels than those of their domiciles, suggesting that financial disclosure levels are an important determinant of exchange choices[3]. Pagano *et al.* (2001) find that European companies are more likely to cross-list in more liquid and larger markets, and in countries with better investor protection, more efficient courts and bureaucracy, and language and institutions similar to their home country. However, their cross-listing decisions correlate negatively with differences between the accounting standards of the destination and home countries. Pagano *et al.* (2002) find a decline of foreign listings in Europe and a large increase in European listings in the USA from 1986 to 1997, which they attribute to lower trading costs, tighter accounting standards and better shareholder protection in the USA than in most European countries[4].

Many researchers examine firms' motivation for a US cross-listing. The bonding theory recognizes that in countries where legal protections for minority investors are weak or enforcement mechanisms are poor, firms find raising external capital considerably more difficult (La Porta *et al.*, 1997). Coffee (1999) and Stulz (1999) suggest that firms wishing to access external capital bond themselves to protect the interests of minority investors by cross-listing in the USA because compliance with US disclosure requirements, exposure to SEC enforcement, and the threat of shareholder litigation make it harder and more costly for controlling owners and managers to extract private control benefits from outside investors. Studies supporting the bonding hypothesis include Reese and Weisbach (2002) and Doidge *et al.* (2004).

Earlier studies on financial reporting quality examined the relationship between earnings and stock prices around the world (Alford *et al.*, 1993; Joos and Lang, 1994). Ali and Hwang (2000), Ball *et al.* (2000) and Fan and Wong (2001) study various institutional factors to explain differences in the price-earnings association across countries. Leuz *et al.* (2003) document differences in earnings management across 31 countries, finding a negative relationship between earnings management and investor protection. Wang *et al.* (2010) find that Taiwan firms sell long-lived assets and investments to beat earnings thresholds. Cheng and Reitenga (2009) discover differential effects of institutional non-blockholders and active institutional blockholders on earnings management behavior.

In the cross-listing literature, US CL firms are found to exhibit higher accounting quality than NCL firms in terms of lower earnings management, more timely loss recognition and stronger price-return association (Lang *et al.*, 2003). When comparing

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US firms and foreign firms cross-listed in the USA, Lang *et al.* (2006) find the accounting data of CL companies demonstrating lower quality than that of the US matched sample. In a non-US setting, Cabán-García (2009) examines European firms cross-listed in European countries and finds no significant differences between the earnings quality of CL and NCL firms, suggesting that the bonding hypothesis may be irrelevant outside of the US market. Since Cabán-García (2009) does not indicate whether her results apply to cross-listings on all European stock exchanges or only certain exchanges, we differ from her study in that we focus on two important European exchanges and our sample firms are not limited to European firms. We also examine a variety of measures for accounting quality.

3. Hypotheses and models

We extend Lang *et al.* (2003) to examine whether the regulatory environment of Germany and the UK provide the same impact on accounting quality. As reported in Table II of La Porta *et al.* (2006) on a country's securities regulation, Germany's respective scores for disclosure requirements, private enforcement, and public enforcement are 0.42, 0.21 and 0.22. They fall below that of the overall global medians of 0.58, 0.54 and 0.55, as well as that of the USA of 1.0, 1.0 and 0.90. Given the less stringent regulatory environment, we expect that firms cross-listed in Germany do not differ in accounting quality from NCL firms listed in the home countries. That is, there is no difference in earnings management, timely recognition of losses, and price-earnings association between CL and NCL firms in the case of Germany.

On the other hand, the same indices for the UK are 0.83, 0.75 and 0.68, which are above the overall global medians and only slightly below that of the USA. This is consistent with Meek and Gray (1989) that the reporting requirements in the UK are second only to the USA. Hence, we expect firms cross-listed in the UK to have better accounting quality than NCL firms from the home countries. That is, there is lower earnings management, more timely recognition of losses, and better price-earnings association between CL and NCL firms in the case of the UK.

