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Testing the Transparency Implications of Mandatory IFRS Adoption: The Spread/Maturity Relation of Credit Default Swaps

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This study tests whether international financial reporting standards (IFRS) adoption increased accounting transparency based on model-driven hypotheses. Duffie and Lando [Duffie D, Lando D (2001) Term structures of credit spreads with incomplete accounting information. *Econometrica* 69(3):633–644] show that changes to accounting transparency affect the spread/maturity relation of credit default swap (CDS) instruments in very specific ways. Consistent with their model, we find that CDS spreads are lower across maturities following the adoption of IFRS, and the slope and concavity of the CDS spread/maturity relation are higher. These changes did not occur to the spread/maturity relation of a control sample of CDS instruments. Predicted changes apply more intensely to firms with low pre-IFRS transparency. Overall, this study provides strong evidence that IFRS adoption increased accounting transparency.

Keywords: credit default swaps; credit risk; maturity; IFRS
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1. Introduction

The literature investigating the relation between international financial reporting standards (IFRS) and transparency has to date yielded inconclusive, if not contradictory, results. One potential explanation is the lack of a theoretical model to guide the empirical analysis. This study uses Duffie and Lando (2001) (hereinafter DL) to derive model-driven hypotheses about the impact of IFRS adoption on the spread/maturity relation of credit default swap (CDS) instruments. Besides testing claims regarding IFRS-induced transparency, this study provides insights into the impact of IFRS adoption on the large, important, and relatively little-studied CDS market.

In the DL model, investors receive imperfect (noisy) accounting reports about the levered firm's asset dynamics and asset values and, hence, imperfect accounting information about the probability that the firm will go bankrupt. The model shows that the CDS spread/maturity relation is contingent upon the transparency of the imperfect accounting system. In particular, the model implies three specific hypotheses about the relation between changes in transparency and changes to the spread/maturity relation of CDS spreads. Specifically, if the switch to IFRS increased accounting transparency, as claimed by its proponents, then we should observe a decrease in the level of the spread and increases in the slope and concavity of the spread/maturity relation.

Controlling for liquidity, ratings, and other factors known to affect CDS spreads, we find that the spread/maturity relation of CDS instruments for firms that adopted IFRS changed in ways entirely consistent with the implications of the DL model. In contradistinction, no such changes occurred to the CDS spread/maturity relation of a control sample of non-IFRS firms. We further document that predicted changes to the CDS spread/maturity structure apply irrespective of country-level differences in institutional factors such as legal enforcement, earnings management, and membership in the European Union. In addition, we document that the impact of IFRS on the spread/maturity relation of CDSs is moderated by *firm-level* transparency as proxied by analysts' forecast errors and forecast dispersion. Importantly, changes to the CDS spread/maturity relation predicted by the

DL model are shown to apply more intensely to firms with low pre-IFRS transparency.

2. Literature Review and Hypotheses Development

This study proposes that IFRS adoption changed the spread/maturity relation of CDS instruments because (i) IFRS increases accounting transparency, and (ii) following the DL model, change in accounting transparency leads to changes in the spread/maturity relation of CDS instruments. This section initially discusses why IFRS likely enhances the transparency of credit risk instruments. We then briefly review relevant empirical literature. We subsequently describe the intuition underlying the DL model and the three specific implications of this model for the relation between accounting transparency and the CDS spread/maturity relation.

2.1. IFRS Transparency and Credit Risk

Credit markets are an important component of the financial system and the financing of public corporations. Although IFRS adoption has direct implications for the functioning of credit markets, the extant research on IFRS adoption primarily focuses on equity markets (e.g., Daske et al. 2013, Li 2010, Christensen et al. 2013, Barth and Israeli 2013). Far less attention has been given to the impact of IFRS on credit markets. Of the handful of such studies, most are based either on credit ratings or on corporate bond yield spreads (see the discussion below). There are many reasons why the CDS market dominates the corporate bond market and credit ratings for analyzing credit risk (see Callen et al. 2009 and Griffin 2014). For example, unlike CDS contracts, bond spreads include factors unrelated to credit risk, such as interest rate risk and other systematic risk factors (Elton et al. 2001). Moreover, credit risk price discovery appears to take place in the CDS market first (Berndt and Ostrovnaya 2014). Unlike bond and CDS spreads, credit ratings are not market prices and are subject to many incentive issues (Bar-Isaac and Shapiro 2011).

There are three main reasons why IFRS likely increased the transparency of accounting information. First, the reporting requirements under IFRS are more comprehensive than those under many local accounting standards (generally accepted accounting principles, or GAAPs), especially for cash flows, pension obligations, leases, and liabilities of uncertain timing and amount. Cash flow and liability information are particularly helpful to creditors in order to assess whether the firm will be able to generate sufficient cash flows to service its debt. Moreover, even if participants in the CDS market are sophisticated and privately privy to such information under local GAAPs, the additional information regarding cash flows and liabilities publicly provided under IFRS will likely result in lower variances in the estimation errors of asset values, consistent with the transparency metric of DL.

Second, IFRS emphasize greater use of fair value accounting than most of the local GAAPs. Fair value information provides early warning signals of changes in current market expectations that are particularly relevant for the analysis of credit risk, especially in an environment characterized by declining asset prices and increasing risk (Vyas 2011). Unlike historical cost accounting where the recognition of declines in asset prices (impairments) depends on management discretion, under fair value accounting firms are committed to recognizing bad news in a timely manner (Linsmeier 2011). Of course, firms have some discretion related to the magnitude and timing of asset write-downs where asset values are "marked to model," but that discretion is there under historical cost accounting as well. On balance, fair value accounting should reduce asset estimation error by comparison to local GAAPs, especially for assets with observed market prices. Indeed, Blankespoor et al. (2013) provide empirical evidence that leverage measured using the fair values of financial instruments explains significantly more variation in bond yield spreads, implying that fair value accounting is more informative for debt holders.

Third, some contend that IFRS is based more on principles than on rules, so that the accounting information under IFRS should better reflect the economic performance of the firm. Although principles-based accounting yields more discretion than rules-based accounting, if management and the auditors take principles-based accounting seriously, asset values should better reflect the underlying economics and the "true" asset values relative to a rules-based accounting system.

2.2. IFRS and the Credit Risk Literature

Two studies to date analyze the impact of IFRS adoption on the CDS market. Bhat et al. (2014) examine the impact of IFRS adoption on the relevance of accounting information (earnings, book values, and leverage) in pricing credit risk. Although they find that earnings, book value, and leverage are informative both before and after IFRS in the pricing of credit risk, they find no evidence that IFRS adoption had any impact on the informativeness of these metrics. Kraft and Landsman (2014) find that IFRS adoption increased the error of accounting-based prediction models for CDS spreads. Since both studies limit their analysis to a fixed five-year CDS maturity, they *cannot*, and do not, test the impact of IFRS-induced transparency on the relation between CDS spreads and the maturity structure of CDS instruments, which is the essence of the DL model.

Several studies examine the impact of IFRS on other credit markets. Beneish et al. (2015) find that IFRS-adopting countries attract more debt investment, especially in countries that have weaker investor protection

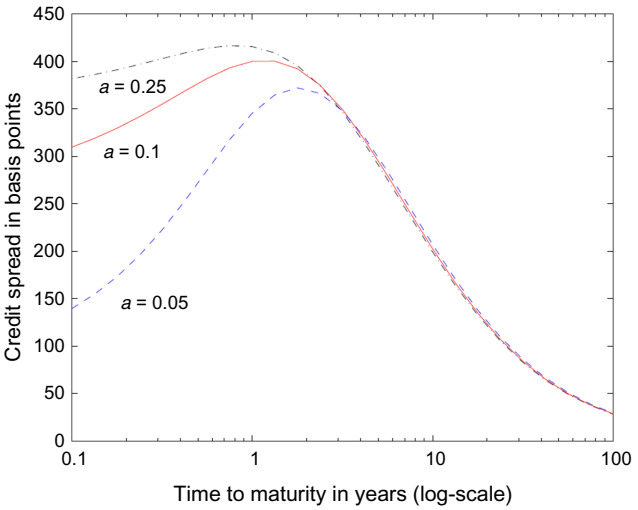
and higher financial risk. Their findings suggest that IFRS adoption reduces the agency costs of debt, consistent with IFRS providing more transparent information. Florou and Kosi (2015) document that mandatory IFRS adopters are more likely to issue public bonds than to borrow privately and pay lower bond yield spreads, but not in the case of private loans. They argue that their findings are consistent with IFRS enhancing the quality and comparability of accounting information. However, the evidence in these studies is only tangentially related to transparency. Florou et al. (2013) show that IFRS adoption affects credit ratings. However, credit ratings are not market prices, and they often are affected by factors unrelated to transparency, such as rating agency incentives, rating agency competition, and the ability of rating agencies to predict credit risk well and in unbiased fashion (Bar-Isaac and Shapiro 2011).

2.3. The DL Model: An Intuitive Description

In the continuous-time DL credit risk model, bankruptcy (liquidation) of the levered firm occurs if the unobserved total asset value falls below some lower bound, at which point the firm has a negative net present value. Investors receive periodic imperfect (noisy) accounting reports about the asset dynamics of the firm and the unobserved asset values, and, based on these reports, investors estimate and update the probability of bankruptcy each period. In their model, the transparency of the accounting system is measured by the variance of the noise of the asset values reported by the accounting system.[1] The more transparent the accounting system, the smaller the noise variance, so that investors are better able to estimate the probability of bankruptcy from the periodic noisy accounting reports.

The CDS instrument is a fixed-maturity insurance derivative that pays off to the holder of the instrument if the firm goes bankrupt.[2] Absent bankruptcy, the holder of the CDS pays a spread to the insurer until maturity. Importantly, DL show that the spread/maturity structure of the CDS instrument depends directly on the transparency of the periodic accounting reports. The principal empirical implications of the DL model, as far as changes in accounting transparency are concerned, can best be illustrated with reference to their Figure 8, replicated here as Figure 1. The figure shows

Figure 1 **(Color online) Credit Spreads for Varying Accounting Precision, *a*, from Duffie and Lando (2001)**



Source. Reproduced by permission. © 2001 by Econometric Society.

the relation between CDS spreads and contract maturity for three different levels of accounting precision, *a*. Each curve represents a different level of accounting transparency; the higher is *a*, the less transparent is the accounting information.

The DL model yields three specific implications regarding the relation among CDS spreads, maturity, and accounting transparency, as illustrated in Figure 1. We now state each of these three implications in (the alternative) hypothesis form where the mnemonic IFRS in the hypotheses statements is synonymous with an increase in accounting transparency.

