

Credit Risk and IFRS: The Case of Credit Default Swaps

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Abstract

This study evaluates the impact of International Financial Reporting Standards (IFRS) on the pricing of credit risk in the over-the-counter Credit Default Swap market. Our overall results indicate that earnings are a significant determinant of credit risk post-IFRS adoption but not pre-IFRS adoption. Other determinants of credit risk are highly significant irrespective of IFRS adoption. Nevertheless, the ability of IFRS earnings to convey credit risk information appears to be contextual. Specifically, we find evidence that IFRS adoption increased the ability of earnings to convey credit risk information in code law countries but not in common law countries. Consistent with the comparability argument of Hail, Leuz and Waddock (2009), our results suggest that the increase in credit informativeness of earnings in code law countries is attributable to firms with high foreign presence. We also show that conservatism is a determinant of the credit risk informativeness of earnings. Although conservatism decreased significantly after IFRS adoption, earnings in countries characterized by high differential timeliness remain credit risk informative irrespective of IFRS adoption. Further, using four different metrics of earnings transparency, we find that more transparent earnings are associated significantly with decreased CDS spreads. More importantly, we find that the change in credit risk informativeness of earnings in code law countries is attributable to firms whose transparency increased substantively subsequent to IFRS adoption.

Key words: Credit Default Swaps, Credit Risk, IFRS

JEL Classification: M40, M41, G13, G20

Data Availability: All data are publicly available.

1. Introduction

This study evaluates the impact of International Financial Reporting Standards (IFRS) on the pricing of credit risk in the over-the-counter Credit Default Swap (CDS) market. The CDS is essentially a “pure” credit default instrument that provides a far less noisy measure of credit risk by comparison to corporate bonds or credit ratings. Callen, Livnat, and Segal (2009) show that U.S. GAAP earnings are an important determinant of CDS spreads. In their levels analysis, they find that a one percent increase in earnings (normalized by total assets) reduces CDS spreads by a non-trivial nine percent. The intent of this study is to compare the credit risk information conveyed by IFRS earnings relative to local GAAP earnings for countries where IFRS are mandatory.

The adoption of IFRS provides a unique research opportunity to examine the impact of accounting standards on the relation between credit risk and financial statement information, particularly earnings. This setting also provides a unique research opportunity to investigate financial statement accounting characteristics such as transparency, comparability and timely loss recognition, on the informativeness of earnings with respect to credit risk. In their seminal study, Duffie and Lando (2001) show theoretically that CDS spreads are negatively correlated with the transparency of accounting information since transparency reduces the noise about the reference firm’s asset structure and wealth dynamics. Although not discussed by them, comparability is also likely to be negatively associated with CDS spreads because comparability should allow for a more informative and transparent analysis of accounting information. Conservatism is another potentially important driver of the informativeness of earnings about credit risk because the timely recording of anticipated future negative cash flow shocks provides information about the firm’s ability to pay back its debt. The issue here is complicated by the fact that IFRS tend to reduce conservatism by design which likely impacts on firms’ conservatism policy.

The adoption of IFRS also provides an opportunity to investigate the impact of country-level institutional differences on the credit risk informativeness of accounting information. The extant literature focuses on the impact of institutional differences on earnings quality (e.g.

Ahmed, Neel, and Wang 2010, Chen, Tang, Jiang and Lin 2010), value relevance of earnings (e.g. Alford, Jones, Leftwich and Zmijewski 1993, Ali and Hwang 2000, Bartov and Goldberg 2001) and accounting characteristics such as conditional conservatism (e.g. Bushman and Piotroski 2006, Ball, Kothari and Robin 2000). To the best of our knowledge, there is no research on the impact of country-level institutional factors on the credit risk informativeness of earnings. Similar to the impact of institutional variables on equity values, the relation between CDS spreads and accounting numbers is likely to be affected by attributes of the accounting system at the country level such as the quality of the financial statements, the quality of securities law enforcement, and the pervasiveness of earnings management.

Our study is guided by the theoretical CDS pricing models of Merton (1974) and Duffie and Lando (2001). The latter model provides justification for the relevance of noisy accounting information as a determinant of CDS prices. Although accounting plays no role in the former, the Merton model motivates the need to control for other determinants of CDS prices. We focus our analysis on accounting earnings and book values of equity as proxies for the firm's uncertain wealth and noisy asset dynamics. To the extent that these are meaningful proxies, the hybrid CDS pricing model of Duffie and Lando (2001) predicts an inverse relation between CDS spreads and earnings and CDS spreads and book values. We measure the informativeness of earnings (book values) with respect to credit risk by the earnings (book value) coefficient in a regression of CDS spreads on normalized earnings (book values) controlling for other potential determinants of the spread. The more negative the coefficient, the more informative the credit risk information conveyed by earnings (book values). We use these coefficients to test the relation between financial statement variables and CDS spreads, rather than simple correlations, in order to allow for a richer, more powerful analysis.¹

We perform five distinct tests of the credit risk informativeness of earnings and book values under IFRS. First, we examine the associations of earnings and book values of equity with CDS spreads under both local GAAP (i.e. pre-IFRS) and IFRS, and test whether the adoption of

¹Simple correlations potentially obfuscate the transition to IFRS if only because the volatility of many variables increased in the post-IFRS period consistent with the focus of IFRS on fair value accounting (Barth, Cram, and Nelson 2007).

IFRS changed the association between these variables. Second, we examine whether the associations of earnings and book values with CDS spreads subsequent to the adoption of IFRS depend on country level institutional factors including the system of laws (code vs. common law – a proxy for quality of financial statement information), extent of regulation enforcement, degree of earnings management, and extent of differences between local GAAP and IFRS.² Third, we investigate the impact of IFRS-induced comparability on the relations between CDS spreads and accounting numbers conditioned on the level of foreign sales. The idea here is that comparability is more likely to be beneficial for firms with a greater international business presence. Fourth, we explore whether the ability of earnings and book value of equity to convey credit risk information is associated with differential timeliness at the country level.³ Fifth we examine the relation among CDS spreads, accounting information and transparency including an analysis of the relation between CDS spreads and accounting information for firms that experienced substantive change in transparency following the adoption of IFRS.

We find initially that earnings are on average a significant determinant of credit risk both pre and post-IFRS adoption, indicating that the transition to IFRS did not increase the informativeness of earnings with respect to credit risk on average. But, when we further analyze the relation between CDS and earnings conditioned on institutional factors, we find that the ability of IFRS earnings to convey credit risk information appears to be highly contextual. Specifically, the results show that IFRS adoption increased the credit risk informativeness of earnings in code law countries but not in common law countries; earnings are unrelated to CDS spreads prior to the adoption of IFRS in code law countries but are inversely related in the post-IFRS period. The results also suggest that legal enforcement and the relative absence of earnings management are imperative for the credit risk informativeness of earnings. The latter finding is consistent with evidence regarding the impact of IFRS on firm values (Daske, Hail, Leuz, and

² Code-law accounting affords managers more latitude in timing income recognition thereby obfuscating the economic performance of the firm. For example, firms create earnings reserves in good years using excessive impairment charges and provisions, and use these reserves in bad years. The low quality of accounting information is attributed primarily to governance practices in code-law countries which are based on the stakeholder model, whereby the different stakeholders such as employees, government, lenders and shareholders are able to affect accounting choices. In particular, one of the main accounting incentives of the various stakeholders is to reduce the volatility of net income, thereby creating a strong incentive to smooth earnings (Ball et al. 2000).

³ While differential timeliness (DT) is also related to country characteristics such as code vs. common law (Ball et al. 2000, Bushman and Piotroski 2006) and strength of securities law enforcement (Bushman and Piotroski 2006), we treat DT as an independent feature of the accounting system.

Verdi 2007) and costs of capital (Li 2009) showing that increases (decreases) in firm value (cost of capital) following the adoption of IFRS depend on the enforcement of securities law.

Our results suggest that the adoption of IFRS did not enhance the credit risk information conveyed by earnings for firms with a high foreign business presence. Specifically, the coefficient on earnings both in the pre and post-IFRS periods are significantly related to CDS spread, indicating that IFRS by itself did not affect the credit informativeness of earnings of firms with high foreign business presence. However, consistent with the comparability argument of Hail, Leuz and Wysocki (2009), we find that the increase in the credit risk informativeness of earnings in code law countries is attributed in part to firms with a high foreign business presence.

The conservatism analysis shows that conservatism is a determinant of the credit risk informativeness of earnings. In particular, earnings in countries with high (low) DT are (are not) credit risk informative. Directly related to the research question, we find that differential timeliness decreased significantly on average after the adoption of IFRS. Nevertheless, the credit risk informativeness of earnings was not affected by the adoption of IFRS; earnings were informative (uninformative) about credit risk in high (low) differential timeliness countries both before and after the adoption of IFRS.

Consistent with the conjecture of the proponents of IFRS, we find that transparency has increased in the post IFRS period; both analyst earnings forecast errors and forecast dispersions, our proxies for transparency, are lower as compared with the pre IFRS period. Confirming Duffie and Lando (2001), we find that there is a negative and significant association between the CDS spread and the level of earnings transparency for all of our transparency metrics. Importantly, our transparency analysis provides evidence that earnings convey credit risk information in the post-IFRS period primarily for firms whose transparency increased substantively subsequent to IFRS adoption. Further, similar to the comparability results, the increase in the credit risk informativeness of earnings in code law countries in the post-IFRS period is also attributable to firms with increased transparency.

Overall, the results of this study suggest that the adoption of IFRS increased the credit risk informativeness of earnings by comparison to pre-IFRS earnings in code law countries but not in common law countries. Moreover, we find that the increase in the credit risk

informativeness of earnings in code law countries can be attributed primarily to firms with a high foreign business presence for whom inter-jurisdictional comparability is likely to be important and to firms with increased transparency. In addition, we contribute to the literature by showing that differential timeliness and transparency are important determinants of credit risk.