Our models for examining accounting quality are based on the models in Lang *et al.* (2003), i.e. earnings management models, timely loss recognition models, and association of stock prices and returns with accounting data.

Earnings management models

We use five measures to calculate earnings smoothing behavior and earnings management; higher earnings management indicates lower accounting quality:

(1) The variability of net income (ΔNI); it is the variance of the residuals from a regression of the absolute value of changes in annual income (scaled by total assets) on size, growth, equity issue, debt issue and asset turnover. A low variability of NI (small variance) suggests earnings smoothing.

(2) The ratio of ΔOI and ΔOCF, where ΔOI is the variance of the change in operating profit, and ΔOCF is the variance of the change in net operating cash flows. The variances of ΔOI and ΔOCF are obtained from the regression of the absolute value of each variable on size, growth, equity issue, debt issue and asset turnover. A low ratio of ΔOI to ΔOCF suggests earnings management.

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(3) The Spearman partial correlation between the residuals of operating accruals (OA) and operating cash flows (OCF). To obtain the residuals of OA and OCF, we regress the absolute value of each variable on size, growth, equity issue, debt issue and asset turnover. Earnings management is indicated by a negative correlation between the residuals of OA and OCF; that is, firms use accruals to smooth variability in earnings.

(4) The magnitude of discretionary accruals, measured using the Jones (1991) model. Accruals = $(\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD - \Delta TP)$ − Depreciation and amortization expense, where ΔCA represents the change in total current assets, ΔCash represents the change in total cash/cash equivalents, ΔCL represents the change in total current liabilities, ΔSTD represents the change in short-term debt included in current liabilities, and ΔTP represents the change in income taxes payable. We regress accruals on size, growth, equity issue, debt issue and asset turnover. The absolute value of the residual of this regression gives us discretionary accruals. Earnings management is indicated by the absolute value of discretionary accruals (ABSDA).

(5) The likelihood of cross-listing firms reporting small positive NI. We estimate a logit model regressing small positive NI variable on an indicator variable set to 1 for CL and 0 for NCL firms and the control variables. The small positive NI variable is an indicator set to 1 for observations for which annual NI scaled by total assets is between 0 and 0.01 and set to 0 otherwise; the coefficient on the indicator variable is the measure of earnings management. A negative coefficient indicates a lower likelihood of reporting small positive income (or less earnings management) by CL firms relative to NCL firms.

Timely loss recognition models

Timely loss recognition is assessed using three measures; accounting quality is associated with more timely recognition of losses:

(1) The likelihood of CL firms reporting large negative NI. We estimate a logit model regressing a large negative NI variable on an indicator variable set to 1 for CL and 0 for NCL firms and the control variables. The large NI variable is an indicator set to 1 for observations for which annual NI scaled by total assets are less than −0.20 and set to 0 otherwise; the coefficient on the indicator variable is the measure of timely loss recognition. A positive coefficient indicates a higher likelihood of reporting negative income (more timely loss recognition) by CL firms relative to NCL firms.

(2) The timely loss recognition is the skewness of earnings per share (EPS), which measures the asymmetry of the probability distribution of EPS. Ball *et al.* (2000, p. 12) document that:

> [. . .] common law earnings are more left skewed than code law earnings. Conservative accounting tends to incorporate economic losses as larger but transitory, capitalized amounts, and to incorporate economic gains as smaller but persistent flows over time, thus generating the negative skew of accounting income.

Lang *et al.* (2003, p. 374) interpret this as evidence of more timely recognition of losses.

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(3) The Basu (1997) regression of earnings on return, dummy variable for loss, and interaction of return and dummy variable. The coefficient on the interaction of return and dummy variable measures timely loss recognition.

Association of stock prices and returns with accounting data

Prior research such as Robbani and Bhuyan (2010) has examined the relationship between stock price or returns and accounting data. We assess the association of price and returns with accounting data using the explanatory power (R^2) of three regressions. Estimation models with high explanatory power (R^2) reflect high reporting quality:

(1) Regressing stock price on the book value of equity per share and EPS.