Hypothesis 1 (H1). *IFRS reduces the intercept in the relation between CDS spreads and maturity.*

Hypothesis 2 (H2). *IFRS increases the slope of the relation between CDS spreads and maturity.*[3]

Hypothesis 3 (H3). *IFRS causes the relation between CDS spreads and maturity to be more concave.*[4]

Hypothesis 1 conjectures that the increase in accounting transparency as a consequence of IFRS adoption lowers CDS rates for all relevant maturities (below where the term spread reaches its maximum). This is illustrated in Figure 1 in that the curve under more transparent accounting information lies below the curve of less transparent information. Intuitively, with increases in accounting transparency that reduce estimation error of the firm's asset values, investors are

[1] Variance-type measures of transparency are common in the empirical earnings quality literature as reflected, for example, in the Jones and Dechow–Dichev metrics. Empirically, we measure transparency in our study by the IFRS shock and by analyst earnings forecast dispersion and forecast errors, which are related to uncertainty in the reporting system (which in turn generates uncertainty in asset values).

[2] DL focus on bankruptcy (defined as liquidation). However, CDS contracts are often written on multiple types of significant credit events (including bankruptcy) such as debt restructuring.

[3] The horizontal axis in Figure 1 is measured in log scale so that, although the slope does not increase for all maturities, it increases for short-end maturities.

[4] Although the relation could be convex theoretically for very short maturities, intuition in the text below and the logic of Footnote 6 militate against a convex region.

better able to judge the future asset dynamics of the firm and the distance from bankruptcy, leading to a reduction in CDS rates for all relevant maturities.[5] Hypothesis 2 states that the greater the accounting transparency of credit risk, the greater the sensitivity of CDS spreads to changes in maturity. This is shown in Figure 1 in that the slope of the more transparent curve is steeper than the slope of the less transparent curve for all (relevant) maturities. Intuitively, CDS spreads become more sensitive to changes in maturity with increased accounting transparency because, with more transparent information regarding the firm's asset values, investors are better able to judge the effect of a change in maturity on the probability that a credit event will occur and on the impact of a credit event on firm wealth (asset values). As a consequence, investor beliefs about the impact of a credit event are more likely to be revised over time, causing CDS rates to be more sensitive to maturity increases. Hypothesis 3 implies that although CDS spreads become more sensitive to changes in maturity with increased accounting transparency, the change in sensitivity is lower for longer maturities than for shorter maturities. Intuitively, changes in accounting transparency have less of an impact on changes in CDS rates for longer maturities because imperfect accounting information about the firm's asset values is going to be less informative about distant adverse credit events than more current credit events.[6]

We are aware of two studies that directly test the transparency implications of the DL model. Yu (2005) correlates corporate bond spreads and maturities in the period 1991–1996 with Association for Investment Management and Research (AIMR) analyst rankings of corporate disclosure. He finds that firms with higher AIMR rankings tend to have lower credit spreads and that this "transparency" spread is especially large for short-term bonds, consistent with DL. Bajlum and Larsen (2008) correlate CDS spreads and maturities with the accounting transparency measure of Berger et al. (2006). They find that their transparency spread is insignificant for long-end maturities and highly significant at the short-end, supportive of DL.

[5] More formally, in the absence of arbitrage, the CDS spread is equal to the corporate bond yield spread—that is, the corporate bond yield less the risk-free rate (Duffie 1999). In turn, a corporate bond is equivalent to a riskless bond plus a short-put option on the value of the firm's assets, giving the bond price a concave relation with underlying asset value. Increased transparency reduces the value of the put option (through Jensen's inequality) and increases the bond price. As a result, the CDS spread, like the corporate bond yield spread, falls. Also, see the next footnote.

[6] More formally, the effect of transparency on long-term credit spreads is absent for two reasons: (1) With a fixed default boundary and a positive firm value drift rate, the bond price reaches its maximum risk-free value more quickly as a function of firm value when the maturity is longer (this is the same reason that the credit spread on long-maturity bonds converges to zero in the Merton 1974 model). (2) With an almost linear (and nearly horizontal) relation between the CDS price and firm value, the Jensen inequality effect mentioned in the previous footnote is mostly absent.

3. Sample Data and Univariate Empirical Results

CDS data, currency exchange rates, and interest rates are collected from Thomson Reuters DataStream Navigator. Thomson Reuters has credit Market analysis (CMA) data covering CDS contracts for 70 countries from 2003 through 2006. The sample period is determined by CDS data availability and the adoption dates of IFRS. IFRS became mandatory for most countries as of January 1, 2005, and CDS data are available by and large from 2003 onward. For each firm-quarter we obtain data for CDS contracts with maturities ranging from 1 year to 10 years issued 45 days after the fiscal quarter-end. If there are no CDSs issued on the 45th day after the fiscal quarter-end, we utilize the first CDS contract issued in the range from 42 to 48 days after the quarter-end. The spread for each CDS contract, denominated in basis points, is derived from midmarket quotes contributed by investment banks and default-swap brokers. The initial sample includes 62,908 CDS contracts. For each CDS contract, we collect data on its seniority (senior or subordinated) and the initial maturity of the CDS contract.[7]

We obtain quarterly financial statement data required to compute market value of equity, profitability, and leverage from the Worldscope database. The financial information is downloaded in U.S. dollars wherever available; otherwise, we convert the variables to U.S. dollars using the exchange rate as of the fiscal quarter-end. Short-term credit ratings from S&P are used when available; otherwise, long-term credit ratings are used.

We impose the following restrictions on the sample: first, all sample CDS contracts in this study are limited to senior debt both because there are few junior CDS contracts in our initial sample and because their pricing determinants are very different from senior contracts. Hence, we eliminate 4,751 junior CDS contracts.

Second, we require positive leverage (measured as short-term debt plus long-term debt scaled by market value of equity plus total liabilities) and nonmissing values for each of the following variables: market value of equity, profitability as proxied by the return on assets (computed as income before extraordinary items scaled by total assets), standard deviation of stock returns (computed on a rolling basis using the most recent 12 monthly returns with at least six data points), a CDS liquidity measure (computed as the log bid–ask

[7] Restructuring clauses are only available from 2008. As a result, we are unable to control for this variable.

spread orthogonalized for relevant firm characteristics as described further below), credit rating, and industry classification. These restrictions further reduce the sample size by 15,545 CDS contracts.

Third, we eliminate Japanese firms from our sample, reducing the sample by 6,339 CDS contracts. Japanese accounting converged with IFRS during our sample period, and consequently, Japanese firms cannot be uniquely classified as either IFRS or non-IFRS as of a particular date.

Fourth, for each of the 158 sample firms domiciled in countries that adopted IFRS, we identify the exact adoption date from the quarterly financial reports. We could not find the relevant information for seven firms. A further six firms adopted before January 1, 2005 and hence are considered to be voluntary adopters, and two firms adopted only in 2007. Of the remainder, 106 firms adopted IFRS as of January 1, 2005; 26 firms adopted IFRS during 2005, primarily on December 31, 2005; the remaining 11 firms were cross-listed in the United States and used U.S. GAAP. We eliminate the 868 CDS contracts of the voluntary and late 2007 adopters as well as of the firms for which we could not identify the exact adoption date. The CDS contracts of the cross-listed firms are included in the control sample.

Fifth, we further eliminate a total of 454 CDS contracts of (i) small firms with market value of equity less than $100 million, (ii) CDS contracts where the spread exceeds 10,000 basis points, and (iii) CDS contracts where the spread did not change throughout the fiscal quarter, to alleviate concerns related to stale prices.

Sixth, we require at least 50 CDS contracts per country with a minimum of 10 CDS contracts in each of the pre- and post-IFRS periods. This restriction eliminates another 93 observations.

The final sample comprises 34,858 CDS contracts with a fairly balanced distribution of 1- through 10-year maturities, although the 5-year maturity is the most common. Table 1, panel A presents a summary of the data filters.

We further divide our final sample into two subsamples. The IFRS subsample comprises firms that adopted IFRS in their interim statements during 2005 and are domiciled in countries that adopted IFRS as of January 1, 2005. We define the pre-IFRS (post-IFRS) period for each firm in this sample as the period from January 1, 2003 until, but not including, the adoption date quarter (from the adoption date quarter through December 31, 2006). The non-IFRS control subsample includes two sets of firms: (1) firms from countries that did not adopt IFRS during the sample period, including the United States, Canada, Taiwan, and Malaysia, and (2) firms cross-listed in the United States that used U.S. GAAP during the sample period and are domiciled in countries that adopted IFRS. Given that 80% of the firms in the IFRS sample adopted IFRS at the beginning of 2005, we define the pre-IFRS (post-IFRS) period *for the control sample* as the period from January 1, 2003 to December 31, 2004 (January 1, 2005 to December 31, 2006).[8]

Table 1, panel B, lists the number of firms, firm-quarters, and CDS contracts by country for the IFRS and control samples both before and after the IFRS adoption period. The IFRS sample comprises 8,136 CDS contracts, of which 5,943 (2,193) are in the post-IFRS (pre-IFRS) period. The total number of firms (firm-quarters) in the pre- and post-IFRS periods are 110 (311) and 127 (656), respectively. The sample firms are primarily from countries in Europe. The control sample comprises 26,722 CDS contracts, 20,658 (6,064) in the post-IFRS (pre-IFRS) period. The number of firms (firm-quarters) in the pre- and post-IFRS periods is 273 (1,120) and 340 (2,406), respectively. The control sample is dominated by U.S firms that account for 24,156 CDS contracts, or approximately 90% of the observations in the control sample. The number of CDS contracts from the other countries that did not adopt IFRS (Canada, Taiwan, and Malaysia) is 1,822; the number of CDS contracts referencing firms domiciled in IFRS countries that employ U.S. GAAP is 744.

Table 2 provides descriptive statistics of the main variables used in this study for the IFRS and control samples, respectively. To mitigate the effect of outliers, the continuous variables in each sample are winsorized at the top 1% and bottom 1%. The CMA database computes the CDS spread as the midpoint of the bid–ask spread. As a result, the CDS spread and the bid–ask spread are highly correlated (Pearson correlation of 0.8). Furthermore, the bid–ask spread is likely endogenous to other determinants of the CDS spread such as firm size and maturity (see Qiu and Yu 2012 on the endogeneity of CDS liquidity). To address these issues, we regress the bid–ask spread on firm characteristics that are also likely to affect the CDS spread. Specifically, we regress the log of the bid–ask spread on firm size (log of market value of equity), equity return volatility, credit rating, leverage, and maturity. The residual from this regression is our liquidity measure (LIQUIDITY). The greater the LIQUIDITY, the more illiquid the CDS instrument.[9]

Panel A of Table 2 shows the means and medians of market value of equity (MV), CDS spreads (five-year instruments only), return on assets (ROA), leverage (LEV), standard deviations of returns (SD_RET), the

[8] In a sensitivity analysis, we extend the sample period to the end of 2007 in one analysis and to the end of 2008 in another. The results (untabulated) are very similar to those reported.