In what follows, Section 2 provides the literature review and develops the hypotheses based primarily on the Merton (1974) and Duffie-Lando (2001) models of CDS pricing. Section 3 describes the data. Section 4 presents the empirical results and Section 5 concludes.

2. Literature Review and Hypotheses Development⁴

The extant research on IFRS adoption is concerned almost exclusively with equity markets (see for example Daske et. al. 2007 and Li 2009). But, as the financial crisis of 2008 has shown, debt markets are no less crucial than equity markets for the functioning of the financial system in general and in the financing of public corporations in particular. The issue that we address is whether IFRS conveys better information about the firm's credit risk, proxied by the level of CDS spreads, than local GAAP. In theory, the credit risk information conveyed by IFRS earnings could be evaluated through debt markets, such as the corporate bond market, rather than through the CDS market. In the absence of arbitrage opportunities, contractual features (such as embedded options, covenants, and guarantees), and market frictions, the CDS spread and the corporate bond yield spread—the difference between the bond yield and the risk-free rate—are necessarily identical for floating rate corporate debt (Duffie 1999). Nevertheless, it is precisely because of these latter factors—contractual features, market frictions and fixed-rate debt—that CDS offer many advantages over corporate bonds (and other debt instruments) for analyzing the determinants of credit risk. First, the finance literature has shown that corporate bond spreads include factors unrelated to credit risk, such as systematic risk unrelated to default (Elton, Gruber, Agrawal and Mann 2001) and especially illiquidity (Longstaff, Mithal and Neis 2005). Huang and Huang (2002) conclude that less than 25 percent of the credit spread in corporate bonds is attributable to credit risk. Second, interest risk drives fixed-rate corporate bond yields

⁴ We do not summarize in this study the burgeoning literature on IFRS and equity markets.

for fixed rate debt quite independently of credit risk. Third, in contrast to CDS instruments, corporate bonds are replete with embedded options, guarantees, and covenants. Heterogeneity in these features potentially distorts the relationship between accounting numbers and credit risk in cross-sectional studies. Even more problematic is that they may generate a spurious relation between earnings and credit risk. For example, the positive relation between earnings and corporate bond prices could be driven by earnings-based covenants rather than by credit risk per se. With lower earnings, earnings-based covenants are more likely to be binding, increasing the probability of technical bankruptcy and concomitant expected transactions (renegotiation) costs, thereby, leading to reduced bond prices. In contrast, except in rare cases, technical default is not a credit event in CDS contracts and thus has little impact on CDS spreads. Fourth, the available empirical evidence indicates that credit risk price discovery takes place first in the CDS market and only later in the bond and equity markets (Blanco, Brennan and Marsh 2005; Zhu 2006; Daniels and Jensen 2005; Berndt and Ostrovnaya 2008). The bond market's lagged reaction potentially distorts empirical studies relating earnings to bond prices. Fifth, unlike corporate bond yield spreads, no benchmark risk-free rate need be specified for CDS spreads minimizing potential misspecification of the appropriate risk-free rate proxy (Houweling and Vorst 2005). Sixth, CDS rates are closely related to the par value of the reference bond, whereas corporate bond values (including their taxability characteristics) are affected by coupons. Heterogeneity in coupon rates potentially distorts the relationship between earnings and credit risk in cross-sectional studies. Finally, bond yield spreads are affected by tax differentials in bond pricing. Elton et al. (2001) document a tax premium of 29 to 73 percent of the corporate bond spread, depending on the rating.⁵

Proponents of IFRS argue that a single set of high quality accounting standards enhances the transparency and comparability of financial statements. These factors are potentially important for evaluating the firm's credit risk. For example, more transparent statements are

⁵ One may still be tempted to argue that since CDS instruments are derivatives whose price depend on the value of the underlying debt, the role of accounting information in determining the CDS spread is unclear because the prices and volatilities of the underlying financial instruments are observable. However, as shown by Duffie and Lando (2001), even noisy accounting information is relevant for the pricing of CDS because the accounting provides information about the firm's wealth and asset dynamics and, hence, about the probability of the occurrence of a credit event such as bankruptcy. Also, unlike equities, even the largest corporate bonds do not trade very often and bond prices are often not observable. Published bond prices are often stale or simply interpolated. Thus, bond yield volatilities are often impossible to estimate.

likely to provide better information about the firm's ability to pay back its debts. More transparent statements are also likely to provide debt markets with better estimates of the potential for the firm to recover from a credit event such as bankruptcy and better estimates of the amounts that debt holders might recover conditioned on the firm going bankrupt. Enhanced comparability should allow for easier and/or better assessment of credit risk especially when the reference entity and the firm ensuring itself against the credit risk of the reference entity via CDS instruments reside in different local GAAP jurisdictions.

The [limited] evidence in the literature supports these conjectures. Specifically, Beneish, Miller and Yohn (2009) find that IFRS adopting countries attract more debt investment, and have lower extent of debt home bias. They also find that their result is contextual and is driven by adopting countries that have weaker investor protection and higher financial risk. They argue that their findings indicate that IFRS adoption reduces the agency costs of debt in countries with less developed investor protection and greater financial risk, consistent with IFRS providing more transparent information. Florou and Kossi (2009) examine whether the mandated introduction of IFRS affects the source and cost of corporate debt. They find that mandatory IFRS adopters are more likely to issue public bonds than to borrow privately. They also find that mandatory IFRS adopters 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. Their findings also suggest that mandatory IFRS adoption is especially beneficial for public bond investors, who rely much more on financial statements and have much less monitoring and renegotiating privileges compared to private lenders. Finally, they show that the positive consequences of IFRS for debt financing are present only in countries with stricter rule enforcement, higher control of corruption and lower financial risk.

Sceptics of the IFRS endeavour often question whether IFRS can credibly provide more transparent information and raise concerns regarding whether the "one size fits all" approach does not simply distort economic, political and regulatory differences among firms in different jurisdictions. Furthermore, the implementation of IFRS crucially depends on the effectiveness of regulation which is likely to depend on the underlying economic and political institutions influencing the incentives of the managers and auditors responsible for financial statement

preparation (e.g., Ball, Robin and Wu 2003). Indeed, Daske, Hail, Leuz and Verdi (2007) and Li (2009) show that IFRS has an impact on cost of equity and valuation only in countries with strong enforcement of securities laws.

Of the information provided by financial statements that relates to credit risk, we focus our analysis on earnings—and to a lesser extent on book equity—for two reasons.⁶ First, earnings are (arguably) the most important information variable used by investors to evaluate firm performance and, hence, firm wealth, a major determinant of credit risk. Second, earnings can be used by investors to estimate the reference entity's true asset (wealth) dynamics, another important determinant of credit risk. More specifically, increased profitability of the firm, as measured by current accounting earnings, should reduce its credit risk since, with increased profitability, the reference entity is wealthier and less likely to default. Moreover, accounting studies have shown that current earnings are a good predictor of future earnings (Finger 1994; Nissim and Penman 2001), future cash flows (Dechow, Kothari and Watts 1998; Barth, Cram, and Nelson 2001) and firm equity performance (Dechow 1994). In other words, an increase (decrease) in earnings portends an increase (decrease) in current and future operating and equity performance and, hence, a reduced (increased) probability of bankruptcy. Also, earnings comprise a significant portion of the short-term change in firm assets (via clean surplus) and, therefore, provide information to investors about the firm's asset and wealth dynamics, crucial variables in the estimation of credit risk (Duffie and Lando 2001). Consistent with these arguments, Callen et al. (2009), Batta (2006) and Das, Hanouna, and Sarin (2009) show that earnings are an important determinant of CDS spreads, indicating that earnings provide relevant information in assessing firm wealth and asset dynamics. Given the link between earnings and CDS spreads, the impact of IFRS on credit risk can be gauged by examining the association between CDS spreads and earnings pre and post IFRS adoption. Specifically, we follow Callen et al. (2009) in assuming that the credit risk information conveyed by earnings is captured by the earnings coefficient from a regression of CDS spreads on earnings (and other explanatory variables). We therefore analyze the impact of IFRS earnings on CDS spreads focusing on three important earnings attributes – transparency, comparability and differential timeliness, and examine how these factors affect the coefficient on earnings in CDS spread regressions.

⁶ Banks and other financial intermediaries are excluded from our sample.

2.1 Earnings, Book Values and CDS Spreads

Duffie and Lando (2001) show that the wealthier the reference firm, the smaller the CDS spread, *ceteris paribus*. The intuition is straightforward. The wealthier the firm, the less likely it is to have a credit event and, hence, the smaller the spread. Furthermore, to the extent that accounting earnings and book values proxy for the firm's wealth (and asset dynamics), their theory implies an inverse relation between CDS spreads and earnings and CDS spreads and book values. Although Callen et al. (2009), Batta (2006) and Das, Hanouna and Sarin (2009) show that earnings are relevant for assessing credit risk, the findings in these studies are based primarily (but not exclusively) on U.S reference entities employing U.S GAAP. Given the relatively high quality accounting standards together with effective regulation and securities laws enforcement in the U.S., one cannot generalize these findings to an international setting where countries differed in their accounting standards prior to IFRS adoption, and differ in securities law enforcement, quality of financial information, and extent of earnings management. These considerations lead to our first hypothesis:

H1a: CDS spreads are negatively correlated with earnings and book values both pre- and post-IFRS adoption.

H1b: The relation between CDS spreads and each of earnings and book values, both pre- and post-IFRS adoption, depend on institutional differences (code versus common law, quality of financial information, regulation enforcement, earnings management, and local GAAP-IFRS differences) across countries.