(2) Regressing EPS on positive returns.

(3) Regressing EPS on negative returns.

4. Sample and data

Our sample of CL firms is taken from Sarkissian and Schill (2004). We limit our CL firms to those coming from a home country that has at least five firms cross-listed in the host countries, i.e. the UK or Germany. The CL firms in Germany (GCL) in our sample are from the following six home countries: Austria, France, Japan, The Netherlands, Switzerland and the UK. Our NCL sample in Germany (NGCL) consists of firms matched by size (total assets) from the same home countries and not cross-listed in Germany. The CL firms in the UK (UKCL) in our sample are from the following 17 home countries: Australia, Canada, France, Germany, Greece, India, Ireland, Japan, Korea, The Netherlands, Norway, Poland, South Africa, Spain, Sweden, Taiwan and Turkey. Our NCL sample (NUKCL) consists of firms matched by size from the above 17 home countries and not cross-listed in the UK. We obtain our sample firms from the Worldscope CDs. Worldscope covers over 24,000 public companies in more than 50 developed and emerging markets, representing over 96 percent of the market value of the world's publicly traded companies. The CDs contain up to ten years of historical financial data from annual reports of the publicly traded companies around the world. The latest year for cross-listing in our sample is 1998, so we obtain 1998 and 1999 financial data for our sample firms from Worldscope CDs 1998 through 2000 to conduct a cross-sectional analysis.

Table I gives the frequency distribution by home countries of firms listed in the two host markets. Germany has 96 cross-listings from six countries, while the UK has 258 cross-listings from 17 countries. The largest number of firms cross-listed in Germany is from Japan, followed by The Netherlands. The largest number of cross-listings in the UK is from Ireland, followed by South Africa and Japan. Excluding firms with missing data, we obtain 72 CL firms in Germany and 104 CL firms in the UK. We then match firms by country of origin and firm size, obtaining 36 NGCL firms and 44 NUKCL firms as our control sample.

5. Results

Table II presents the results of our measures of financial reporting quality. In Panel A1, variability of ΔNI and variability of ΔOI and ΔOCF are close to zero for GCL and NGCL firms. Low variability suggests earnings smoothing in both GCL and NGCL firms. The correlation of OA and OCF is -0.073 for GCL and -0.126 for NGCL firms.

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Table I.
Frequencies of cross-listing firms in Germany and the UK

Country	Initial sample	Percentage	Final sample	Percentage
Panel A: Germany				
Austria	6	6.25	2	5.56
France	7	7.29	4	11.11
Japan	50	52.08	22	61.11
The Netherlands	17	17.71	3	8.33
Switzerland	9	9.38	3	8.33
UK	7	7.29	2	5.56
Total	96	100.00	36	100.00
Panel B: UK				
Australia	10	3.95	5	11.36
Canada	20	7.91	2	4.55
France	6	2.37	3	6.82
Germany	11	4.35	2	4.55
Greece	5	1.98	0	0
India	17	6.72	7	15.91
Ireland	51	20.16	6	13.64
Japan	27	10.67	1	2.27
Korea	14	5.53	1	2.27
The Netherlands	13	5.14	2	4.55
Norway	5	1.98	2	4.55
Poland	7	2.77	0	0
South Africa	35	13.83	5	11.36
Spain	5	1.98	0	0
Sweden	12	4.74	4	9.09
Taiwan	9	3.56	4	9.09
Turkey	6	2.37	0	0
Total	258	100.00	44	100.00

The more negative correlation indicates a significantly higher level of earnings management in NGCL firms than in GCL firms. Discretionary accrual (median ABSDA) is 0.076 for GCL firms and 0.067 for NGCL firms, but the medians are not significantly different. GCL firms are less likely to report small positive NI than NGCL, but the coefficient (−0.357) is not significant.