[9] We also measure liquidity by the raw bid–ask spread, the log bid–ask spread normalized by the log of the CDS spread, and the number of days (in the trading quarter) for which there were no trades in the CDS contract. The results (untabulated) are essentially insensitive to these alternative measures.

Table 1 Sample Selection

Panel A: Data filters

Criteria	Number of CDS contracts
Initial sample, 2003–2006	62,908
Less junior CDS contracts	(4,751)
Less missing financial statement data for CDS determinants, industry classification, or credit ratings	(15,545)
Less Japanese firms	(6,339)
Less voluntary adopters, firms with no data on the IFRS adoption date, or companies that adopted in 2007	(868)
Less small firms, CDS spread exceeds 10,000 basis points, or stale CDS contracts	(454)
Less countries with fewer than 100 CDS contracts or fewer than 10 contracts in the pre- or post-IFRS periods	(93)
Final sample	34,858

Panel B: Number of firms, firm-quarters, and CDS contracts for the IFRS and control samples

	Pre-IFRS			Post-IFRS		
Country	Firms	Firm-quarters	CDS contracts	Firms	Firm-quarters	CDS contracts
			IFRS sample			
Australia	12	28	127	15	46	337
Belgium	1	1	10	2	9	85
Denmark	1	4	22	1	7	70
Finland	4	15	69	4	32	320
France	18	43	352	19	91	849
Germany	11	36	270	14	94	874
Hong Kong	5	9	53	7	23	197
Ireland	3	6	55	3	11	89
Italy	6	13	130	9	50	441
Netherlands	7	25	232	7	44	440
Norway	2	9	72	2	9	81
Poland	2	14	94	2	16	118
Portugal	1	4	40	1	8	80
Spain	6	27	185	6	42	376
Sweden	12	44	257	12	82	723
Switzerland	4	6	51	5	23	227
United Kingdom	15	27	174	18	69	636
Total	110	311	2,193	127	656	5,943
			Control sample			
Canada	13	52	254	15	113	913
France	1	4	40	2	11	110
Germany	3	6	60	4	18	180
Malaysia	3	11	74	5	39	381
Netherlands	1	4	22	1	8	80
Norway	1	4	22	1	2	20
Switzerland	1	3	30	2	9	90
Taiwan	2	14	90	3	15	110
United States	247	1,021	5,462	306	2,183	18,694
United Kingdom	1	1	10	1	8	80
Total	273	1,120	6,064	340	2,406	20,658
Grand total	383	1,431	8,257	467	3,062	26,601

Notes. Panel A shows the sample selection criteria. Panel B shows the number of firms, the number of firm-quarter observations, and the number of CDS contracts before and after IFRS adoption by country for each of the control and IFRS samples.

country's risk-free rate of interest (SPOT), S&P firm ratings (RATING), and the CDS liquidity measure (LIQUIDITY) pre- and post-IFRS adoption. The higher the RATING, the lower the credit rating quality.[10]

The "Post − Pre" column shows differences between post-IFRS and pre-IFRS means and medians for each sample and their significance. Panel A indicates that the sample firms are bigger and exhibit greater profitability, and lower volatility and liquidity, in the post-IFRS period compared with the pre-IFRS period for both samples. Interest rates are higher in the post-IFRS

[10] Credit rating takes numerical values from 1 to 20, 1 being the highest for rating AAA+ and 20 being the lowest for rating CCC.

Table 2 Descriptive Statistics

Panel A: Mean (median) of main variables Pre- and Post-IFRS

	Control sample			IFRS sample		
	Pre-IFRS	Post-IFRS	Post − Pre	Pre-IFRS	Post-IFRS	Post − Pre
MV ($ millions)	16,418	19,146	2,728**	18,103	22,213	4,109**
	(7,166)	(8,369)	(1,203)**	(10,471)	(13,332)	(2,861)**
CDS (5-year)	86	85	−2	49	51	1
	(45)	(43)	(−2)	(32)	(31)	(0)
ROA	0.014	0.015	0.001**	0.013	0.018	0.004***
	(0.012)	(0.013)	(0.001)	(0.01)	(0.012)	(0.003)**
LEV	0.214	0.203	−0.01**	0.248	0.237	−0.011
	(0.188)	(0.178)	(−0.01)*	(0.238)	(0.215)	(−0.023)
SD_RET	0.071	0.065	−0.006***	0.067	0.058	−0.008***
	(0.063)	(0.058)	(−0.005)***	(0.061)	(0.055)	(−0.006)**
SPOT	1.775	4.337	2.562***	2.604	3.17	0.566***
	(1.68)	(4.45)	(2.77)***	(2.119)	(2.723)	(0.604)***
RATING	9.931	10.324	0.393***	9.389	9.06	−0.33
	(9)	(9)	(0)	(9)	(9)	(0)
LIQUIDITY	−0.124	−0.15	−0.027***	−0.432	−0.449	−0.018
	(−0.116)	(−0.196)	(−0.08)***	(−0.411)	(−0.504)	(−0.093)*

Panel B: Differences in mean (median) between IFRS and control samples

	IFRS − Control	
	Pre-IFRS	Post-IFRS
MV ($ millions)	1,685	3,066**
	(3,305)***	(4,963)**
CDS (5-year)	−37***	−34***
	(−13)***	(−11)***
ROA	0	0.003***
	(−0.002)**	(−0.000)***
LEV	0.035***	0.034***
	(0.050)***	(0.037)***
SD_RET	−0.004**	−0.006***
	(−0.003)	(−0.004)***
SPOT	0.829***	−1.167***
	(0.439)***	(−1.727)***
RATING	−0.541**	−1.264***
	(0)***	(0)***
LIQUIDITY	−0.308***	−0.299***
	(−0.295)***	(−0.308)***

period. The control sample experienced a decline in credit ratings. More importantly, CDS spreads are similar in the pre- and post-IFRS periods for both samples.

Panel B of Table 2 shows main variable differences between the IFRS and control samples in the pre-IFRS and post-IFRS periods. The two samples differ in firm characteristics. In both periods, firms in the control sample are smaller and have a higher CDS spread, higher (median) profitability, lower leverage, greater return volatility, lower credit rating, and lower liquidity. In addition, they face higher interest rates in the post-IFRS period.[11]

[11] To address these sample differences, we perform the matched sample analysis below in this section.

Panel C of Table 2 shows the means of the main variables by country. The statistics indicate significant variations across countries. Panel D shows mean and median CDS spreads by maturity in the pre- and post-IFRS periods for the IFRS and U.S samples. Not surprisingly, CDS spreads increase almost monotonically with maturity, and CDS spreads in the post-IFRS period are significantly higher (lower) than in the pre-IFRS period for the long (short) maturities. Panel E presents the correlations between the CDS spread and the primary determinants of the spread pre- and post-IFRS adoption for the IFRS and control samples. With the exception of the spot rate, the correlations are highly significant at the 1% level, and the signs pre- and post-IFRS are consistent. With the one exception of the risk-free interest rate, these correlations

Table 2 (Continued)

Panel C: Mean of main variables by country

	MV ($ millions)	CDS (5-year)	ROA	LEV	SD_RET	SPOT	RATING	LIQUIDITY
Australia	17,708	30	0.042	0.164	0.055	5.582	8.403	−0.270
Belgium	31,350	10	0.007	0.195	0.046	2.744	8.100	−0.580
Canada	12,996	96	0.019	0.179	0.071	3.186	10.463	−0.069
Denmark	19,729	10	0.001	0.510	0.033	2.417	8.000	−0.479
Finland	23,708	118	0.015	0.220	0.076	2.510	12.340	−0.238
France	23,200	64	0.015	0.220	0.066	2.496	9.530	−0.412
Germany	27,526	38	0.008	0.253	0.062	2.590	7.779	−0.583
Hong Kong	33,395	74	0.032	0.245	0.067	5.142	10.581	0.036
Ireland	13,723	14	0.005	0.349	0.049	2.554	8.000	−0.675
Italy	18,090	66	0.006	0.304	0.057	2.637	9.698	−0.487
Malaysia	8,788	33	0.012	0.217	0.049	2.839	10.400	−0.195
Netherlands	24,331	42	0.015	0.164	0.058	2.486	10.580	−0.501
Norway	22,681	39	0.016	0.173	0.072	2.459	7.250	−0.278
Poland	818	35	0.002	0.340	0.102	2.693	11.286	−1.227
Portugal	9,449	14	0.002	0.387	0.054	2.502	8.667	−1.074
Spain	30,733	41	0.011	0.298	0.052	2.497	8.912	−0.483
Sweden	10,822	31	0.020	0.193	0.061	2.100	8.524	−0.406
Switzerland	51,053	35	0.015	0.247	0.057	1.223	7.900	−0.477
Taiwan	9,401	53	0.001	0.213	0.075	2.359	10.345	−0.064
United States	17,726	87	0.015	0.209	0.067	3.597	10.220	−0.139
United Kingdom	35,055	68	0.027	0.209	0.056	4.572	9.275	−0.245

Panel D: Mean (median) CDS spread by maturity and period for the IFRS and control samples

	Control sample			IFRS sample		
Maturity	Pre-IFRS	Post-IFRS	Post-IFRS	Pre-IFRS	Post-IFRS	Post − Pre
1	43	28	−15***	19	14	−5**
	(16)	(11)	(−6)***	(10)	(7)	(−3)**
2	45	39	−6	26	23	−4
	(19)	(16)	(−3)***	(14)	(12)	(−2)
3	64	55	−9**	34	32	−2
	(27)	(24)	(−4)***	(20)	(18)	(−2)
4	67	66	0	43	42	−1
	(31)	(31)	(0)	(24)	(24)	(0)
5	86	85	−2	49	51	1
	(45)	(43)	(−2)	(32)	(31)	(0)
6	82	88	6	56	59	2
	(42)	(47)	(5)	(33)	(37)	(4)
7	93	96	3***	58	63	5
	(51)	(54)	(3)	(37)	(40)	(3)
8	91	99	8**	63	69	6
	(50)	(57)	(8)	(39)	(45)	(6)**
9	95	103	8***	66	73	7
	(54)	(62)	(8)	(42)	(48)	(7)**
10	105	110	5***	66	75	9
	(60)	(67)	(7)	(44)	(50)	(6)***

are consistent with the underlying theory. Specifically, the higher the profitability and firm size, the lower the CDS spread; the more levered the firm, the more volatile its returns, and the less liquid the CDS contract; and the lower its ratings quality (the higher the ratings number, the lower the quality), the higher the CDS spread. The correlation between the risk-free rate and CDS spread is supposed to be negative theoretically. However, this correlation is insignificant for the IFRS sample and negative and significant for the control sample, although the correlation in the post-IFRS period is significant at the one-tailed level only ($p = 0.13$, two-tailed).