2.2 Comparability

Presumably, if IFRS enhances comparability of statements across countries, statements become more transparent and less noisy for users in different jurisdictions compared to local GAAPs. However, comparability should affect firms differentially depending upon their need for comparable cross-jurisdictional information. As emphasized by Hail, Leuz and Wysocki (2009), comparability should benefit primarily firms with extensive international business dealings rather than firms that operate domestically. For example, a firm that operates domestically can more

readily evaluate the credit risk of say its major customer using local GAAP reports than can a firm from another accounting jurisdiction. To the extent that IFRS enhances comparability, IFRS will better help the firm from the other jurisdiction evaluate the major customer's accounting reports than the domestic firm which has less of a comparability problem to begin with. This leads to our next hypothesis.

H2: IFRS earnings are more negatively correlated with CDS spreads than local GAAP earnings for firms with more foreign business.

2.3 Conditional Conservatism

Conditional conservatism should be of particular importance to CDS investors (and bondholders) who are far more concerned with earnings decreases than earnings increases (Callen et al. 2009). As emphasized by Watts (2003), conditional conservative accounting is demanded by debt holders because it reduces management's ability to artificially increase earnings and asset values. Specifically, when future negative cash flow shocks are anticipated, conservative accounting requires the firm to recognize future losses immediately in income, resulting in a concomitant reduction in asset values. Shareholder-oriented managers will accede to bondholder demands for conservative accounting in order to reduce debt financing costs. More importantly in the context of our study, the degree of conditional conservatism has a direct impact on the informativeness of earnings in assessing credit risk. The more conservative the firm, the more likely is the firm's accounting to act as a trip wire regarding anticipated future negative cash flow shocks that may reduce the firm's ability to pay back its debt. Thus, one should expect ex ante that the more conservative the firm, the more informative its earnings about firm credit risk and, hence, the more negative the relation between earnings and CDS spreads.

One of the major characteristics of IFRS, however, is their anti-conservative nature. The International Accounting Standards Board has explicitly rejected the notion of conservatism in accounting and indicated a preference for neutral accounting (Watts 2003). This is evident in several IFRS standards that reduce conservatism by design. For instance, IFRS disallow the

completed contract method, allow for fair value accounting for investment properties, allow for impairment reversals, and for the revaluation of PP&E and biological assets. Empirical evidence that IFRS reduces conditional conservatism is provided by Ahmed, Neel and Wang (2010) who show that firms exhibited more conservative accruals and more timely loss recognition in the pre-adoption period. Thus, if IFRS yield financial statements that are less conservative by comparison to local GAAP, we should expect a weaker inverse relation between credit spreads and IFRS earnings relative to local GAAP earnings. This leads to our next set of hypotheses:

H3a: CDS spreads are more (less) negatively correlated with pre-IFRS earnings in countries with higher (lower) conditional conservatism.

H3b: The association between CDS spreads and post-IFRS earnings is less negative relative to the association of CDS spreads with pre-IFRS earnings (as result of the anti-conservative nature of IFRS).

2.4 Transparency

One of the putative benefits of IFRS is increased financial statement transparency-- see for example EC Regulation No. 1606/2002. With the exception of Duffie and Lando (2001), extant CDS models neither relate to accounting information nor to the transparency of accounting information. Duffie and Lando (2001) show theoretically that the more transparent (less noisy) the accounting information about the reference firm's asset structure and wealth dynamics, the smaller is the CDS spread. This yields the following hypothesis:

H4a: CDS spreads are inversely related to financial statement earnings transparency.

Although the Duffie-Lando model implies that transparency and wealth operate in the same direction in reducing CDS spreads, the model does not provide clear cut hypotheses regarding the impact on CDS spreads of simultaneous changes in wealth and in transparency.⁷ Assuming once more that the impact of accounting characteristics such as transparency are

⁷ Except of course in the special case where both wealth and transparency change simultaneously in the same direction.

captured in the association between CDS spread and earnings leads to the following hypothesis stated in the alternative.

H4b: IFRS earnings are more (less) negatively correlated with CDS spreads for firms whose transparency increased (decreased) after IFRS adoption.

In addition to the impact of accounting numbers on CDS spreads, CDS spreads are also affected by a number of other firm-level factors. Following the extensive empirical literature generated by the structural Merton (1974) model, we also control for leverage, credit ratings, firm risk, and the country's riskless rate of interest in the multivariate analysis below.⁸ This literature indicates that CDS spreads increase with leverage and firm risk and decrease with the quality of credit ratings and the country's risk-free interest rate. We also control for the global crisis years of 2007 and 2008 since CDS spreads in those years are larger than for other years.

3. Sample Data and Univariate Empirical Results

CDS data, currency exchange rates and interest rates are collected from Thomson DataStream Navigator. Thomson has Credit Market Analysis (CMA) data covering CDS contracts for 70 countries from 2003 through 2008. Deleting CDS indices and keeping CDS contracts of reference entities in countries which adopted IFRS results in an initial sample of 187 firms and 2,610 firm-quarters. For each firm-quarter we obtain the price of CDS contracts with maturities ranging from 1 year to 10 years issued 45 days after the fiscal-quarter-end. If there are no CDS issued at the 45th day after 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 is derived from mid-market quotes contributed by investment banks and default-swap brokers. For our sample of firm-quarters we obtain 22,620 CDS contracts with maturities ranging from 1 to 10 years. Thus, the sample could include up to 10 contracts for each firm-quarter. For each CDS contract, we collect data on its seniority (senior or subordinated), the currency of the underlying debt, which in turn determines the currency of the CDS contract, and the initial maturity of the

⁸ See Callen et al. (2009) for a review of this literature.

CDS contract (1-10 years).⁹ We convert the CDS quotes to U.S. dollars (USD) using the exchange rate as of the CDS quote date. We obtain quarterly financial statement data required to compute market value of equity, ROA, leverage, and foreign earnings from the Worldscope database. We download the financial information in USD wherever available; otherwise, we convert the variables to USD using the exchange rate as of the fiscal quarter-end. When available we use short-term credit ratings from S&P to proxy for credit ratings; otherwise, we use long-term credit ratings. We impose the following restrictions on the sample: non-missing market value of equity, positive leverage (measured as short term debt plus long term debt scaled by market value of equity plus total liabilities), 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 6 data points), and credit rating. In addition, all sample CDS contracts in this study are limited to senior debt both because there are very few junior CDS contracts in our initial sample and because their pricing determinants are very different from senior contracts. Also, given the paucity of voluntary adopters in our data, we eliminate voluntary adopter observations from our sample. These restrictions reduce the sample size to 164 firms, 1,916 firm-quarters, and 16,832 CDS contracts across 17 countries. To mitigate the effect of outliers, all continuous variables are winsorized at the top and bottom 1%.

Table 1, Panel A lists the number of firms, the number of firm-quarter observations and the number of CDS-contracts pre- and post-IFRS adoption by country for the period 2003 to 2008. Most of the data are from six countries: the U.K., France, Australia, Sweden, Germany and Italy in that order. The data also indicate that there are significantly more CDS contracts (12,224) and, hence, sample data, post-IFRS adoption by comparison to pre-IFRS adoption (4,699). This is consistent with the world-wide secular increase in CDS usage.¹⁰

(Insert Table 1 about here)

⁹ Restructuring clauses are only available from 2008 on. As a result we do not control for this variable in the analysis.

¹⁰ Of the total number of firms (164), 162 have data in the post period. Thus, there are two firms for which data are available in the pre but not in the post-IFRS periods.

Panels B lists (reference firm) means for the main variables used in the multivariate analyses by country including Market Values (MV), CDS spreads (5-year instruments only) measured in basis points, Log Book Values (LOGBV), Return on Assets (ROA), Leverage (LEV), Standard Deviations of Returns (SD_RET), the country's risk-free rate of interest (SPOT), and S&P firm ratings (RATING).¹¹ On the whole, the data show significant variation across countries.

Panel C shows means for these same variables pre- and post IFRS adoption. With the exception of LEV and SD_RET, mean pre- and post IFRS adoption figures are significantly different from each other, generally at the 1% level. Specifically, the sample firms are larger in the post period, both in terms of market values and book values of equity, are more profitable, and have higher credit ratings. In addition, interest rates are also higher in the post period. Nevertheless, the mean (5 year) CDS spreads are significantly higher in the post-IFRS adoption period, indicating an increase in the average level of credit risk. Possible explanations for these results include the overall impact of the credit crisis on widening CDS spreads and a sample composition in which the number of reference entities is much higher in the post-IFRS period.

Lacking a comprehensive financial statement measure of transparency, we elect to focus on accounting earnings transparency. Specifically, we measure transparency by four metrics, two of which are based on analyst earnings forecast accuracy and two based on analyst earnings forecast dispersion. More specifically, we compute these metrics as follows: (1) analyst accuracy (ACC_ANN) computed as the annual earnings per share (EPS) forecast error; (2) analyst dispersion (DSP_ANN) computed as the dispersion of annual analyst EPS forecasts; (3) analyst accuracy (ACC_QTR) computed as the annualized quarterly forecast errors; and (4) analyst dispersion (DSP_QTR) computed as the annualized dispersion of the quarterly EPS forecasts. All measures of transparency are scaled by price per share at the beginning of the quarter. It should be noted that the data requirements to compute these metrics severely reduce the number of sample observations, and consequently, we do not always control for transparency in the multivariate analysis below. Panel D shows the mean of each of the transparency measures in the pre and post IFRS periods. The panel shows a significant (at less than 1%) decrease in the

¹¹ The sample includes other than 5 year terms but 5 years is the most common.

analysts forecast and dispersion measures in the post-IFRS period, consistent with IFRS resulting in higher transparency.

Panel E presents the correlations between the CDS spread and the primary determinants of the spread pre- and post-IFRS adoption. All correlations are highly significant at the 1% level and the signs pre- and post-IFRS are consistent. These correlations are also mostly consistent with the underlying theory. Specifically, the higher are book values and profitability (ROA), the lower the CDS spread. Furthermore, the more levered the firm, the lower its ratings quality—the higher the ratings number the lower the quality-- the greater the CDS spread. The positive correlation between CDS and the spot rate, however, is not consistent with theory. We elaborate more on this issue below.