The likelihood of reporting large negative income is not significantly higher for GCL firms (Panel B1). GCL firms have negatively skewed EPS (−2.796), while NGCL firms have positively skewed EPS (5.218). The negative skewness of EPS serves as evidence of more timely recognition of losses by GCL firms relative to NGCL firms. The Basu (1997) regression for timely loss recognition does not show a significant coefficient for either group; there is no indication that GCL or NGCL firms are timely in recognizing losses.

In Panel C1, the regression of stock price on book value and earnings show a lower R^2 for GCL firms (70.2 percent) than for NGCL firms (99.9 percent), indicating a better association of stock prices with accounting data for NGCL firms. The R^2 of the regression of earnings on positive returns (good news) is also lower for the GCL firms than for the NGCL firms. However, the R^2 of the regression of earnings on negative returns (bad news) is higher for the GCL firms than for the NGCL firms. The Vuong (1989) test indicates that only the explanatory power of the good news models (R^2) is significantly different between GCL and NGCL firms. Overall, there is no consistent evidence that firms cross-listed in Germany have better earnings quality than firms

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Measure	*Cross-listings in Germany*			*Non-cross-listings*	
	Panel A1: earnings management				
Variability of ΔNI	0.000			0.000	
Variability of ΔOI and ΔOCF	0.000			0.000	
Correlation of OA and OCF	−0.073			−0.126**	
Median of ABSDA	0.076			0.067	
Percentage of small positive NI			−0.357		
	Panel B1: timely loss recognition				
Large negative NI			0.000		
Skewness of EPS	−2.796			5.218	
Basu regression R*DUM coefficient	0.041			0.055	
	Panel C1: association of stock prices and returns with accounting data				
Regression R^2					
Price	0.702	$n = 36$		0.999	$n = 36$
Basu good news	0.006	$n = 15$		0.008**	$n = 16$
Basu bad news	0.008	$n = 21$		0.004	$n = 20$
Measure	*Cross-listings in the UK*			*Non-cross-listings*	
	Panel A2: earnings management				
Variability of ΔNI	0.000			0.000	
Variability of ΔOI and ΔOCF	0.000			0.000	

(*continued*)

Table II. Financial reporting quality of German/UK cross-listings and non-cross-listings

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Correlation of OA and OCF	0.206			0.112	
Median of ABSDA	0.052			0.091	
Percentage of small positive NI			−0.696**		
Panel B2: timely loss recognition					
Large negative NI			44.595		
Skewness of EPS	−9.370			−9.173	
Basu regression R*DUM coefficient	−0.008			13.705**	
Panel C2: association of stock prices and returns with accounting data					
Regression R^2					
Price	0.946	$n = 44$		0.948***	$n = 44$
Basu good news	0.003	$n = 27$		0.010**	$n = 21$
Basu bad news	0.000	$n = 17$		0.177**	$n = 23$

Notes: Significantly different between groups at: *0.10, **0.05 and ***0.01 levels (one-tailed); the variability of ΔNI is defined as the variance of the residuals from a regression of the absolute value of changes in annual NI (scaled by total assets) on dividend payout (DIVP) and the control variables, and the variability of ΔOI and ΔOCF is the ratio of the variance of change in operating profit (before tax profit derived from operating activities) to the variance of change in net operating cash flows; we compute the variances of ΔOI and ΔOCF based on the absolute value of each variable being regressed on the control variables; the two vectors of residuals are used to compute the ratio of their respective variances; we winsorize ΔNI, ΔOI, and ΔOCF at the 1 percent level to control for outliers; the correlation of OA and OCF is the partial Spearman correlation between the residuals of operating accruals (calculated as earnings before interest and taxes − OCF) and the residuals of net cash flow from operating activities; we compute both sets of residuals from a regression of each variable on the control variables; the median ABSDA is the median absolute value of discretionary accruals, where discretionary accruals are measured as (ΔCurrentassets − ΔCash) − (ΔCurrent Liabilities − ΔShort-term debt − ΔTax Payable) − Depreciation (Leuz *et al.*, 2003); for the percentage of small positive (large negative) NI, we estimate a separate logit model for each measure regressing the small positive (large negative) NI variable on an indicator variable set to 1 for cross-listing and 0 for non-cross-listing firms and the control variables; the small positive (large negative) NI variable is an indicator set to 1 for observations for which annual NI scaled by total assets is between 0 and 0.01 (less than −0.20) and set to 0 otherwise; the coefficient on the indicator variable is reported; the skewness of EPS measures the asymmetry of the probability distribution of EPS; the R*DUM coefficient is the coefficient on the interaction from the Basu (1997) regression of earnings on return, dummy variable for loss, and interaction of return and dummy variable; the price model regresses the stock price on the book value of equity per share and EPS; the good news model regresses EPS on positive returns; the bad news model regresses EPS on negative returns