4. Multivariate Empirical Results

We analyze the impact of IFRS on CDS spreads using a level regression analysis in the spirit of Callen et al. (2009). Section 4.1 examines the impact of IFRS on the

Table 2 (Continued)

Panel E: Correlation with CDS spread (*p*-values in parentheses)

	Control sample		IFRS sample	
	Pre-IFRS	Post-IFRS	Pre-IFRS	Post-IFRS
MV	−0.234*** (<0.01)	−0.267*** (<0.01)	−0.207*** (<0.01)	−0.288*** (<0.01)
ROA	−0.373*** (<0.01)	−0.351*** (<0.01)	−0.228*** (<0.01)	−0.152*** (<0.01)
LEV	0.482*** (<0.01)	0.464*** (<0.01)	0.195*** (<0.01)	0.263*** (<0.01)
SD_RET	0.520*** (<0.01)	0.517*** (<0.01)	0.330*** (<0.01)	0.418*** (<0.01)
SPOT	−0.082*** (<0.01)	−0.031 (0.130)	−0.047 (0.414)	0.050 (0.197)
RATING	0.541*** (<0.01)	0.490*** (<0.01)	0.546*** (<0.01)	0.457*** (<0.01)
LIQUIDITY	0.377*** (<0.01)	0.442*** (<0.01)	0.214*** (<0.01)	0.497*** (<0.01)

Notes. Panel A (panel B) presents sample means and medians (in parentheses) of (differences in) the main variables used in the analysis for the IFRS and control samples. Market value of equity (MV) is denominated in U.S. dollars adjusted for exchange rate changes at the fiscal quarter-end. The CDS spread (CDS) for the five-year contract is measured in basis points. Return on assets (ROA) is measured as earnings before extraordinary items divided by total assets. Leverage (LEV) is computed as the sum of short-term and long-term debt divided by market value of assets (computed as market value of equity plus total liabilities). Return volatility (SD_RET) is the standard deviation of equity returns (computed on a rolling basis using the most recent 12 monthly returns with at least six data points). Spot rate (SPOT) is the annualized three-month Treasury bill rate. Debt rating (RATING) is the S&P rating; the higher the rating, the lower the credit rating quality. LIQUIDITY is the residual from a regression of the log of the bid–ask spread on firm size (log market value of equity), equity return volatility, credit rating, leverage, and maturity. Panel C presents sample means of the main variables in the analysis by country. Panel D shows mean and median (in parentheses) CDS spreads by maturity and period for the IFRS and control samples. Panel E presents sample correlations of CDS spread with its determinants in the pre- and post-IFRS adoption periods both for the IFRS and control samples.

***, **, and *Statistical significance at the 1%, 5%, and 10% levels, respectively.

relation between CDS spreads and maturity for the IFRS and control samples. Section 4.2 analyzes the potential moderating effect of institutional factors on the impact of IFRS adoption on the CDS spread/maturity structure. Section 4.3 examines the impact of IFRS adoption on the CDS spread/maturity structure controlling for changes in firm-level transparency. Section 4.4 analyzes differences between pre- and post-IFRS CDS spreads across maturities.

4.1. Impact of IFRS on the Spread/Maturity Structure of CDS Instruments

To understand the empirical approach in Tables 3–5, let the CDS spread for firm i at time t with contract maturity T be denoted $S_{i,t,T}$. Using a parabolic function to estimate the CDS curve, we express the CDS premium as

$$S_{i,t,T} = a(X_{i,t}, Y_t, D_t) + b(X_{i,t}, Y_t, D_t)(T-t) + c(X_{i,t}, Y_t, D_t)(T-t)^2, \quad (1)$$

where $X_{i,t}$ represents firm-specific control variables, Y_t represents institutional and macroeconomic conditions, and D_t is a dummy variable that takes on the value 1 for post-IFRS quarters and 0 otherwise. This specification allows the shape of the CDS curve to change not only as a result of the change to IFRS but also when a firm's credit risk profile or the institutional and general macroeconomic environments change. Linearizing Equation (1) around D_t, $X_{i,t}$, and Y_t yields the regression specification used in Tables 3–5:

$$\begin{aligned} S_{i,t,T} = {} & a_1(D_t) + b_1(D_t)(T-t) + c_1(D_t)(T-t)^2 + a_2(D_t)X_{i,t} \\ & + b_2(D_t)X_{i,t}(T-t) + c_2(D_t)X_{i,t}(T-t)^2 + a_3(D_t)Y_t \\ & + b_3(D_t)Y_t(T-t) + c_3(D_t)Y_t(T-t)^2 + \varepsilon_{i,t,T}. \end{aligned} \quad (2)$$

Columns (1) and (3) of Table 3 show baseline regressions of the CDS spread on an intercept term, maturity, maturity squared, and the major determinants of credit risk—profitability, size, leverage, credit rating, equity return volatility, risk-free (spot) rate, and liquidity—for the IFRS and control samples, respectively. In addition, consistent with Equation (2), we allow for the possibility that the impact of the control variables also depends on maturity by including interaction terms of the control variables each with maturity and maturity squared.[12]

[12] In contrast to Tables 4 and 5, Table 3 (except for the base regression) does not include an intercept term that helps to capture correlated omitted variables. Instead, this specification facilitates the pre- and post-IFRS graphical analysis in Figures 2 and 3.

Table 3 CDS Spread/Maturity Relation Before and After IFRS Adoption

	IFRS sample		Control sample	
	(1)	(2)	(3)	(4)
Constant	4.126***		4.354***	
	(0.000)		(0.000)	
PRE-IFRS		4.282***		4.353***
		(0.000)		(0.000)
POST-IFRS		3.975***		4.379***
		(0.000)		(0.000)
MATURITY	0.466***		0.396***	
	(0.000)		(0.000)	
MATURITY PRE-IFRS		0.414***		0.403***
		(0.000)		(0.000)
MATURITY POST-IFRS		0.511***		0.428***
		(0.000)		(0.000)
MATURITY SQUARED	−0.028***		−0.025***	
	(0.002)		(0.000)	
MATURITY SQUARED PRE-IFRS		−0.025***		−0.026***
		(0.002)		(0.000)
MATURITY SQUARED POST-IFRS		−0.031***		−0.029***
		(0.000)		(0.000)
ROA	−0.848	−1.023	−2.128*	−2.157**
	(0.528)	(0.475)	(0.061)	(0.049)
ROA_MATURITY	−0.544*	−0.496	−1.715***	−1.721***
	(0.071)	(0.140)	(0.001)	(0.000)
ROA_MATURITY SQUARED	0.043**	0.040	0.160***	0.160***
	(0.050)	(0.120)	(0.000)	(0.000)
SIZE	−0.379***	−0.375***	−0.375***	−0.375***
	(0.000)	(0.000)	(0.000)	(0.000)
SIZE_MATURITY	0.016*	0.015	0.018**	0.018**
	(0.096)	(0.116)	(0.042)	(0.013)
SIZE_MATURITY SQUARED	−0.001	−0.001	−0.001	−0.001
	(0.262)	(0.310)	(0.226)	(0.152)
LEV	1.360***	1.322***	1.206***	1.201***
	(0.000)	(0.000)	(0.000)	(0.000)
LEV_MATURITY	−0.195**	−0.182**	0.077	0.078
	(0.013)	(0.011)	(0.208)	(0.208)
LEV_MATURITY SQUARED	0.013**	0.012**	−0.009*	−0.010*
	(0.037)	(0.032)	(0.056)	(0.065)
RATING	0.060***	0.061***	0.086***	0.087***
	(0.000)	(0.000)	(0.000)	(0.000)
RATING_MATURITY	−0.003	−0.004	−0.009***	−0.009***
	(0.214)	(0.119)	(0.000)	(0.000)
RATING_MATURITY SQUARED	0.000	0.000	0.001***	0.001***
	(0.398)	(0.303)	(0.001)	(0.001)
SD_RET	9.496***	8.546***	9.246***	9.260***
	(0.000)	(0.000)	(0.000)	(0.000)
SD_RET_MATURITY	−0.641	−0.334	−0.288	−0.281
	(0.132)	(0.312)	(0.148)	(0.188)
SD_RET_MATURITY SQUARED	0.034	0.015	0.002	0.001
	(0.270)	(0.568)	(0.898)	(0.940)
SPOT	0.042	0.067	−0.118***	−0.114***
	(0.407)	(0.153)	(0.001)	(0.001)
SPOT_MATURITY	0.008	0.000	0.022***	0.016***
	(0.258)	(0.970)	(0.000)	(0.002)
SPOT_MATURITY SQUARED	−0.000	0.000	−0.001***	−0.000
	(0.238)	(0.992)	(0.002)	(0.263)
LIQUIDITY	0.897***	0.871***	1.429***	1.431***
	(0.000)	(0.000)	(0.000)	(0.000)

Table 3 (Continued)

	IFRS sample		Control sample	
	(1)	(2)	(3)	(4)
LIQUIDITY_MATURITY	−0.118***	−0.110***	−0.263***	−0.265***
	(0.000)	(0.000)	(0.000)	(0.000)
LIQUIDITY_MATURITY SQUARED	0.010***	0.009***	0.021***	0.021***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	8,136	8,136	26,722	26,722
Adjusted *R*-squared	0.881	0.990	0.861	0.989
PRE-IFRS = POST-IFRS		11.64***		0.107
p-value		(0.000)		(0.744)
MATURITY_PRE = MATURITY_POST		51.29***		2.311
p-value		(0.000)		(0.129)
MATURITY SQUARED_PRE-IFRS = MATURITY SQUARED_POST-IFRS		31.94***		4.548**
p-value		(0.000)		(0.034)

Notes. The table shows the regressions of the CDS spread on its determinants. All regressions control for industry, fiscal quarter, and country fixed effects (not reported). Two-tailed *p*-values are in parentheses. All regressions are estimated using OLS with robust standard errors corrected for firm and quarter clustering. Columns (1) and (2) (columns (3) and (4)) show the regressions for the IFRS sample (control sample). Columns (1) and (3) show the base regression of the CDS spread on maturity, maturity squared, the CDS determinants (profitability (ROA), firm size (log market value of equity, SIZE), leverage (LEV), the country risk-free interest rate (SPOT), volatility of returns (SD_RET), credit rating (RATING), and liquidity (LIQUIDITY)), and the interaction of the determinants with maturity and maturity squared. Columns (2) and (4) replicate the base regression with the intercept replaced by pre-IFRS and post-IFRS indicator variables that take the value of 1 if the fiscal quarter is in the pre-IFRS and post-IFRS periods, respectively, and 0 otherwise. In addition, maturity is bifurcated into maturity prior to the adoption of IFRS (MATURITY PRE-IFRS) and after the adoption of IFRS (MATURITY POST-IFRS); maturity squared is similarly bifurcated into MATURITY SQUARED PRE-IFRS and MATURITY SQUARED POST-IFRS. *F*-tests compare the estimated pre-IFRS and post-IFRS; the maturity and maturity squared coefficients, pre- and post-IFRS.
***, **, and *Statistical significance at the 1%, 5%, and 10% levels, respectively.