4. Multivariate Empirical Results

We analyze the impact of IFRS on CDS premia and the relation between CDS premia and earnings using a levels analysis. Lack of sufficient appropriate cross-country data, primarily CDS related data, precludes us from bringing to bear changes and event study analyses to the issue at hand.¹² Section 4.1 estimates the general relation between CDS and ROA (normalized earnings) pre and post-IFRS, and then examine whether the relation depends on country characteristics such as code vs. common law, degree of securities law enforcement, extent of country level earnings management, and extent of differences in local GAAP prior to IFRS adoption and IFRS standards. This section also examines the impact of IFRS on comparability using foreign sales data. Section 4.2 analyzes the impact of timely loss recognition on the relation between CDS premia and earnings. Section 4.3 explores the impact of transparency on CDS spreads in general and on the relation between CDS spreads and earnings.

4.1 Base Regressions

¹² CDS markets are over the counter and individual firm CDS spread data are observable only at the initial contract date; they are generally not observable over time. Changes and event study analyses require CDS contracts for the same reference firm with the similar contractual features at different points in time, as in the study by Callen et al. (2009). Only U.S. databases provide sufficient data for such analyses.

Based on the predictions of the Merton (1974) and Duffie and Lando (2001) models, Callen et al. (2009) argue that CDS spreads should be decreasing with the reference firm's earnings, book values, ratings quality and increasing with the reference firm's leverage, the volatility of its stock returns, and the risk-free rate of interest in the economy. In addition, we control for the financial crisis period by including an indicator variable (CRISIS) which takes the value of 1 if the fiscal quarter-end date is on or after June 30, 2007.

(Insert Table 2 about here)

Table 2 shows the base line regression coefficient estimates in column (1). In this regression and in all other regressions in this study, we control for CDS term to maturity and year fixed-effects (untabulated). Statistical significance is based on robust standard errors corrected for firm clustering, time clustering and multiple CDS contracts per firm (Petersen 2009). Because the ratings numbers are inversely related to the quality of the firm's rating, the CDS spread should increase with credit rating (labelled as RATING) in our analyses.

The results are broadly consistent with the Merton and Duffie-Lando model predictions.¹³ In particular, the CDS spread increases significantly with leverage (LEV), ratings (RATING), and the volatility of stock returns (SD_RET), and decreases significantly with earnings (ROA) and book value (LOGBV). The coefficient on the dummy variable for the 2007/2008 crisis years (CRISIS) is positive and highly significant consistent with higher credit risk during this period. Contrary to expectation, the coefficient on the risk-free rate is positive and significant. We checked the correlation of CDS spreads with the spot rate by country to see if the results are driven by specific countries, but we obtain positive correlations across all countries. One plausible explanation for the positive correlation is that when interest rates are low, the cost of financing is also low leading to lower probability of default.¹⁴ We also control for the post-IFRS period using an indicator variable (POST). The coefficient on POST is negative and significant indicating that CDS premia are lower in the post-IFRS period, consistent with IFRS earning being more informative regarding credit risk. The coefficients on POST and CRISIS suggest that

¹³ p-values in the tables are at the two-tailed level. However, we refer to one-tailed significance results in the text when theory or the empirical evidence in the literature dictates a directional relation between a variable and the CDS spread. Unless explicitly noted otherwise, significance is two-tailed.

¹⁴ Offsetting this explanation is the possibility that lower interest rate regimes are often symptomatic of a recessionary economy and increased credit risk.

the increase in CDS spreads in the post-IFRS period—see Table 1, Panel C-- is likely attributable to the financial crisis of 2007-8.

Column (2) replicates the base regression except that ROA is now separated into pre- and post-IFRS adoption periods. Specifically, ROE_BEF (ROA_AFT) equals ROA if the fiscal quarter-end is in the period prior to (after) the adoption of IFRS and zero otherwise. The results are similar to the base regression; the coefficients on ROA_BEF and ROA_AFT are negative and significant at the 5% level. The F-test at the bottom of the table shows that pre- and post-IFRS earnings (ROA) coefficients are not significantly different from each other. These results indicate that the association between the spread and earnings did not change following the adoption of IFRS, indicating that IFRS did not increase the credit risk informativeness of earnings. The coefficients on the control variables (leverage, volatility of returns, risk free rate and the financial crisis period) are virtually identical to those in column 1.

Column (3) further breaks down book values, leverage and ratings into pre- and post-IFRS periods in addition to earnings. The results are quite similar to the prior column with earnings significant both post- and pre-IFRS. Book value of equity, leverage and ratings are also significant both in the pre- and post-IFRS periods. POST is no longer significant likely reflecting the fact that the bifurcation of earnings, book values, leverage and ratings into pre- and post-IFRS variables subsumes the dummy POST control, or alternatively because of the high correlation (0.95) between book values in the pre and post-IFRS periods. F-tests indicate that the earnings, book value, leverage and ratings coefficients are not significantly different pre- and post IFRS.

Overall, Table 2 indicates that earnings are a significant determinant of credit risk pre and post-IFRS, and that earnings are not more informative about credit risk post IFRS. Similar results are obtained with respect to leverage, rating and book value of equity.

The three regressions in Table 2 do not account for certain country and firm-level factors that might be related to the credit risk informativeness of earnings, especially when contrasting pre- and post IFRS adoption periods. Table 3 replicates Table 2 controlling separately for code versus common law countries, strong versus weak legal enforcement countries, the extent of country-level earnings management, the extent to which IFRS and local GAAP standards differ

from each other, and the extent to which firm's are multinational in nature (in terms of the ratio of foreign sales to total sales). Multicollinearity concerns induced by the correlations among these conditioning variables and the extensive breakdowns of earnings pre- and post-IFRS interacted with a relatively large number of conditioning variables preclude us from controlling for all five additional factors simultaneously. Instead, we evaluate each of the conditioning variables separately. The analysis focuses on earnings (ROA) because we are primarily interested in the extent to which earnings convey credit risk information (pre- and post-IFRS adoption).¹⁵

(Insert Table 3 about here)

The CODE column of Table 3 conditions earnings on code law versus common law countries. ROA_BEF_COND (ROA_BEF_NO_COND) equals ROA if the fiscal quarter-end is in the pre-IFRS period and the country is characterised as code (common) law system, and zero otherwise. ROA_AFT_COND and ROA_AFT_NO_COND are defined similarly if fiscal quarter-end is in the post-IFRS period. The ROA coefficient is negative but not significant pre-IFRS (p-value=0.33) and negative and significant at the one tailed level (p-value=0.12, two tailed) post-IFRS for code law countries. ROA is negative and significant in the pre-IFRS period (p-value<0.01) and negative and significant at the one-tailed level (p-value=0.11, two tailed) in the post IFRS period in common law countries. F-tests indicate that the change in the coefficients on ROA for code and common law countries is not significantly different from zero. These results suggest that IFRS adoption enhanced the credit risk information conveyed by earnings in code law countries. The finding that the coefficient on ROA in the pre-IFRS period is (is not) significant in common (code) law country is consistent with higher quality of accounting information and timely loss recognition in common law countries, and earnings manipulation in code law countries. Specifically, Ball et al. (2000) argue that timely loss recognition is more prevalent in common law countries and that code-law accounting affords managers with considerable discretion in making various accounting estimates, thereby facilitating earnings management and resulting in low quality accounting numbers. Indeed, as we show below, the

¹⁵ Nevertheless, as a sensitivity analysis we break book value, leverage and credit rating in addition to profitability into pre and post-IFRS periods, similar to the analysis in Table 2, Column 3. The results are very similar to those reported.

relation between CDS spreads and earnings in the pre-IFRS period is more (less) informative regarding credit risk the greater the extent of timely loss recognition (earnings management)..

The RULE column conditions earnings on the strength of legal enforcement based on the year 2005 proxy from Kaufmann, Kraay, and Mastruzzi (2007). Values above (below) the median represent countries with high (low) quality legal enforcement. The coefficient on ROA is negative and significant before and after IFRS adoption for countries with strong legal enforcement and not significant for countries with weak legal enforcement. F-tests indicate that the adoption of IFRS had no significant effect on the credit risk information conveyed by earnings irrespective of the level of legal enforcement. These results suggest that earnings convey credit risk relevant information for countries with strong legal enforcement (in contrast to weak legal enforcement) but that IFRS adoption is not consequential.

The EM column of Table 3 conditions earnings on the extent of earnings management as measured by the country-wide aggregate earnings management score from Leuz, Nanda, and Wysocki (2003). Values above (below) the median represent countries with high (low) earnings management. ROA is negative and significant before and after IFRS adoption for countries with low earnings management and either positive or insignificant for countries with high earnings management. F-tests indicate that the adoption of IFRS had no significant effect on the credit risk information conveyed by earnings whether earnings management is high or low. These results further suggest that earnings convey credit risk relevant information for countries with low earnings management (in contrast to high earnings management) although, to repeat, IFRS adoption is not consequential. These results are interesting as they show that the extent of earnings management has an impact on the credit risk informativeness of earnings regardless of the accounting standards used.

The DIFF column of Table 3 conditions earnings on the extent of accounting differences between local GAAP and IFRS based on the summary score of 21 key accounting dimensions as computed by Bae, Tan, and Welker (2008). Values above (below) the median represent countries with high (low) local GAAP-IFRS differences. ROA is negative and significant before and after IFRS adoption for countries with low differences, but insignificant both pre and post-IFRS for countries with high differences. In addition, F-tests indicate that the coefficient on ROA did not

change after the adoption of IFRS for both high and low accounting differences countries. Overall, these results suggest that earnings convey credit risk relevant information for countries with low GAAP-IFRS differences both before and after IFRS adoption..