Table II.

that do not cross-list in Germany. This contrasts the evidence in the USA that CL firms have better earnings quality than NCL firms (Lang *et al.*, 2003).

In Panel A2, the variability of ΔNI and of ΔOI and ΔOCF is close to zero for UKCL and NUKCL firms, indicating earnings smoothing in these firms. The correlation of OA and OCF is 0.206 for UKCL and 0.112 for NUKCL firms, indicating that there is no earnings management. Median ABSDA is lower for UKCL firms (0.052) than that for NUKCL firms (0.091), suggesting more earnings smoothing through discretionary accruals in NUKCL firms than in UKCL firms. UKCL firms are less likely to report small positive NI than NUKCL firms (coefficient = − 0.696), indicating higher earnings management in NUKCL firms than in UKCL firms.

Panel B2 shows that the coefficient for the likelihood of UKCL firms reporting large negative NI is positive but not significant (44.595). Both UKCL and NUKCL firms have negatively skewed EPS; they are timely in recognizing losses. The Basu (1997) regression coefficient for timeliness in recognizing losses is not significant for UKCL firms but is significantly positive for NUKCL firms (coefficient = 13.705). NUKCL firms are timely in reporting losses.

In Panel C2, the regression of stock price on annual earnings shows an R^2 that is similar for UKCL firms (0.946) and NUKCL firms (0.948). The R^2 of the regression of earnings on returns for good news is higher for NUKCL firms than for UKCL firms. The R^2 of the regression of earnings on returns for bad news is higher for NUKCL firms than for UKCL firms. The Vuong (1989) test indicates that the explanatory power of the three models (R^2) is significantly different between UKCL and NUKCL firms. Overall, we do not find consistent evidence that firms cross-listed in the UK have better earnings quality than firms that do not cross-list in the UK. In comparison, UKCL firms tend to have smaller discretionary accruals and report small positive incomes less frequently than NUKCL firms. However, NUKCL firms are timely in loss recognition and have better stock price earnings association than UKCL firms. This contrasts the findings in the USA that CL firms have better earnings quality than NCL firms (Lang *et al.*, 2003).

We next test if a firm incorporated in a country with code-law origin exhibits better earnings quality when cross-listed in a market with common-law origin[5]. Germany has code-law origin, so we run this test only for code-law firms cross-listed in the UK, a common-law country. La Porta *et al.* (1998) classify France, Germany, Greece, Japan, Korea, The Netherlands, Norway, Spain, Sweden, Taiwan and Turkey as code-law countries, while Australia, Canada, India, Ireland, and South Africa as common-law countries. Poland is not classified, but we include it as a code-law country. The results (untabulated) for code-law firms are similar to our overall findings.