The regressions in Table 3 and the following tables are estimated using ordinary least squares (OLS) with robust standard errors corrected for firm and quarter clustering. We also control for industry, fiscal quarter, and country fixed effects (not tabulated). Figures in parentheses are two-tailed *p*-values.

Following DL, we expect the intercept term to be positive, the maturity coefficient to be positive, and the maturity-squared coefficient to be negative, consistent with concavity in the CDS spread/maturity relation. Following the predictions of Merton (1974) and Callen et al. (2009), CDS spreads should be decreasing with the reference firm's profitability, size, and ratings quality and increasing with the reference firm's leverage and the volatility of its stock returns.[13]

The baseline IFRS sample regression in column (1) yields results consistent with model predictions for the intercept and maturity terms. The intercept is positive and significant ($p < 0.001$). The coefficients on maturity (maturity squared) are positive (negative) and significant ($p < 0.01$), indicating an increasing and concave relation between CDS spreads and maturity. With the exception of profitability and the risk-free rate, the coefficients on the control variables have the expected sign and are significant ($p < 0.001$). Specifically, credit risk is positively related to leverage and volatility and negatively related to size, credit rating quality, and liquidity. The coefficients on profitability and the risk-free rate are not significant for the IFRS sample. The results also indicate that several of the interaction terms of the control variables with the maturity variables are significant, thereby providing empirical justification as well for the interaction specification. The control sample baseline regression results in column (3) of Table 3 are similar and the coefficients on the independent variables have similar signs and statistical significance to those of the IFRS sample, except for the coefficients on profitability and the risk-free rate, which are negative and significant as expected.

Columns (2) and (4) of Table 3 replicate columns (1) and (3), respectively, except that now the intercept, maturity, and maturity squared terms are partitioned into pre- and post-IFRS. Focusing on the IFRS sample (column (2)), both the pre- and post-IFRS intercept coefficients are positive and highly significant ($p < 0.001$). The coefficients on maturity (maturity squared) are positive (negative) and highly significant ($p < 0.01$) both pre and post IFRS. The signs of the other determinants are highly significant and almost identical to those of the baseline regressions. Importantly, a comparison of the pre- and post-intercepts yields results consistent with the implications of the DL model. In particular, *F*-statistics at the bottom of the table indicate that the post-IFRS intercept is smaller than the pre-IFRS intercept, the post-IFRS coefficient on maturity

[13] Because CDSs are zero net supply instruments, the relation between CDS spreads and liquidity cannot be specified a priori. On this issue, see, for example, Nashikkar et al. (2011).

is greater than the pre-IFRS coefficient, and the post-IFRS coefficient on maturity squared is more negative than the pre-IFRS coefficient, and the differences are highly significant ($p < 0.001$). The (untabulated) F-test indicates that the joint change in all three coefficients of the maturity structure is highly significant ($p < 0.001$).

These results for the IFRS sample indicate that average CDS spreads decreased significantly in the post-IFRS period, and the CDS spread/maturity curvature became steeper and more concave, consistent with the implications of the DL model. The change in the maturity structure is also economically significant. Comparing the pre-IFRS with the post-IFRS period yields a decrease of 7% in the intercept from 4.282 to 3.975, which translates to a decrease of 26% in the spread (note that the spread is expressed in log form), an increase in the slope of 23% from 0.414 to 0.511, and an increase in the concavity of the curvature of 19% from −0.025 to −0.031.

By contrast, the results for the control sample in column (4) are not generally consistent with the predictions of the DL model. Specifically, the changes in the level and slope of the maturity structure pre and post IFRS are insignificant ($p = 0.744$ and $p = 0.129$, respectively), although the concavity in the post-IFRS period is significantly higher ($p = 0.034$). These findings provide partial support that results documented for the IFRS sample are indeed attributable to the adoption of IFRS and not to some worldwide effect.[14]

The previous analysis examines each sample (IFRS and control) separately. By contrast, Table 4 shows estimated pooled regressions combining the two samples. Given the pooled design, we include two indicator variables: POST takes a value 1 if the financial report date is in the post-IFRS period and 0 otherwise, and IFRS takes a value 1 if the observation belongs to a firm in the IFRS sample and 0 otherwise.

To gauge the impact of IFRS adoption on the maturity structure, we include all possible interactions of maturity and maturity squared each with the POST and IFRS indicators. Under this specification, the control firms serve as a baseline. The coefficient on POST provides the average difference in the CDS spread between the pre- and post-IFRS period for the control sample, the coefficient on IFRS provides the average difference in the CDS spread between the IFRS and control samples, and the coefficient on the interaction of POST and IFRS measures the impact of IFRS adoption on CDS spreads for the IFRS sample relative to the control sample. Hence, we test H1 based on the coefficient of the interaction term of POST and IFRS. The interaction variables of MATURITY with IFRS and POST can be interpreted in a similar vein. Specifically, the interaction of MATURITY and POST provides the difference in the slope of the maturity structure in the pre- and post-IFRS periods for the control sample, the interaction of MATURITY with IFRS gives the average difference in the slope of the IFRS sample relative to the control sample, and the interaction of MATURITY with IFRS and POST gives the impact of IFRS adoption on the slope of the IFRS sample relative to the control sample. Thus, we test H2 based on the coefficient of the interaction term of MATURITY, IFRS, and POST. Similarly, we include interaction variables with MATURITY SQUARED, and we test H3 using the coefficient on the interaction term of MATURITY SQUARED, IFRS, and POST.

To account for the possibility that the impact of the control variables on the CDS spread differs between the IFRS and control samples, we also include all interactions of each of the control variables (including their interaction with MATURITY and MATURITY SQUARED) with IFRS. In addition, there was likely more uncertainty about the implementation of IFRS in 2005, especially prior to the annual report, so that the quarterly data in 2005 are noisier. Therefore, as a sensitivity analysis, we also report results excluding fiscal 2005 data.

Columns (1)–(3) of Table 4 present the pooled analysis results for the full sample. Column (1) shows the base regression. The coefficients on all determinants except for SPOT are significant ($p < 0.001$) with the predicted sign. Column (2) presents the main results, and column (3) shows the results excluding fiscal 2005 data. Looking across these columns, we observe that POST is insignificant except for the regression excluding the 2005 data, where it is significantly negative. The coefficient on the interaction of maturity and post is not significant in any of the regressions, and the coefficient on the interaction of maturity squared and post is negative and significant in column (2) only. These results suggest that the maturity structure of the control sample did not change in the post-IFRS period. More importantly, the results of the IFRS sample are consistent with the DL model in both columns. Specifically, based on the coefficient of the POST_IFRS interaction term, the adoption of IFRS significantly reduced the level of the CDS spread of IFRS firms relative to the control sample ($p < 0.01$ in both regressions), consistent with H1. Based on the coefficient of the MATURITY_IFRS_POST interaction term, the adoption of IFRS significantly increased the CDS spread/maturity slope of IFRS

[14] Although the regressions control for country fixed effects and the country-level spot rate, we further checked the robustness of our results to country-level macroeconomic differences by including gross domestic product (GDP) growth and the rate of unemployment (or rate of change in unemployment in a different specification) in the regression. We find that GDP growth is negative and significant, consistent with the findings of Tang and Yan (2010), and that the rate of unemployment is positive and significant (untabulated). Importantly, inferences concerning the maturity structure do not change.