The FRN column of Table 3 conditions on the ratio of firm's foreign sales to total sales. Values above (below) the median ratio are considered high (low) foreign sales firms. The results show that ROA is significantly negative for companies that have a high foreign business presence both prior to and after IFRS adoption. In contrast, the coefficients on ROA in the pre and post-IFRS periods are not significant for companies with low foreign sales. F-tests indicate that the coefficients on ROA did not change in the post relative to the pre periods. As sensitivity analysis we also estimated the impact of foreign sales on CDS spread measuring foreign sales as continuous variable (untabulated). Specifically, we included the ratio of foreign sales to total sales as a separate variable together with its interaction with ROA before and after IFRS adoption. The estimated coefficient for the foreign sales ratio is significant and positive indicating that firms with a larger proportion of foreign to total sales are deemed to be riskier from a credit risk perspective.¹⁶ Similar to the results of Table 3, the overall impact of foreign sales on the association between CDS spreads and earnings is negative and highly significant both prior to and after IFRS adoption at the 5% two-tailed level.

Given the documented impact of IFRS on the relation between the CDS spread and earnings in code law countries, we further investigate whether this relation depends on the extent of the rule of law, earnings management and foreign presence. Specifically, we create interaction variables of ROA_BEF and ROA_AFT for code and common law countries with RULE, EM and FRN, and estimate the regressions of the CDS spread on the earnings variables and the interaction variables, controlling for the other determinants of the spread.¹⁷ For brevity, Panel B reports the coefficients for the earnings variables only. The RULE columns shows the earnings coefficients on ROA before IFRS for code (common) law countries with weak enforcement, labeled ROA_BEF_CODE (ROA_BEF_COMMON), and the earnings coefficient on ROA before IFRS_for code (common) law countries with strong rule of law, labeled

¹⁶ This may be a function of the difficulty that outsiders face when trying to understand the origin of firms' foreign earnings, in part caused by low-quality disclosures related to foreign operations (Thomas 1999).

¹⁷ We do not condition on accounting differences because all common law countries show low accounting differences between local GAAP and IFRS.

ROA_BEF_CODE_COND (ROA_BEF_CODE_COND). We similarly report the coefficient on earnings for code and common law countries with strong and weak enforcement after the adoption of IFRS. The results indicate that ROA pre and post IFRS is significant for common law countries with strong rule of law ($p\text{-value}<0.01$), although the coefficient on ROA in the post period is significant at the one tail only ($p\text{-value}=0.12$, two tailed). The coefficient on ROA for code law countries is not significant in the pre or post period irrespective of the extent of the rule of law. These results suggest that the change in the credit risk informativeness of earnings in code law countries is not attributable to securities law enforcement. The EM column shows that the coefficients on ROA before and after for common and code law countries are significant only in countries with low earnings manipulation. Contrary to expectations, we also find that the coefficient on ROA in the post-IFRS period of code law countries with high earnings management is also significant at the one tail ($p\text{-value}=0.14$, two tailed). Hence, while earnings management is an important determinant of credit risk informativeness, it does not explain the change in credit risk informativeness of earnings in code law countries. The FRN column shows that the coefficient on ROA pre and post IFRS for common law countries is significant only for firms with high foreign presence. However, the ROA coefficient for code law countries is significant in the post period for firms with high foreign presence, and insignificant in the pre IFRS period regardless of the extent of foreign presence. These results suggest that the credit risk informativeness of earnings in general is attributable to firms with high foreign presence. Further, the increase in the credit risk informativeness of earnings in code law countries is attributable to foreign presence, consistent with the comparability hypothesis.

Overall, the evidence from Table 3 suggests that IFRS adoption increased the ability of earnings to convey credit risk information in code law countries. However, this increase is attributable primarily to firms with high foreign presence. Furthermore, the credit risk informativeness of earnings in common law countries both pre and post IFRS is also attributable to multinationals firms. In addition, the analysis suggests that the credit risk informativeness of earnings is a function of the strength of security law enforcement, extent of earnings management, and differences between local GAAP and IFRS.

4. 2 Accounting Conservatism and Credit Risk

Intuition suggests that conditional accounting conservatism makes earnings more informative about firm risk generally and credit risk in particular. When future negative cash flow shocks are anticipated, conservative accounting requires the firm to recognize the loss immediately in income and the concomitant reduction in asset values. Thus, one should expect earnings to convey more credit risk relevant information, the greater the degree of the firm's conditional conservatism.

It is an empirical question whether the change to IFRS is helpful in this regard. On the one hand, to the extent that IFRS enhances earnings transparency and comparability about negative future cash flow shocks, IFRS earnings should provide better information about credit risk than local GAAP earnings. On the other hand, IFRS tend to be anti-conservative by comparison to local GAAP's.

We measure accounting conservatism using Basu's (1997) differential timeliness (DT) measure at the country level following Ball, Robin and Sadka (2000). Table 4, Panel A compares differential timeliness before (PRE) and after (POST) IFRS adoption. The panel shows that DT has decreased significantly after the adoption of IFRS; mean (median) DT in the pre and post-IFRS periods is 0.33 (0.33) and 0.15 (0.19), respectively, consistent with IFRS being less conservative than local GAAP standards.

(Insert Table 4 about here)

Panel B shows the regressions of the CDS spread on its determinants but conditioned on the magnitude of differential timeliness before and after the adoption. We omit all observations in the IFRS adoption year (mostly 2005) because the differential timeliness metric is computed based upon monthly returns that were affected by both pre and post IFRS information regimes. We rank countries according to the DT measure, and classify countries with DT values above (below) the median as high (low) differential timeliness countries. Column 1 partitions ROA before IFRS adoption (ROA_BEF) into high and low differential timeliness, denoted ROA_BEF_HIGH_DT and ROA_BEF_LOW_DT, respectively. ROA after IFRS adoption (ROA_AFT) is not similarly partitioned. The coefficient on ROA_BEF_HIGH_DT is negative

and significant (p-value=0.08) whereas ROA_BEF_LOW_DT is not significant. The coefficient on ROA_AFT is negative and significant (p-value=0.04). F-tests (untabulated) indicate that IFRS adoption had an insignificant impact on the credit risk informativeness of earnings for both low and high DT firms despite the fact that IFRS are less conservative than local GAAP.

Column 2 of Panel B further breaks down ROA_AFT to high and low DT based on the estimated DT of 2006-2008. The results indicate that IFRS adoption had no impact on the credit risk information conveyed by earnings. Specifically, the coefficient on ROA before the adoption of IFRS is negative and significant (insignificant) for high (low) DT countries. Similarly, the coefficient on ROA after IFRS adoption is negative and significant (insignificant) for high (low) DT countries only. Column 3 also breaks down book values into high and low DT both pre- and post-IFRS adoption. The coefficients on the ROA variables are similar to the prior two columns. The coefficients on book value of equity are negative and significant irrespective of the level of DT and the period.

Overall, these results indicate that DT is an important determinant of the credit risk informativeness of earnings; earnings convey credit risk related information only in countries that are characterized with high DT. However, these findings also indicate that IFRS adoption had no impact on the credit risk informativeness of earnings (or book values) in the sense that earnings are credit risk informative in high DT countries and uninformative in low DT countries both before and after adoption of IFRS irrespective of the overall decrease of DT in the post-IFRS period. To alleviate concerns that the DT proxy is related to the conditioning variables discussed in the previous section, we compute their correlations. The correlations between DT and each of CODE, RULE and DIFF are -0.03, 0.24, and 0.05, respectively, and none of the correlations is significant. These correlations suggest that DT is a distinct measure.

4.3 Transparency and Credit Risk

Since our earnings transparency measures severely limit the sample size for some regressions, we elected to analyze transparency separately despite its centrality to the IFRS

debate.¹⁸ We first examine the association between the CDS spread and transparency, and then analyze the potential impact of the *change* in transparency on the relation between CDS and earnings.

Panel A of Table 5 regresses CDS spreads on its determinants controlling for transparency (TRANSPARENCY) measured both in terms of analyst forecast error and analyst forecast dispersion at the firm level. The coefficients on the transparency metrics are all positive and highly significant. Since these metrics are negatively associated with transparency (i.e. higher forecast error or dispersion imply lower transparency), the positive coefficients indicate that the CDS spread is negatively associated with transparency – the higher the transparency the lower the spread - consistent with the prediction of Duffie and Lando (2001). Other coefficient estimates are similar in sign and significance to those of Table 2 with the exception of the coefficients on the spot rate, which are now insignificant at the two-tailed level.

(Insert Table 5 about here)

Panel B further breaks down ROA conditioned on whether firm-level transparency increased or decreased from the pre- to the post-IFRS adoption. The question we wish to address here is whether the association between CDS spreads and earnings is more negative (i.e. earnings is more informative about credit risk) for firms whose transparency increased subsequent to IFRS adoption. We compute the change in firm-level transparency as the change between the firm's average transparency for the years (2003-2005) and the firm's average transparency for the years (2006-2008) utilizing the same transparency metrics as in Panel A. We classify the sample firms into those with increases in transparency above and below the median. ROA_AFT_HIGH (ROA_AFT_LOW) equals ROA post IFRS adoption if the firm experienced a change in transparency above (below) the median, and zero otherwise.

Panel B shows that none of the pre-IFRS ROA (ROA_BEF) coefficients are significant irrespective of the transparency metric.¹⁹ These results contradict the findings in Table 2 where

¹⁸ The number of observations decreases to about 5,000 when using the annual measures of transparency.

¹⁹ There are more observations in Panel B by comparison to Panel A because the change in transparency may be computed based on single observation of transparency in the post and pre periods. For example, suppose that there forecast error data for fiscal years 2005 and 2007. We compute the change in transparency as the forecast accuracy in 2007 minus the forecast accuracy in 2005. Based on the sign of the change we classify all observations in the

we show that ROA_BEF is negative and significant. The likely explanation is the smaller sample size – the sample is reduced to at least 13K observations depending on the transparency metric, whereas the full sample consists of close to 17K observations. The earnings coefficients in the post period is negative and significant for all transparency metrics for firms whose transparency increased above the median (ROA_AFT_HIGH). In contrast, the coefficient on earnings for firms that experienced below the median change in transparency is not significant for the annual measures of transparency, and negative and significant for the quarterly measures. These results appear to indicate that earnings were not a significant determinant of CDS in the pre-IFRS period, but became informative about credit risk primarily for firms whose transparency increased substantively subsequent to IFRS adoption.