We next exclude firms identified in Sarkissian and Schill (2004) as cross-listed in other markets (Belgium, France, Luxembourg, The Netherlands and the USA) from our sample of CL and NCL firms. The results are presented in Table III. The first panel presents results for GCL and NGCL firms and the second panel for UKCL and NUKCL firms. The results are similar to those shown in Table II. Overall, there is no consistent evidence that GCL firms have better earnings quality than NGCL firms. We also do not find consistent evidence that UKCL firms have better accounting quality than NUKCL firms.

Additional analysis: comparing with cross-listings in the USA

We conduct additional analyses to compare German/UK CL firms with US CL firms. Table IV notes some differences in the accounting quality between German and

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Table III.
Financial reporting quality of German/UK cross-listings and non-cross-listings (excluding firms also cross-listed in the USA and other markets)

Measure	*Cross-listings in Germany*			*Non-cross-listings*	
	Panel A1: earnings management				
Variability of ΔNI	0.000			0.000	
Variability of ΔOI and ΔOCF	0.000			0.000	
Correlation of OA and OCF	0.134			−0.108	
Median of ABSDA	0.079			0.075	
Percentage of small positive NI			−0.449**		
	Panel B1: timely loss recognition				
Large negative NI			−3.819		
Skewness of EPS	−3.024			4.898	
Basu regression R*DUM coefficient	0.012			−0.327	
	Panel C1: association of stock prices and returns with accounting data				
Regression R^2					
Price on book value and earnings	0.783	$n = 16$		0.999	$n = 32$
Basu good news	0.007	$n = 6$		0.031*	$n = 13$
Basu bad news	0.105	$n = 10$		0.045***	$n = 19$
Measure	*Cross-listings in the UK*			*Non-cross-listings*	
	Panel A2: earnings management				
Variability of ΔNI	0.000			0.000	
Variability of ΔOI and ΔOCF	0.000			0.000	

(continued)

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Correlation of OA and OCF	0.073			0.035	
Median of ABSDA	0.048			0.137*	
Percentage of small positive NI			−0.533**		
Panel B2: timely loss recognition					
Large negative NI			0.154		
Skewness of EPS	−8.237			−7.701	
Basu regression R*DUM coefficient	−0.072			15.954**	
Panel C2: association of stock prices and returns with accounting data					
Regression R^2					
Price on book value and earnings	0.952	$n = 34$		0.797***	$n = 31$
Basu good news	0.004	$n = 20$		0.011*	$n = 16$
Basu bad news	0.001	$n = 14$		0.192***	$n = 15$

Notes: Significantly different between groups at: *0.10, **0.05 and ***0.01 levels (one-tailed); the variability of ΔNI is defined as the variance of the residuals from a regression of the absolute value of changes in annual NI (scaled by total assets) on dividend payout (DIVP) and the control variables, and the variability of ΔOI and ΔOCF is the ratio of the variance of change in operating profit (before tax profit derived from operating activities) to the variance of change in net operating cash flows; we compute the variances of ΔOI and ΔOCF based on the absolute value of each variable being regressed on the control variables; the two vectors of residuals are used to compute the ratio of their respective variances; we winsorize ΔNI, ΔOI, and ΔOCF at the 1 percent level to control for outliers; the correlation of OA and OCF is the partial Spearman correlation between the residuals of operating accruals (calculated as earnings before interest and taxes − OCF) and the residuals of net cash flow from operating activities; we compute both sets of residuals from a regression of each variable on the control variables; the median ABSDA is the median absolute value of discretionary accruals, where discretionary accruals are measured as (ΔCurrent assets − ΔCash) − (ΔCurrent Liabilities − ΔShort-term debt − ΔTax Payable) − Depreciation (Leuz *et al.*, 2003); for the percentage of small positive (large negative) NI, we estimate a separate logit model for each measure regressing the small positive (large negative) NI variable on an indicator variable set to 1 for cross-listing and 0 for non-cross-listing firms and the control variables; the small positive (large negative) NI variable is an indicator set to 1 for observations for which annual NI scaled by total assets is between 0 and 0.01 (less than −0.20) and set to 0 otherwise; the coefficient on the indicator variable is reported; the skewness of EPS measures the asymmetry of the probability distribution of EPS; the R*DUM coefficient is the coefficient of the interaction from the Basu (1997) regression of earnings on return, dummy variable for loss, and interaction of return and dummy variable; the price model regresses the stock price on the book value of equity per share and EPS; the good news model regresses EPS on positive returns; the bad news model regresses EPS on negative returns

Table III.