Table 4 CDS Spreads Before and After IFRS Adoption Pooled Analysis

	Full sample			Matched sample	
	BASE (1)	All observations (2)	Excluding 2005 (3)	All observations (4)	Excluding 2005 (5)
Constant	3.821***	3.635***	3.777***	2.578***	2.189***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
POST		−0.054	−0.223***	0.108**	0.122
		(0.584)	(0.007)	(0.044)	(0.298)
IFRS		0.133	−0.716	0.718	0.818*
		(0.751)	(0.124)	(0.129)	(0.095)
POST_IFRS		−0.207***	−0.292***	−0.339***	−0.384***
		(0.005)	(0.002)	(0.000)	(0.000)
MATURITY	0.514***	0.404***	0.457***	0.585***	0.693***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MATURITY_IFRS		0.030	0.015	−0.120	−0.199
		(0.818)	(0.916)	(0.441)	(0.205)
MATURITY_POST		0.026	0.034	−0.028	0.006
		(0.165)	(0.280)	(0.151)	(0.861)
MATURITY_IFRS_POST		0.059**	0.079**	0.109***	0.105***
		(0.013)	(0.013)	(0.000)	(0.004)
MATURITY SQUARED	−0.030***	−0.026***	−0.029***	−0.037***	−0.042***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MATURITY SQUARED_IFRS		0.000	0.002	0.009	0.013
		(0.970)	(0.831)	(0.484)	(0.295)
MATURITY SQUARED_POST		−0.003**	−0.003	0.002	−0.000
		(0.045)	(0.279)	(0.221)	(0.917)
MATURITY SQUARED_IFRS_POST		−0.002	−0.004	−0.007***	−0.006**
		(0.261)	(0.159)	(0.000)	(0.036)
ROA	−3.863***	−2.335**	−1.714	−2.083	−1.333
	(0.000)	(0.045)	(0.192)	(0.162)	(0.382)
ROA_MATURITY		−1.755***	−2.223***	−1.457**	−1.444
		(0.000)	(0.001)	(0.029)	(0.106)
ROA_MATURITY SQUARED		0.163***	0.204***	0.138***	0.140**
		(0.000)	(0.000)	(0.008)	(0.047)
ROA_IFRS		3.390**	1.997	0.955	0.675
		(0.016)	(0.271)	(0.644)	(0.764)
ROA_MATURITY_IFRS		1.008*	1.563**	0.765	0.902
		(0.080)	(0.026)	(0.293)	(0.327)
ROA_MATURITY SQUARED_IFRS		−0.099**	−0.152***	−0.080	−0.099
		(0.032)	(0.004)	(0.147)	(0.164)
SIZE	−0.309***	−0.359***	−0.347***	−0.262***	−0.232***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SIZE_MATURITY		0.018**	0.017	0.011	0.003
		(0.046)	(0.132)	(0.410)	(0.845)
SIZE_MATURITY SQUARED		−0.001	−0.001	−0.001	−0.000
		(0.244)	(0.332)	(0.495)	(0.759)
SIZE_IFRS		−0.027	0.035	−0.061	−0.084*
		(0.480)	(0.394)	(0.190)	(0.081)
SIZE_MATURITY_IFRS		−0.002	−0.001	0.001	0.008
		(0.887)	(0.967)	(0.938)	(0.642)
SIZE_MATURITY SQUARED_IFRS		−0.000	−0.000	0.000	−0.000
		(0.889)	(0.793)	(0.995)	(0.839)
LEV	1.130***	1.149***	1.243***	1.743***	1.923***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LEV_MATURITY		0.077	0.044	0.016	−0.021
		(0.224)	(0.501)	(0.812)	(0.800)
LEV_MATURITY SQUARED		−0.009*	−0.007	−0.004	−0.003
		(0.067)	(0.167)	(0.431)	(0.675)

Table 4 (Continued)

	Full sample			Matched sample	
	BASE (1)	All observations (2)	Excluding 2005 (3)	All observations (4)	Excluding 2005 (5)
LEV_IFRS		0.222	0.302	−0.364	−0.382
		(0.479)	(0.391)	(0.321)	(0.383)
LEV_MATURITY_IFRS		−0.284***	−0.286**	−0.221*	−0.198
		(0.007)	(0.028)	(0.056)	(0.152)
LEV_MATURITY SQUARED_IFRS		0.023***	0.024**	0.018**	0.017
		(0.005)	(0.024)	(0.049)	(0.126)
RATING	0.058***	0.088***	0.091***	0.087***	0.090***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RATING_MATURITY		−0.010***	−0.011***	−0.016***	−0.018***
		(0.000)	(0.000)	(0.000)	(0.000)
RATING_MATURITY SQUARED		0.001***	0.001***	0.001***	0.001***
		(0.001)	(0.000)	(0.000)	(0.000)
RATING_IFRS		−0.021*	−0.020	−0.019	−0.026
		(0.087)	(0.151)	(0.227)	(0.104)
RATING_MATURITY_IFRS		0.005	0.008*	0.012**	0.016***
		(0.192)	(0.085)	(0.038)	(0.008)
RATING_MATURITY SQUARED_IFRS		−0.000	−0.001	−0.001**	−0.001***
		(0.246)	(0.112)	(0.039)	(0.010)
SD RET	7.925***	9.265***	10.071***	10.897***	10.607***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SD RET_MATURITY		−0.265	−0.366**	−0.551	−0.496
		(0.195)	(0.043)	(0.134)	(0.258)
SD RET_MATURITY SQUARED		−0.000	0.005	0.019	0.013
		(0.988)	(0.753)	(0.521)	(0.710)
SD RET_IFRS		−0.295	1.502	−1.747	−0.271
		(0.856)	(0.302)	(0.265)	(0.872)
SD RET_MATURITY_IFRS		−0.147	−0.325	0.313	−0.044
		(0.736)	(0.483)	(0.582)	(0.949)
SD RET_MATURITY SQUARED_IFRS		0.024	0.042	−0.007	0.020
		(0.491)	(0.297)	(0.879)	(0.721)
SPOT	−0.034	−0.085***	−0.087***	−0.094***	−0.076*
	(0.130)	(0.003)	(0.002)	(0.007)	(0.053)
SPOT_MATURITY		0.015***	0.012	0.013*	0.005
		(0.008)	(0.201)	(0.067)	(0.660)
SPOT_MATURITY SQUARED		−0.000	−0.000	−0.000	0.000
		(0.418)	(0.620)	(0.481)	(0.894)
SPOT_IFRS		0.134***	0.156***	0.146***	0.164***
		(0.002)	(0.000)	(0.000)	(0.001)
SPOT_MATURITY_IFRS		−0.010	−0.016	−0.010	−0.011
		(0.246)	(0.203)	(0.231)	(0.455)
SPOT_MATURITY SQUARED_IFRS		−0.000	0.000	0.000	0.000
		(0.969)	(0.583)	(0.733)	(0.907)

firms relative to the control sample ($p = 0.013$ in both regressions) consistent with H2. Last, based on the coefficient of the MATURITY SQUARED_IFRS_POST interaction term, the adoption of IFRS increased the CDS spread/maturity concavity of IFRS firms relative to the control sample, although the difference is not statistically significant. The signs for the control variables are largely significant and consistent with underlying theory.

To alleviate concerns that our reported results are attributable to differences in firm characteristics, we also use a matched sample design where we match each IFRS firm-quarter with a firm-quarter from the control sample. The matched control sample acts as a (imperfect) counterfactual to help control for potential time-period effects (Meyer 1995, Bertrand et al. 2004) and other potential correlated omitted variables (Cram et al. 2009). We facilitate the matching using propensity score matching. For each fiscal quarter, we estimate the propensity score using CDS determinants: profitability, size, leverage, credit ratings, stock return volatility, and liquidity. We select the match from the control sample based on the closest propensity score without

Table 4 (Continued)

	Full sample			Matched sample	
	BASE (1)	All observations (2)	Excluding 2005 (3)	All observations (4)	Excluding 2005 (5)
LIQUIDITY	0.806***	1.454***	1.513***	1.391***	1.355***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LIQUIDITY_MATURITY		−0.273***	−0.294***	−0.256***	−0.250***
		(0.000)	(0.000)	(0.000)	(0.000)
LIQUIDITY_MATURITY SQUARE		0.022***	0.024***	0.022***	0.023***
		(0.000)	(0.000)	(0.000)	(0.000)
LIQUIDITY_IFRS		−0.380***	−0.299**	−0.283*	−0.246
		(0.001)	(0.024)	(0.072)	(0.211)
LIQUIDITY_MATURITY_IFRS		0.140***	0.129***	0.112**	0.091
		(0.000)	(0.010)	(0.036)	(0.159)
LIQUIDITY_MATURITY SQUARED_IFRS		−0.010***	−0.008**	−0.009**	−0.008
		(0.001)	(0.049)	(0.039)	(0.138)
Observations	34,858	34,858	22,827	15,160	9,904
Adjusted *R*-squared	0.845	0.857	0.851	0.842	0.840

Notes. The table shows the pooled regressions of the CDS spread on its determinants. The "Full sample" ("Matched sample") column presents the results for the full (matched) sample. The "BASE" column reports the regression results without interaction terms. POST (IFRS) is an indicator variable taking on a value 1 if the fiscal quarter is after IFRS adoption (the firm belongs to the IFRS sample) and 0 otherwise. Variable names with an underscore represent interaction variables. For example, MATURITY_IFRS_POST is the interaction between MATURITY, IFRS, and POST. The regressions control for country, industry, and fiscal quarter fixed effects (not reported). Two-tailed *p*-values are in parentheses. All regressions are estimated using OLS, with robust standard errors corrected for firm and quarter clustering.

***, **, and *Statistical significance at the 1%, 5%, and 10% levels, respectively.

replacement. The matched sample comprises a total of 15,160 CDS contracts.[15]

Columns (4) and (5) of Table 4 replicate the specification in Columns (2) and (3) using the matched sample data. The results also indicate that the maturity structure of the control sample did not change. In addition, the results for the IFRS sample are now fully consistent with the DL model. The adoption of IFRS significantly reduced the level of the CDS spread of IFRS firms relative to the control sample ($p < 0.001$), increased the CDS spread/maturity slope of IFRS firms relative to the control sample ($p < 0.001$ and $p < 0.01$, respectively), and significantly increased the CDS spread/maturity concavity of IFRS firms relative to the control sample ($p < 0.001$ and $p < 0.05$, respectively). With the exception of profitability, the estimated control variable coefficients are largely significant and consistent with underlying theory.

Overall, the results in Tables 3 and 4 indicate that the CDS maturity structure for firms that adopted IFRS changed in a manner consistent with the predictions of the DL model, whereas the control sample firms did not show similar changes over the same period.

[15] The results are very similar when we require an exact match for CDS maturity; that is, we remove CDS contracts from the IFRS sample that have no available control match for each maturity. This restriction ensures that the two samples are completely balanced in terms of firm-quarters and CDS contracts. Because this procedure reduces the sample size to 12,666 observations, we elected to report the results that do not require an exact match.

4.2. Institutional Differences and CDS Spreads

Accounting transparency is the result of complex interactions among managerial motives, country-level accounting standards, and country-level enforcement of those accounting standards (Ball 2006). Therefore, similar to other studies evaluating the impact of IFRS, we further gauge accounting information transparency for IFRS firms after controlling separately for each of the following country-level factors that may affect the quality of the accounting information: origin of the legal system, level of legal enforcement of the rule of law, countrywide level of earnings management, whether the country is in the European Union, and whether the country's local supervisory authorities shifted from reactively reviewing financial statements to proactively reviewing them at the time of mandatory IFRS adoption (see Christensen et al. 2013 and Florou and Kosi 2015 regarding the latter two countrywide institutional controls).

The regression results (untabulated) indicate that the institutional factors are not consequential. Specifically, we observe that the maturity structure changed significantly in the post-IFRS period in ways consistent with the predictions of DL—decrease in the spread level, increase in slope and in concavity—but *irrespective* of institutional factor partitions. Hence, the impact of change in accounting information transparency on the CDS maturity structure does not appear to be moderated by institutional factors that potentially could affect the application of accounting standards and the quality of the reported financial information.