In untabulated results we further extend Panel B to include a third interaction term to account for code vs. common law countries.²⁰ We find that the results of Panel B are driven primarily by code law countries consistent with the results of Table 3. Specifically, ROA is negative and significant for firms in code law countries whose transparency increased above the median (ROA_AFT_HIGH) but not for firms whose transparency increased below the median and not for firms in common law countries. These results suggest that earnings convey credit risk information primarily for firms in code law countries whose transparency increased substantively subsequent to IFRS adoption.

5. Conclusion

The adoption of IFRS provides a unique setting for examining how changes in accounting standards affect the credit risk informativeness of accounting numbers and whether credit risk informativeness is affected by such accounting quality measures as transparency, comparability and conservatism and by country-level institutional factors. The latter include:

post-IFRS period to ROA_AFT_HIGH or to ROA_AFT_LOW even if there are no analyst forecast data. In contrast, Panel A requires each firm-quarter to have transparency data because the level of transparency is an explanatory variable in the regression.

²⁰ Because of data limitations arising out of the additional interaction terms (both two-way and three-way), changes in transparency could only be measured meaningfully using annual analyst forecast data.

code vs. common law, strength of security law enforcement, prevalence of earning management, and IFRS-local GAAP differences.

The analysis related to the country-level institutional factors indicates that earnings and book value of equity are a significant determinant of credit risk pre and post-IFRS adoption. Nevertheless, the ability of earnings to convey credit risk information depends on institutional factors. In particular, IFRS adoption increased the ability of earnings to convey credit risk information in code law countries. In common law countries and countries for which pre IFRS accounting standards are similar to IFRS, earnings are informative about credit risk both before and after the adoption of IFRS. In addition, the credit risk informativeness of earnings depends on the extent of legal enforcement and earnings management. These findings are consistent with the extant evidence on the equity related effects of IFRS.

The analysis related to earnings quality measures suggests that conservatism, comparability and transparency are important attributes of the credit risk informativeness of earnings. Specifically, earnings are informative regarding credit risk in countries with high differential timeliness, and for firms with high foreign presence. In addition, consistent with the prediction by Duffie and Lando (2001) transparency reduces CDS spread.

Finally, the results suggest that the increase in credit risk informativeness of earnings in code law countries is attributable to firms with high foreign presence, consistent with the comparability hypothesis of Hail, Leuz and Wysocki (2009) and to firms that experienced high increase in transparency post IFRS.

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Table 1 - Descriptive Statistics**Panel A: Firms and CDS Contracts by Country**

	Firms		Firm-Quarters		CDS Contracts-Quarters	
	POST	PRE	POST	PRE	POST	PRE
Australia	17	16	93	48	806	239
Belgium	4	2	36	6	280	42
Denmark	2	2	22	14	220	122
Finland	4	2	48	15	480	105
France	24	21	164	94	1555	753
Germany	18	6	193	32	1870	302
Hong Kong	9	5	41	16	362	104
Ireland	3	3	17	11	150	86
Italy	10	9	109	36	947	297
Netherlands	9	9	85	64	820	540
Norway	4	3	34	15	338	105
Poland	2	2	23	20	195	145
Portugal	1	1	10	8	100	80
Spain	7	6	66	46	611	348
Sweden	13	12	142	92	1285	662
Switzerland	9	2	76	10	747	100
United Kingdom	26	24	149	81	1418	618
Total	162	125	1308	608	12184	4648

Panel B: Main variables by country

	MV	CDS (5 Yr)	LOGBV	ROA	LEV	SD_RET	SPOT	RATING
Australia	17,391	52	8.096	0.040	0.169	0.061	6.049	8.543
Belgium	20,566	82	8.826	0.011	0.199	0.050	3.678	9.143
Denmark	16,208	102	8.774	0.007	0.452	0.046	3.320	10.472
Finland	22,872	340	8.350	0.013	0.246	0.076	3.514	11.619
France	30,496	111	9.210	0.015	0.209	0.066	3.129	9.655
Germany	37,407	113	9.502	0.008	0.245	0.068	3.687	8.231
Hong Kong	41,295	109	9.067	0.035	0.230	0.070	5.119	10.393
Ireland	13,477	54	8.699	0.005	0.362	0.059	3.173	8.000
Italy	20,583	104	8.852	0.006	0.316	0.057	3.470	8.966
Netherlands	29,981	66	9.166	0.015	0.164	0.065	2.900	9.302
Norway	29,349	211	9.203	0.014	0.204	0.083	4.024	9.213
Poland	1,508	61	6.134	0.003	0.337	0.110	3.222	10.977
Portugal	10,423	33	8.399	0.002	0.401	0.069	3.031	8.500
Spain	36,894	79	9.053	0.012	0.303	0.057	3.190	8.902
Sweden	11,192	59	8.125	0.019	0.187	0.065	2.841	8.543
Switzerland	43,885	98	9.130	0.018	0.202	0.066	2.097	7.576
United Kingdom	33,902	130	8.680	0.027	0.211	0.066	4.788	9.407

Table 1 (Cont)**Panel C: Mean of the main variables – Pre vs. Post**

	MV	CDS (5 Yr)	LOGBV	ROA	LEV	SD_RET	SPOT	RATING
POST	30,454	117	8.900	0.018	0.227	0.066	4.140	8.960
PRE	19,997	73	8.560	0.015	0.237	0.065	2.590	9.330
Difference	10,457	44	0.340	0.003	-0.010	0.001	1.550	-0.430
P-value	(0.000)	(0.000)	(0.000)	(0.010)	(0.151)	(0.441)	(0.000)	(0.019)

Panel D: Transparency measures – Pre vs. Post

	ACC_ANN_P	DSP_ANN_P	ACC_QTR_P	DSP_QTR_P
POST	0.008	0.007	0.007	0.0036
PRE	0.016	0.009	0.011	0.0044
POST-PRE	-0.008	-0.002	-0.004	-0.001
P-value	(0.000)	(0.000)	(0.000)	^(0.000)

Panel E: Correlation with CDS premia

	POST	PRE
ROA	-0.199 (<0.01)	-0.249 (<0.01)
LOGBV	-0.122 (<0.01)	-0.185 (<0.01)
LEV	0.283 (<0.01)	0.313 (<0.01)
SPOT	0.210 (<0.01)	0.028 (<0.01)
SD_RET	0.366 (<0.01)	0.327 (<0.01)
RATING	0.293 (<0.01)	0.524 (<0.01)

Notes Table 1:

Panel A presents sample descriptive statistics including the number of firms, the number of firm-quarter observations and the number of CDS contracts before and after IFRS adoption. Panel B presents sample means of the main variables in the multivariate analysis by country. MV is denominated in \$US adjusted for exchange rate changes at the fiscal quarter-end. The CDS spread for the 5 years contract is measured in basis points. ROA is measured as earnings before extraordinary items divided by total assets. LOGBV is the log book value of equity. LEV is leverage. SD_RET is the standard deviation of equity returns (computed on a rolling basis using the most recent 12 monthly returns with at least 6 data points). SPOT is the annualized 3-month Treasury Bill rate. RATING is the S&P rating. Panel C presents sample means of the main variables in the multivariate analysis by pre- and post-IFRS adoption periods. Panel D presents the mean transparency measure in the pre and post IFRS adoption periods. Panel E presents sample correlation of CDS spreads with selected variables in the pre- and post-IFRS adoption periods. All correlations are significant at the 1% level or less

Table 2 - The Determinants of CDS Spreads Before and After IFRS Adoption

	Column 1	Column 2	Column 3
INTERCEPT	2.685*** (0.000)	2.691*** (0.000)	2.229*** (0.000)
POST	-0.247*** (0.002)	-0.255*** (0.009)	0.323 (0.530)
ROA	-3.283*** (0.006)		
ROA_BEF		-3.671** (0.012)	-2.738** (0.046)
ROA_AFT		-3.182** (0.025)	-3.464** (0.016)
LOGBV	-0.241*** (0.000)	-0.241*** (0.000)	
LOGBV_BEF			-0.218*** (0.000)
LOGBV_AFT			-0.247*** (0.000)
LEV	1.141*** (0.000)	1.142*** (0.000)	
LEV_BEF			1.466*** (0.000)
LEV_AFT			1.020*** (0.003)
RATING	0.059*** (0.000)	0.059*** (0.000)	
RATING_BEF			0.076*** (0.000)
RATING_AFT			0.053*** (0.001)
SD_RET	6.651*** (0.000)	6.634*** (0.000)	6.628*** (0.000)
SPOT	0.121** (0.024)	0.121** (0.024)	0.124** (0.016)
CRISIS	1.018*** (0.000)	1.019*** (0.000)	1.018*** (0.000)
Observations	16832	16832	16832
R-squared	0.642	0.642	0.643
F Test: ROA_BEF=ROA_AFT		0.0618	0.138
Prob>F		0.804	0.711
F Test: LOGBV_BEF=LOGBV_AFT			0.351
Prob>F			0.554
F Test: LEV_BEF=LEV_AFT			1.904
Prob>F			0.168
F Test: RATING_BEF=RATING_AFT			1.486
Prob>F			0.223

Notes to Table 2:

The Table shows the regressions of the CDS spread on its determinants. All regressions control for CDS maturity and year fixed-effects (not reported). Two-tailed p-values are in parentheses. All regressions are estimated using OLS with robust standard errors corrected for firm clustering, time clustering and multiple CDS contracts per firm. Column 1 shows the base regression of the CDS spread on profitability (ROA), leverage (LEV), the country risk-free interest rate (SPOT), volatility of returns (SD_RET), and credit rating (RATING). In addition, we include two indicator variables – POST equals 1 if the period is post-IFRS and 0 otherwise and CRISIS equals 1 for the recent financial crisis period (July 07-Dec 08) and 0 otherwise. Column 2 replicates the base regression except that ROA is bifurcated into ROA prior to the adoption of IFRS (ROA_BEF) and after the adoption of IFRS (ROA_AFT). Specifically, ROA_BEF (ROA_AFT) equals to ROA if fiscal quarter-end is in the pre-IFRS (post-IFRS) period, and zero otherwise. Column 3 replicates the base regression except that each of ROA, LEV and RATING are bifurcated into before and after IFRS adoption periods in similar fashion to the bifurcation of ROA in Column 2. F-tests compare the estimated the ROA, LEV, and Rating coefficients pre- and post-IFRS.