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Table IV.
Financial reporting quality of German/UK cross-listings versus US cross-listings

Measure	*Cross-listings in Germany*		*Cross-listings in the USA*	
	Panel A1: earnings management			
Variability of ΔNI	0.000		0.000	
Variability of ΔOI and ΔOCF	0.000		0.000	
Correlation of OA and OCF	−0.073		−0.431***	
Median of ABSDA	0.076		0.080	
Percentage of small positive NI		0.269		
	Panel B1: timely loss recognition			
Large negative NI		−5.543		
Skewness of EPS	−2.796		14.374	
Basu regression R*DUM coefficient	0.041		0.254***	
	Panel C1: association of stock prices and returns with accounting data			
Regression R^2				
Price	0.702	$n = 36$	0.902	$n = 107$
Basu good news	0.006	$n = 15$	0.000	$n = 56$
Basu bad news	0.008	$n = 21$	0.088***	$n = 51$
Measure	*Cross-listings in the UK*		*Cross-listings in the USA*	
	Panel A2: earnings management			
Variability of ΔNI	0.000		0.000	
Variability of ΔOI and ΔOCF	0.000		0.000	

(*continued*)

Correlation of OA and OCF	0.206		−0.055	
Median of ABSDA	0.052		0.082*	
Percentage of small positive NI		−0.253		
Panel B2: timely loss recognition				
Large negative NI		−0.045		
Skewness of EPS	−9.370		11.964	
Basu regression R*DUM coefficient	−0.008		0.407***	
Panel C2: association of stock prices and returns with accounting data				
Regression R^2				
Price	0.946	$n = 44$	0.990***	$n = 195$
Basu good news	0.003	$n = 27$	0.000***	$n = 106$
Basu bad news	0.000	$n = 17$	0.039***	$n = 89$

Notes: Significantly different between groups at: *0.10, **0.05 and ***0.01 levels (one-tailed); the variability of ΔNI is defined as the variance of the residuals from a regression of the absolute value of changes in annual NI (scaled by total assets) on dividend payout (DIVP) and the control variables, and the variability of ΔOI and ΔOCF is the ratio of the variance of change in operating profit (before tax profit derived from operating activities) to the variance of change in net operating cash flows; we compute the variances of ΔOI and ΔOCF based on the absolute value of each variable being regressed on the control variables; the two vectors of residuals are used to compute the ratio of their respective variances; we winsorize ΔNI, ΔOI, and ΔOCF at the 1 percent level to control for outliers; the correlation of OA and OCF is the partial Spearman correlation between the residuals of operating accruals (calculated as earnings before interest and taxes – OCF) and the residuals of net cash flow from operating activities; we compute both sets of residuals from a regression of each variable on the control variables; the median ABSDA is the median absolute value of discretionary accruals, where discretionary accruals are measured as (ΔCurrent assets – ΔCash) – (ΔCurrent Liabilities – ΔShort-term debt – ΔTax Payable) – Depreciation (Leuz *et al.*, 2003); for the percentage of small positive (large negative) NI, we estimate a separate logit model for each measure regressing the small positive (large negative) NI variable on an indicator variable set to 1 for Germany/UK cross-listing and 0 for US cross-listing firms and the control variables; the small positive (large negative) NI variable is an indicator set to 1 for observations for which annual NI scaled by total assets is between 0 and 0.01 (less than −0.20) and set to 0 otherwise; the coefficient on the indicator variable is reported; the skewness of EPS measures the asymmetry of the probability distribution of EPS; the R*DUM coefficient is the coefficient of the interaction from the Basu (1997) regression of earnings on return, dummy variable for loss, and interaction of return and dummy variable; the price model regresses the stock price on the book value of equity per share and EPS; the good news model regresses EPS on positive returns; the bad news model regresses EPS on negative returns

Table IV.