4.3. Firm Transparency Analysis

In the previous analyses, accounting transparency was measured solely by reference to IFRS adoption without taking into consideration interfirm differences in accounting transparency before IFRS adoption. Hence, in this section, we investigate whether firms whose accounting was less transparent before the adoption of IFRS are more likely to conform to the predictions of the DL model. Intuition suggests that firms that were more transparent to begin with should be less affected by IFRS adoption.[16]

Following Byard et al. (2011), we measure transparency in terms of two quarterly analyst forecast metrics: (1) absolute value of analyst forecast error and (2) analyst forecast dispersion. The greater the firm's forecast error and dispersion, the less transparent the firm's accounting data. Forecast error is computed as the absolute value of the difference between analyst quarterly earnings per share and actual earnings per share. Forecast dispersion is computed as the dispersion of the quarterly earnings per share forecasts among analysts. Both measures are scaled by price per share at the beginning of the quarter.

Table 5, panel A shows the pre- and post-IFRS period means of each of the firm-level transparency measures for the IFRS and control samples. The results for the IFRS sample show a significant decrease in analyst forecast error ($p < 0.01$) and analyst forecast dispersion ($p < 0.05$) in the post-IFRS period relative to the pre-IFRS period. For the control sample, we observe no change in dispersion and accuracy. The difference in differences is significant for both analyst forecast error ($p < 0.01$) and dispersion ($p < 0.05$). These difference-in-differences results provide evidence that transparency increased in the post-IFRS period unconditionally and by comparison to the control sample.[17]

Table 5, panel B shows the regression of the CDS spread on firm-level transparency, including its interactions with maturity and maturity squared. The purpose of this panel is to provide some corroborating evidence that analyst forecast error and dispersion are valid measures of transparency for CDS pricing. The results indicate that the CDS spread decreases significantly with both firm-level transparency metrics ($p < 0.05$), thereby validating these metrics as transparency measures. The interaction terms are not statistically significant.

Table 5, panel C reports the regression results controlling for firm-level transparency in the pre-IFRS period. The major point of this analysis is to see whether prior results regarding the impact of IFRS adoption on the CDS spread/maturity relation still hold after controlling for pre-IFRS firm-level transparency. In addition, this analysis allows investigating whether firms with low levels of transparency pre IFRS benefitted more from IFRS adoption compared with firms with high levels of transparency pre IFRS.

In columns (1) and (2), TRANSPARENCY PRE-PERIOD is defined as the firm's average analyst forecast error and dispersion metrics pre IFRS, respectively. Since both forecast error and forecast dispersion are negatively correlated with transparency, the higher the TRANSPARENCY PRE-PERIOD, the *lower* the average firm transparency pre IFRS, and the higher the CDS spread should be. The results for POST, the interaction of POST and MATURITY, and the interaction of POST and MATURITY SQUARED are consistent with the evidence in Table 3. Specifically, the spread is lower and the slope and concavity are higher in the post-IFRS period, and the changes are by and large highly significant. More importantly, Table 5, panel C also shows that the lower the average pre-IFRS transparency, the higher the overall CDS spread ($p < 0.05$ and $p < 0.01$, respectively), as expected. Furthermore, the coefficients on the interaction variable of POST and TRANSPARENCY PRE-PERIOD indicate that the lower the firm's average pre-IFRS transparency, the lower the CDS spread/maturity intercept in the post-IFRS period ($p < 0.05$ and $p < 0.001$, respectively). The coefficients on the interaction of MATURITY with POST and TRANSPARENCY PRE-PERIOD indicate that companies with average lower transparency in the pre-IFRS period experienced greater change in slope in the post-IFRS period ($p < 0.05$ and $p < 0.001$, respectively). The coefficients on the interaction of MATURITY SQUARED with POST and TRANSPARENCY PRE-PERIOD indicate that companies with average lower transparency in the pre-IFRS period experienced greater increase in concavity in the post-IFRS period ($p = 0.137$ and $p < 0.001$, respectively), albeit only at the one-tailed level for the forecast error metric. Altogether, the results imply that, although IFRS firms on average experienced changes in their maturity structure, the changes are more pronounced for firms that had lower transparency in the pre-IFRS period.

4.4. Spread Differences

Figure 1 implies that differences between pre- and post-IFRS CDS spreads decrease for relevant maturities as contract maturity increases. In other words, changes in accounting transparency affect primarily short-end maturities. The intuition is similar to that underlying H3—namely, changes in the transparency of accounting information are likely less informative about distant (in time) events because of the higher uncertainty of

[16] Byard et al. (2011) show that the adoption of IFRS did not increase the transparency of accounting information uniformly.

[17] Notwithstanding the changes to forecast error and dispersion, they are significantly lower for the control sample by comparison to the IFRS sample both in the pre- and post-IFRS periods. This is not surprising, given that the control sample is made up primarily of U.S. firms highly followed by analysts.

Table 5 Transparency Analysis

Panel A: Comparison of transparency pre and post IFRS

		IFRS	Control	DIFF(IFRS_control)
Forecast error	Pre-IFRS	0.012	0.002	**0.010*****
	Post-IFRS	0.007	0.002	**0.005*****
	Difference (Pre − Post)	**0.005*****	**0.000**	**0.005*****
Dispersion	Pre-IFRS	0.005	0.002	**0.003*****
	Post-IFRS	0.004	0.002	**0.002*****
	Difference (Pre − Post)	**0.001****	**0.000**	**0.001****

Panel B: CDS and transparency level

Variable	Forecast error	Dispersion
Constant	3.458***	3.648***
	(0.000)	(0.000)
TRANSPARENCY	−0.111***	−0.172**
	(0.001)	(0.018)
MATURITY	0.614***	0.652***
	(0.000)	(0.000)
MATURITY_TRANSPARENCY	0.008	0.017
	(0.477)	(0.276)
MATURITY SQUARED	−0.040***	−0.044***
	(0.001)	(0.001)
MATURITY SQUARED_TRANSPARENCY	−0.000	−0.001
	(0.949)	(0.574)
ROA	−0.373	0.154
	(0.765)	(0.915)
ROA_MATURITY	−0.549*	−0.606**
	(0.064)	(0.021)
ROA_MATURITY SQUARED	0.044*	0.044**
	(0.060)	(0.028)
SIZE	−0.342***	−0.332***
	(0.000)	(0.000)
SIZE_MATURITY	−0.001	−0.005
	(0.954)	(0.732)
SIZE_MATURITY SQUARED	0.000	0.001
	(0.634)	(0.389)
LEV	1.022***	1.036**
	(0.005)	(0.012)
LEV_MATURITY	−0.167*	−0.165*
	(0.054)	(0.073)
LEV_MATURITY SQUARED	0.012*	0.011
	(0.092)	(0.140)
RATING	0.058***	0.062***
	(0.000)	(0.000)
RATING_MATURITY	−0.004*	−0.005**
	(0.084)	(0.017)
RATING_MATURITY SQUARED	0.000	0.000
	(0.305)	(0.123)
SD_RET	8.917***	7.986***
	(0.000)	(0.000)
SD_RET_MATURITY	−0.273	−0.084
	(0.602)	(0.886)
SD_RET_MATURITY SQUARED	0.006	−0.006
	(0.880)	(0.902)
SPOT	−0.018	0.004
	(0.689)	(0.874)
SPOT_MATURITY	0.007	0.006
	(0.374)	(0.303)

Table 5 (Continued)

Variable	Forecast error	Dispersion
SPOT_MATURITY SQUARED	−0.000	−0.000
	(0.502)	(0.466)
LIQUIDITY	0.828***	0.810***
	(0.000)	(0.000)
LIQUIDITY_MATURITY	−0.121***	−0.120***
	(0.000)	(0.001)
LIQUIDITY_MATURITY SQUARED	0.010***	0.011***
	(0.000)	(0.001)
Observations	5,300	4,350
Adjusted *R*-squared	0.895	0.895

Panel C: CDS and transparency level in the pre-IFRS period

	Forecast error (1)	Dispersion (2)
Constant	4.123***	3.918***
	(0.000)	(0.000)
TRANSPARENCY PRE-PERIOD	5.142**	18.329***
	(0.019)	(0.003)
POST	−0.250***	−0.197**
	(0.002)	(0.014)
POST_TRANSPARENCY PRE-PERIOD	−3.566**	−10.154***
	(0.013)	(0.000)
MATURITY	0.342***	0.396***
	(0.002)	(0.000)
MATURITY_POST	0.095***	0.083***
	(0.000)	(0.000)
MATURITY_POST_TRANSPARENCY PRE-PERIOD	0.606**	2.744***
	(0.047)	(0.000)
MATURITY SQUARED	−0.019**	−0.024***
	(0.037)	(0.004)
MATURITY SQUARED_POST	−0.006***	−0.005***
	(0.000)	(0.000)
MATURITY SQUARED_POST_TRANSPARENCY PRE-PERIOD	−0.039	−0.233***
	(0.137)	(0.000)
ROA	−0.056	−1.032
	(0.956)	(0.357)
ROA_MATURITY	−0.271	−0.042
	(0.403)	(0.909)
ROA_MATURITY SQUARED	0.019	−0.003
	(0.461)	(0.917)
SIZE	−0.361***	−0.337***
	(0.000)	(0.000)
SIZE_MATURITY	0.017*	0.013
	(0.095)	(0.191)
SIZE_MATURITY SQUARED	−0.001	−0.001
	(0.251)	(0.489)
LEV	1.138***	0.982***
	(0.004)	(0.005)
LEV_MATURITY	−0.131*	−0.135*
	(0.098)	(0.083)
LEV_MATURITY SQUARED	0.007	0.008
	(0.236)	(0.199)
RATING	0.047***	0.047***
	(0.000)	(0.001)
RATING_MATURITY	−0.003	−0.003
	(0.355)	(0.222)

Table 5 (Continued)

	Forecast error (1)	Dispersion (2)
RATING_MATURITY SQUARED	0.000	0.000
	(0.626)	(0.410)
SD_RET	7.298***	7.685***
	(0.000)	(0.000)
SD_RET_MATURITY	−0.068	−0.230
	(0.850)	(0.527)
SD_RET_MATURITY SQUARED	−0.011	0.004
	(0.714)	(0.899)
SPOT	0.036	0.012
	(0.469)	(0.791)
SPOT_MATURITY	−0.003	−0.004
	(0.533)	(0.388)
SPOT_MATURITY SQUARED	0.000	0.000
	(0.296)	(0.135)
LIQUIDITY	0.786***	0.740***
	(0.000)	(0.000)
LIQUIDITY_MATURITY	−0.099***	−0.102***
	(0.000)	(0.000)
LIQUIDITY_MATURITY SQUARED	0.008***	0.008***
	(0.001)	(0.000)
Observations	6,097	5,976
Adjusted R-squared	0.896	0.901

Notes. Panel A compares the transparency measures—forecast error and dispersion, pre and post IFRS for the IFRS and control samples. Forecast error is computed as the absolute value of the difference between analyst quarterly earnings per share forecast and actual earnings per share. Dispersion is computed as the dispersion of the quarterly earnings per share forecasts among analysts. Both measures of transparency are scaled by price per share at the beginning of the quarter. Panel B shows the regression results of the CDS spread on its determinants including the transparency measure and its interaction with maturity and maturity squared. Panel C presents the results with a control for transparency in the pre-IFRS period. TRANSPARENCY PRE-PERIOD is the average level of forecast error and dispersion in the pre-IFRS period. Variable names with an underscore represent interaction variables. For example, MATURITY_POST_AVERAGE TRANSPARENCY PRE-PERIOD is the interaction between MATURITY, POST, and TRANSPARENCY PRE-PERIOD. The regressions control for industry, fiscal quarter, and country fixed effects (untabulated) and are estimated using OLS with robust standard errors corrected for firm and quarter clustering. Two-tailed p-values are in parentheses.