Table 3 - The Determinants of CDS Spreads Before and After IFRS Adoption and Five Conditioning Variables

Panel A: The Determinants of CDS spread Conditioned on Country and Firm Characteristics

	Conditioning Variables				
	CODE	RULE	EM	DIFF	FRN
INTERCEPT	2.663*** (0.000)	2.256*** (0.000)	2.736*** (0.000)	2.684*** (0.000)	2.646*** (0.000)
POST	-0.244** (0.011)	-0.258*** (0.008)	-0.237*** (0.009)	-0.248*** (0.009)	-0.246** (0.013)
COND	-0.424* (0.069)	0.467** (0.016)	0.226 (0.152)	-0.446** (0.023)	0.235** (0.046)
ROA_BEF_COND	-1.153 (0.326)	-4.306*** (0.008)	0.279 (0.810)	-0.028 (0.978)	-6.271*** (0.005)
ROA_AFT_COND	-3.687 (0.124)	-3.960** (0.017)	0.147 (0.935)	-2.903 (0.236)	-4.843*** (0.006)
ROA_BEF_NO_COND	-5.475*** (0.008)	-2.147 (0.194)	-5.670*** (0.000)	-4.742*** (0.003)	0.418 (0.827)
ROA_AFT_NO_COND	-2.953 (0.110)	-0.205 (0.930)	-5.582*** (0.000)	-3.480** (0.012)	-0.776 (0.716)
LOGBV	-0.241*** (0.000)	-0.240*** (0.000)	-0.243*** (0.000)	-0.240*** (0.000)	-0.242*** (0.000)
LEV	1.137*** (0.000)	1.120*** (0.000)	1.124*** (0.000)	1.144*** (0.000)	1.138*** (0.000)
RATING	0.059*** (0.000)	0.060*** (0.000)	0.057*** (0.000)	0.060*** (0.000)	0.055*** (0.000)
SD_RET	6.657*** (0.000)	6.716*** (0.000)	7.347*** (0.000)	6.687*** (0.000)	6.474*** (0.000)
SPOT	0.126** (0.025)	0.119** (0.029)	0.126** (0.035)	0.123** (0.024)	0.110* (0.053)
CRISIS	1.012*** (0.000)	1.019*** (0.000)	0.980*** (0.000)	1.015*** (0.000)	1.041*** (0.000)
Observations	16832	16832	16492	16832	16832
R-squared	0.643	0.643	0.649	0.642	0.647
F Test: ROA_BEF_COND=ROA_AFT_COND	1.149	0.028	0.006	2.398	0.364
Prob>F	0.284	0.867	0.940	0.122	0.547
F Test: ROA_BEF_NO_COND=ROA_AFT_NO_COND	1.221	1.644	0.003	0.414	0.276
Prob>F	0.269	0.200	0.955	0.520	0.599

Panel B: Earnings Coefficients of Code and Common Law Countries Conditioned on Country and Firm Characteristics

VARIABLES	RULE	EM	FRN
ROA_BEF_COMMON	-3.282 (0.714)	-5.473** (0.003)	-2.087 (0.345)
ROA_BEF_CODE	-1.757 (0.316)	-4.162 (0.111)	3.158 (0.300)
ROA_BEF_COMMON_COND	-5.565*** (0.005)	-2.819 (0.744)	-6.771** (0.020)
ROA_BEF_CODE_COND	-4.041 (0.672)	-1.508 (0.867)	-1.526 (0.770)
ROA_AFT_COMMON	-0.080 (0.988)	-3.270* (0.081)	-0.201 (0.900)
ROA_AFT_CODE	-0.407 (0.935)	-9.775*** (0.001)	-1.421 (0.673)
ROA_AFT_COMMON_COND	-3.100 (0.117)	0.009 (0.999)	-4.313* (0.061)
ROA_AFT_CODE_COND	-3.585 (0.711)	-6.497 (0.139)	-5.533* (0.089)

Notes to Table 3:

The table shows regressions of the CDS spread on its determinants conditioning for various legal/financial reporting characteristics. With the exception of ROA, all determinants are identical to those in Table 2. All regressions control for CDS maturity and year fixed-effects (not reported). Two-tailed p-values are in parentheses. All regressions are estimated using OLS with robust standard errors corrected for firm clustering, time clustering and multiple CDS contracts per firm. The ROA variables in each column are defined as follows:

The column labeled CODE conditions on Code vs. Common law countries.

COND=1 if code law country and zero otherwise

ROA_BEF_COND=ROA pre-IFRS adoption if code law and zero otherwise.

ROA_AFT_COND=ROA post-IFRS adoption if code law and zero otherwise.

ROA_BEF_NO_COND=ROA pre-IFRS adoption if common law and zero otherwise.

ROA_AFT_NO_COND=ROA post-IFRS adoption if common law and zero otherwise.

The column labeled RULE conditions on the strength of legal enforcement. Values above (below) the median represent countries with strong (weak) legal enforcement.

COND=1 if strong legal enforcement and zero otherwise

ROA_BEF_COND=ROA pre-IFRS adoption if strong legal enforcement and zero otherwise.

ROA_AFT_COND=ROA post-IFRS adoption if strong legal enforcement and zero otherwise.

ROA_BEF_NO_COND=ROA pre-IFRS adoption if weak legal enforcement and zero otherwise.

ROA_AFT_NO_COND=ROA post-IFRS adoption if weak legal enforcement and zero otherwise.

The column labeled EM conditions on extent of earnings management prior to the adoption of IFRS. Values above (below) the median represent countries with high (low) earnings management.

COND=1 if high earnings management and zero otherwise

ROA_BEF_COND=ROA pre-IFRS adoption if high earnings management and zero otherwise.

ROA_AFT_COND=ROA post-IFRS adoption if high earnings management and zero otherwise.

ROA_BEF_NO_COND=ROA pre-IFRS adoption if low earnings management and zero otherwise.

ROA_AFT_NO_COND=ROA post-IFRS adoption if low earnings management and zero otherwise.

The column denoted DIFF conditions on the extent to which there are differences between local GAAP and IFRS. Values above (below) the median represent countries with large (small) IFRS-local GAAP differences.

COND=1 if large accounting differences and zero otherwise

ROA_BEF_COND=ROA pre-IFRS adoption if large accounting differences and zero otherwise.

ROA_AFT_COND=ROA post-IFRS adoption if large accounting differences and zero otherwise.

ROA_BEF_NO_COND=ROA pre-IFRS adoption if small accounting differences and zero otherwise.

ROA_AFT_NO_COND=ROA post-IFRS adoption if small accounting differences and zero otherwise.

The column denoted FRS conditions on the proportion of firm-level foreign sales. Foreign sales are large (small) if the ratio of foreign to total sales is greater (less) than the median ratio of foreign sales to total sales.

COND=1 if foreign sales are large and zero otherwise

ROA_BEF_COND=ROA pre-IFRS adoption if foreign sales are large and zero otherwise.

ROA_AFT_COND=ROA post-IFRS adoption if foreign sales are large and zero otherwise.

ROA_BEF_NO_COND=ROA pre-IFRS adoption if foreign sales are small and zero otherwise.

ROA_AFT_NO_COND=ROA post-IFRS adoption if foreign sales are small and zero otherwise.

F-tests compare estimated ROA coefficients pre- and post-IFRS. The number of observations in the EM column is smaller because we do not have the EM measure for Poland.

Panel B shows the coefficients on ROA for code and common law conditioned on RULE, EM and FRN. The variables in the RULE column are defined as follows:

ROA_BEF_COMMON (ROA_BEF_CODE) = ROA pre-IFRS adoption for common (code) law countries and weak legal enforcement.

ROA_BEF_COMMON_COND (ROA_BEF_CODE_COND) = ROA pre-IFRS adoption for common (code) law countries and strong legal enforcement.

ROA_AFT_COMMON (ROA_AFT_CODE) = ROA post-IFRS adoption for common (code) law countries and weak legal enforcement.

ROA_AFT_COMMON_COND (ROA_AFT_CODE_COND) = ROA post-IFRS adoption for common (code) law countries and strong legal enforcement.

The variables in the EM column are defined as follows:

ROA_BEF_COMMON (ROA_BEF_CODE) = ROA pre-IFRS adoption for common (code) law countries and low earnings management.

ROA_BEF_COMMON_COND (ROA_BEF_CODE_COND) = ROA pre-IFRS adoption for common (code) law countries and high earnings management.

ROA_AFT_COMMON (ROA_AFT_CODE) = ROA post-IFRS adoption for common (code) law countries and low earnings management.

ROA_AFT_COMMON_COND (ROA_AFT_CODE_COND) = ROA post-IFRS adoption for common (code) law countries and high earnings management.

The variables in the FRN column are defined as follows:

ROA_BEF_COMMON (ROA_BEF_CODE) = ROA pre-IFRS adoption for common (code) law countries and small foreign sales.

ROA_BEF_COMMON_COND (ROA_BEF_CODE_COND) = ROA pre-IFRS adoption for common (code) law countries and high foreign sales.