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US CL firms. In Panel A1, the significantly higher negative correlation of OA and OCF for US CL firms indicates more earnings smoothing in US CL firms than in GCL firms. GCL firms have negatively skewed EPS, while US cross-listings have positively skewed EPS, indicating more timely loss recognition among GCL firms. However, Panel B1 shows that the Basu (1997) coefficient is significantly positive (0.254) for US CL firms, suggesting that they are more timely in loss recognition. The overall explanatory power of the regression of stock price and returns is higher for US CL firms (0.902) than for German CL firms (0.702), as shown in Panel C. The explanatory power of the earnings-returns regression for bad news firms is also significantly higher for US CL firms (0.088) than for GCL firms (0.008). Our results provide some evidence indicating lower accounting quality in GCL firms than US CL firms.

Our results demonstrate similarities in earnings management between UK and US CL firms. Panel A2 shows no significant differences in the variability of change in NI and that of operating income over operating cash flow. Median ABSDA of UK and US CL firms is 0.052 and 0.082, respectively; the difference is marginally significant at the 10 percent level. UKCL firms have negatively skewed EPS, while US CL firms have positively skewed EPS, indicating more timely loss recognition among UKCL firms. However, the Basu (1997) regression coefficient is significantly positive (0.407) for US CL firms; they are timely in loss recognition. In the association of stock prices and earnings and book value, Panel C2 shows a higher R^2 for firms cross-listed in the USA than for UKCL firms. For good news firms, R^2 is higher for UKCL firms; for bad news firms, US CL firms have a higher R^2.

6. Conclusion

This paper examines whether differences exist in financial reporting quality between firms cross-listed in Germany/UK and domestic firms that are not cross-listed in Germany/UK. We find no difference in earnings quality between firms cross-listed in Germany/UK and domestic firms not cross-listed in Germany/UK. In addition, we find lower accounting quality in German and UK CL firms compared to US CL firms.

Our results suggest that bonding may not be a motive for firms choosing to cross-list in Germany or the UK, supporting Coffee's (2002) hypothesis that firms do not appear to regard cross-listing in non-US markets as a close substitute for US cross-listing. This is also consistent with the findings of Pagano *et al.* (2002) that firms cross-listed in Europe are different from those cross-listed in the USA.

The study is subject to some limitations. CL firms may differ from NCL firms in characteristics other than country, size and cross-listing, the variables used in this study to match the firms. Financial reporting quality may be influenced by other variables not examined in this paper. We lost a large number of observations due to the matching process and therefore are limited by a small sample size.

Notes

1. Doidge *et al.* (2009), "In 1998, London had 487 foreign listings, or 16% of the 2,978 foreign listings around the world, and the cross-listings on the New York exchanges totaled 893, or 30% of the total. The next three largest exchanges in terms of the global market share of foreign listings in 1998 were the Luxembourg exchange (7%), Deutsche Börse (7%), and the Swiss Exchange (6%)."

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2. See the web sites of World Federation of Exchanges: www.world-exchanges.org/files/statistics/excel/WFE%20Annual%20Report%20140509.pdf and www.world-exchanges.org/files/statistics/excel/WFE09%20final.pdf
3. The countries are ranked in order of the comprehensiveness of required financial disclosures as follows: the USA, the UK, The Netherlands, Canada, France, Japan, Germany and Switzerland.
4. The exchanges in the study include: Amsterdam, Brussels, Frankfurt, London, Madrid, Milan, Paris, Stockholm, Vienna, Easdaq, AMEX, NASDAQ, and NYSE.
5. We are grateful to a reviewer for this suggestion.

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