***, **, and *Statistical significance at the 1%, 5%, and 10% levels, respectively.

such distant events. Therefore, changes in transparency should have less of an impact on longer-maturity CDS rates, much in the same way that accounting information focuses on short-term performance. DL do not prove this result formally but base it on intuition.

Figures 2 and 3 show the relation between the change in the CDS spread and maturity. To facilitate the analysis, we use the estimated regressions of Table 3, columns (2) and (4), to compute CDS spreads for each maturity in the pre- and post-IFRS periods for the IFRS and control samples, respectively. Results are similar if we exclude fiscal 2005 data. Figure 2 shows the CDS spread and differences in the spread by maturity for the IFRS sample. Untabulated results indicate that the post-IFRS spread is significantly lower (at the 95% confidence interval) for the one- and two-year maturities, consistent with transparency affecting primarily the shorter-term maturities. Furthermore, we find that the difference in the spread (i.e., "Pre minus Post") is decreasing with maturity. Specifically, upon regressing the difference in the spread on maturity (untabulated), we find that the coefficient on maturity is negative and significant, consistent with Figure 1.

Figure 3 replicates Figure 2 for the control sample. We observe that that the post-IFRS curve lies everywhere above the pre-IFRS curve, but the difference in the curves is not significant for any of the maturities (at the 95% confidence interval). Also, the difference in the spread is not associated with maturity.

5. Sensitivity Analyses

5.1. Fama–MacBeth Analysis

To alleviate concerns related to time-series correlations, we perform a Fama–MacBeth analysis for each of the IFRS and control samples. Specifically, we use the base regression specification in Table 4 and estimate the CDS spread/maturity cross-sectionally by quarter. We do not include the interactions of the control variables with maturity or maturity squared because the sample sizes are not sufficiently large, especially in the pre-IFRS quarters. We then average each of the intercept,

Figure 2 (Color online) CDS Spread Pre and Post IFRS for IFRS Adopters

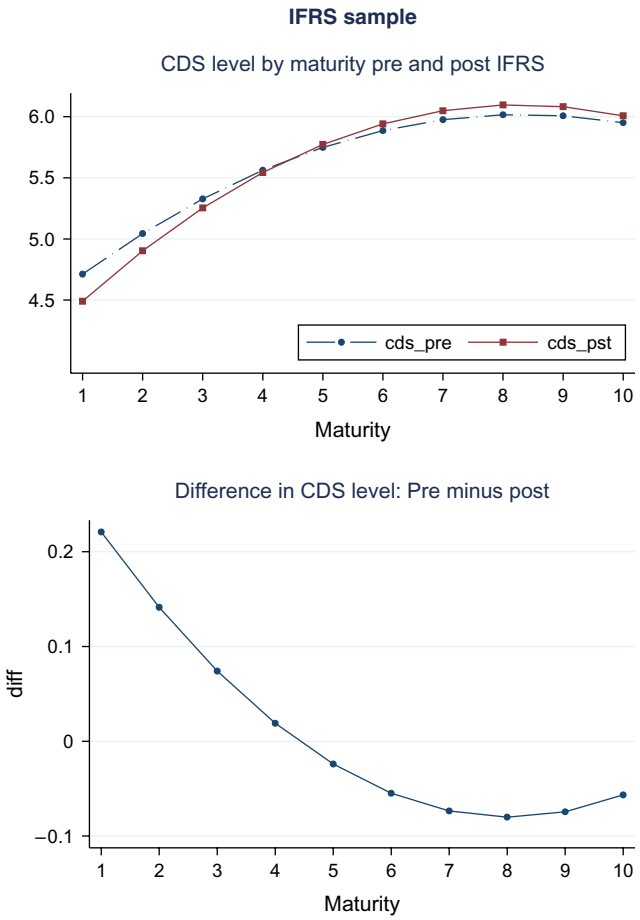
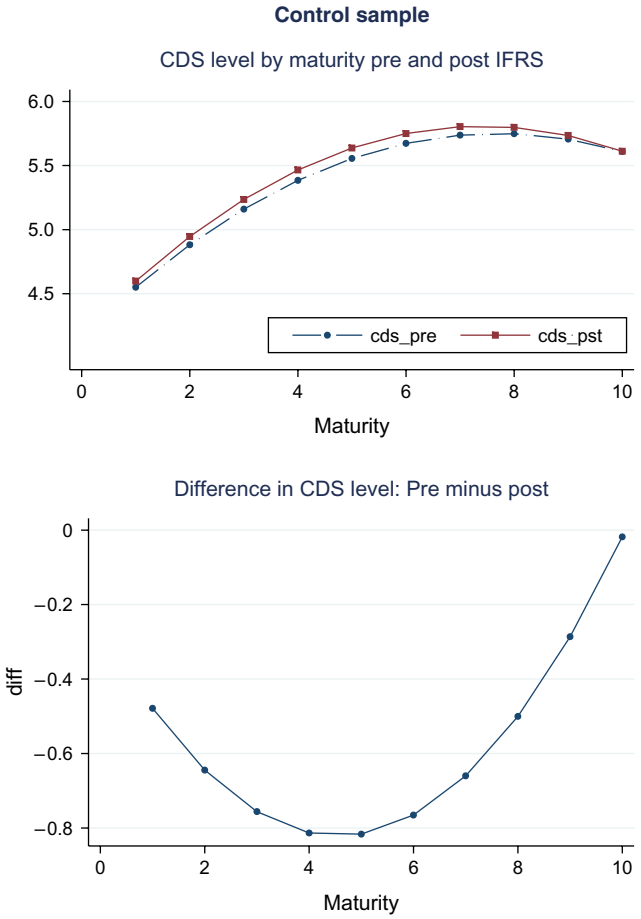


Figure 3 (Color online) CDS Spread Pre and Post IFRS for the Control Sample



slope, and concavity coefficients both for pre-IFRS and post-IFRS periods, and we compare the pre- and post-IFRS changes in the average coefficients.

Focusing on the IFRS sample, we find that the intercepts and slopes are positive and significant and that the concavity estimates are significantly negative both pre and post IFRS. The changes in the intercept, slope, and concavity from pre IFRS to post IFRS conform to the transparency predictions of the DL model, but only the changes in the slope and concavity are significant ($p < 0.01$). Focusing on the control sample, we again find that the intercepts and slopes are positive and significant and that the concavity estimates are significantly negative both pre and post IFRS. However, in contrast to the IFRS sample, the changes in the average coefficients are insignificant.

5.2. Timing Test

Most of the firms in our sample adopted IFRS at the beginning of 2005 so that we expect our analysis to be strongest when POST takes on a value 1 following the adoption of IFRS (i.e., 2005–2006 for most firms). As a placebo test, we examine our results by varying the adoption date. To be able to conduct the test, we extend the sample period to 2008. Specifically, we changed the definition of the adoption year to 2006 (post = 2006–2008, pre = 2003–2005) and 2007 (post = 2007–2008, pre = 2003–2006) and reestimated the regressions in Table 4 (untabulated).[18] We find that when the adoption year is defined as 2006, the change in the CDS spread/maturity relation is also consistent with DL. There are two potential reasons for this: (1) Approximately 20% of the sample firms adopted IFRS only on December 31, 2005, so the full extent of the impact of IFRS for these firms became apparent from 2006 onward. (2) The year 2005 was the transition year for all other firms. Hence, it is conceivable that there was learning in 2005 and the full effect of IFRS spilled onto 2006. When the adoption year is set to 2007, we obtain results that contradict DL: the spread is higher and slope and concavity are lower in the post-IFRS period.

[18] Note that we cannot define 2004 as the post-IFRS year because the number of observations in 2003 is small.

5.3. Control Samples

As noted above, the control sample is made up of U.S., Canadian, Taiwanese, Malaysian, and cross-listed firms that are domiciled in IFRS countries but use U.S. GAAP. Putting all of these control firms together increases the power of our tests. As a sensitivity analysis, we reestimated the regressions of Table 4 for each of the following three control groups separately: (1) U.S. firms; (2) Canadian, Taiwanese, and Malaysian firms; and (3) cross-listed firms. The results (untabulated) are consistent with our main findings. Sample sizes are quite small for the latter two control groups. Nevertheless, the results are consistent with our main findings. In particular, unlike the IFRS sample, for each of these three control groups, the changes in the intercept, slope, and concavity coefficients of the CDS spread/maturity relation are either insignificant or contrary to the predictions of the DL model.

6. Conclusion

This study tests whether IFRS adoption increased accounting transparency based on model-driven hypotheses. Duffie and Lando (2001) show that changes to accounting transparency affect the spread/maturity relation of CDS instruments. Consistent with their model, we find that CDS spreads are significantly lower, especially across short-term maturities, following the adoption of IFRS, and the slope and concavity of the CDS spread/maturity relation are higher. These changes did not occur to the spread/maturity relation of a control sample of CDS instruments. Predicted changes continue to hold after controlling for pre-IFRS firm transparency levels. Overall, this study provides robust evidence that IFRS adoption increased accounting transparency.

An interesting related issue is the extent to which transparency affects the CDS spread/maturity relation for different potential credit events (bankruptcy, debt restructuring, etc.). Different credit events may be differentially related ex ante to accounting-based measurement errors in asset values. We leave this unexplored issue for future research.

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