ROA_AFT_COMMON (ROA_AFT_CODE) = ROA post-IFRS adoption for common (code) law countries and small foreign sales.

ROA_AFT_COMMON_COND (ROA_AFT_CODE_COND) = ROA post-IFRS adoption for common (code) law countries and high foreign sales.

Table 4 - Conservatism Analysis

Panel A: Differential Timeliness – pre vs. post IFRS			
	PRE-DT	POST_DT	DIFF_DT
MEAN	0.33	0.15	0.18
p-value			(0.000)
MEDIAN	0.33	0.19	0.13
p-value			(0.000)

Panel B: Determinants of CDS spreads and Differential Timeliness			
	Column 1	Column 2	Column 3
Constant	2.393*** (0.000)	2.393*** (0.000)	2.670*** (0.000)
POST	-0.297*** (0.002)	-0.297*** (0.001)	-0.339 (0.486)
CONS_DUMMY	0.086 (0.221)	0.086 (0.275)	-0.211 (0.749)
ROA_BEF_HIGH_DT	-3.849* (0.081)	-3.838* (0.089)	-4.144* (0.092)
ROA_BEF_LOW_DT	-1.579 (0.466)	-1.592 (0.487)	-1.332 (0.569)
ROA_AFT	-3.020** (0.036)		
ROA_AFT_HIGH_DT		-3.006* (0.052)	-2.975* (0.058)
ROA_AFT_LOW_DT		-3.094 (0.299)	-3.403 (0.284)
LOGBV	-0.236*** (0.000)	-0.236*** (0.000)	
LOGBV_BEF_HIGH_DT			-0.229*** (0.000)
LOGBV_BEF_LOW_DT			-0.266*** (0.000)
LOGBV_AFT_HIGH_DT			-0.226*** (0.000)
LOGBV_AFT_LOW_DT			-0.257*** (0.000)
LEV	1.088*** (0.007)	1.088*** (0.007)	1.084*** (0.008)
RATING	0.061*** (0.000)	0.061*** (0.000)	0.060*** (0.000)
SD_RET	6.632*** (0.000)	6.629*** (0.000)	6.627*** (0.000)
SPOT	0.156*** (0.001)	0.156*** (0.001)	0.154*** (0.001)
CRISIS	1.014*** (0.000)	1.014*** (0.000)	1.016*** (0.000)
Observations	13735	13735	13735
R-squared	0.643	0.643	0.643

F Test: ROA_BEF_CONS=ROA_BEF_NO_CONS	0.686	0.561	0.698
Prob>F	0.409	0.455	0.405
F Test: ROA_AFT_CONS=ROA_AFT_NO_CONS		0.000	0.015
Prob >F		0.978	0.902
LOGTA_BEF_CONS=LOGTA_BEF_NO_CONS			0.241
Prob >F			0.624
LOGTA_AFT_CONS=LOGTA_AFT_NO_CONS			0.178
Prob >F			0.674

Notes to Table 4:

Panel A presents sample means and medians of country-level differential timeliness (DT) in the periods before and after IFRS adoption. We estimate DT for each country separately in the pre (post) IFRS periods of 2002-2004 (2006-2008) using the Basu (1997) specification for those firms in each country for which earnings, returns and market values are available on Datastream. DIFF_DT is the difference between PRE_DT and POST_DT. PRE_DT (POST_DT) refers to the estimated differential timeliness in the 2002 – 2004 (2006-2008) periods. Year 2005 data were eliminated because returns during 2005 are based on two information regimes. This results in a loss of 3,137 observations. Panel B shows the regressions of CDS premium on its determinants conditioned on the magnitude of country-level DT before and after the adoption. All regressions control for CDS term and year fixed-effects (not reported). Two-tailed p-values are in parentheses. All regressions are estimated using OLS with robust standard errors corrected for firm clustering, time clustering and multiple CDS contracts per firm. We classify each country to high (low) DT if the estimated DT is above (below) the median.

The DT related variables are defined as follows:

CONS_DUMMY=1 if the country-year is classified as high DT and zero otherwise.

ROA_BEF_COND=ROA pre-IFRS adoption if high DT and zero otherwise.

ROA_AFT_COND=ROA post-IFRS adoption if high DT and zero otherwise.

ROA_BEF_NO_COND=ROA pre-IFRS adoption if low DT and zero otherwise.

ROA_AFT_NO_COND=ROA post-IFRS adoption if low DT and zero otherwise.

Column 1 shows the estimation results with ROA bifurcated based on high and low DT in the pre-IFRS period only. Column 2 replicates column 1 controlling for high and low DT both before and after IFRS adoption. Column 3 replicates column 2 with LOGBV also bifurcated into pre and post IFRS.

F-tests compare the estimated ROA and LOGBV coefficients pre- and post-IFRS adoption conditional on high/low DT.

Table 5- CDS Spreads and Transparency

Panel A: Determinants of CDS spreads and Transparency

	AF_ACC	AF_DSP	AF_ACC_Q	AF_DSP_Q
Constant	3.328*** (0.000)	3.392*** (0.000)	2.078*** (0.001)	1.883** (0.012)
TRANSPARENCY	5.544** (0.012)	18.383*** (0.000)	8.307*** (0.000)	17.860** (0.036)
POST	-0.131 (0.370)	-0.235* (0.079)	-0.092 (0.305)	-0.185* (0.051)
ROA	-2.620** (0.046)	-2.171* (0.087)	-6.360** (0.023)	-7.652** (0.014)
LOGBV	-0.257*** (0.000)	-0.253*** (0.000)	-0.229*** (0.000)	-0.208*** (0.000)
LEV	0.939*** (0.009)	0.804** (0.025)	0.726 (0.166)	1.022* (0.082)
RATING	0.053*** (0.001)	0.043*** (0.002)	0.070*** (0.000)	0.057*** (0.007)
SD_RET	5.289*** (0.008)	5.945*** (0.000)	6.091*** (0.001)	5.892*** (0.004)
SPOT	0.056 (0.331)	0.025 (0.644)	0.102 (0.172)	0.124 (0.146)
CRISIS	1.164*** (0.000)	1.244*** (0.000)	0.829*** (0.000)	0.763*** (0.000)
Observations	5171	5146	8996	6334
R-squared	0.697	0.725	0.685	0.710

Panel B: Change in Transparency after adoption of IFRS and CDS spreads

	AF_ACC	AF_DSP	AF_ACC_Q	AF_DSP_Q
Constant	2.237*** (0.000)	2.103*** (0.000)	1.774*** (0.001)	1.239* (0.055)
POST	-0.146** (0.026)	-0.137** (0.034)	-0.195* (0.056)	-0.222** (0.014)
CHANGE_TRANS_DUMMY	0.124 (0.180)	0.307*** (0.001)	0.144 (0.221)	0.089 (0.532)
ROA_BEF	-0.538 (0.717)	-1.440 (0.367)	-0.912 (0.697)	-1.411 (0.601)
ROA_AFT_HIGH	-3.189* (0.052)	-3.528** (0.044)	-5.655* (0.088)	-7.508* (0.095)
ROA_AFT_LOW	-0.431 (0.798)	0.736 (0.723)	-7.025* (0.073)	-5.879 (0.179)
LOGBV	-0.216*** (0.000)	-0.210*** (0.000)	-0.238*** (0.000)	-0.196*** (0.001)
LEV	1.681*** (0.000)	1.774*** (0.000)	1.886*** (0.000)	1.855*** (0.000)
RATEN	0.067*** (0.000)	0.063*** (0.000)	0.073*** (0.002)	0.074*** (0.002)
SD_RET	7.851*** (0.000)	8.062*** (0.000)	6.516*** (0.000)	7.085*** (0.000)
SPOT	0.091** (0.024)	0.081** (0.033)	0.150** (0.014)	0.156*** (0.009)
CRISIS	1.046*** (0.000)	1.046*** (0.000)	0.953*** (0.000)	0.951*** (0.000)
Observations	12934	12761	7998	6514
R-squared	0.696	0.705	0.726	0.743
F Test: ROA_AFT_HIGH=ROA_BEF Prob>F	2.456 0.120	1.937 0.311	2.378 0.129	2.488 0.123
F Test: ROA_AFT_LOW=ROA_BEF Prob>F	0.004 0.950	1.035 0.167	2.806 0.100	1.434 0.238

Notes to Table 5:

Panel A shows regressions of CDS spreads on its determinants including a transparency (TRANSPARENCY) measure. All regressions control for CDS term and year fixed-effects (not reported). Two-tailed p-values are in parentheses. All regressions are estimated using OLS with robust standard errors corrected for firm clustering, time clustering and multiple CDS contracts per firm. The transparency measures are: (1) analyst forecast accuracy (AF_ACC) computed as the annual EPS forecast error; (2) analyst forecast dispersion (AF_DSP) computed as the dispersion of annual analyst EPS forecasts; (3) analyst forecast accuracy (AF_ACC_Q) computed as the annualized quarterly forecast errors, and (4) analyst forecast dispersion (AF_DSP_Q) computed as the annualized dispersion of the quarterly EPS. All measures are scaled by price per share. The number of observations is determined by data availability of analyst earnings forecasts and dispersions. Panel B presents the regressions where ROA post-IFRS is bifurcated according to the change in transparency following the adoption of IFRS. Specifically, ROA_AFT_HIGH (ROA_AFT_LOW) take the value of ROA after the adoption of IFRS if the firm's change in transparency is greater (smaller) than the median change in transparency from prior to after the adoption of IFRS and zero otherwise. We compute the change in firm-level transparency as the change between the firm's average transparency for the years (2003-2004) and the firm's average transparency for the years (2006-2008). CHANGE_TRANS takes on the value of 1 if the firm's change in transparency is greater than the median change in transparency and zero otherwise. F-tests compare estimated ROA coefficients pre- and post-IFRS.