Heightened Shareholder Interest in Firm Affairs following the Inception of Credit Default Swap Trade

ABSTRACT: The literature shows that a lender reduces its monitoring of client activities and decreases the accommodation it offers to a distressed client after the lender receives insurance on its outstanding client debt via a credit default swap (CDS). These changes in lender behavior can exacerbate downside risk but can also create upside potential for the reference firm's shareholders. We predict that the firm's shareholders, being the residual claimholders, would then increase their interest in firm affairs, by demanding improved corporate governance and the quality of financial reports. We find an increase in independence of the board of directors and a decline in the dual position of chief executive officer and board chairman following the onset of CDS trading. We also find higher earnings response coefficient and trading volumes around the earnings announcement dates and lower post–earnings announcement drift. Overall, our results suggest that shareholders demand and obtain higher quality of, or pay greater attention to, financial reports in the years following the onset of CDS trading.

JEL Classifications: G32, G33; M41; M48

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I. INTRODUCTION

Prior studies show that the onset of trading of credit default swap (CDS) on a reference firm's outstanding loan, an event beyond the firm's shareholder control, can significantly increase the down side risk as well as the upside potential for the firm's shareholders.[1] We hypothesize that the outside shareholders would respond to CDS inception by taking two actions.[2] First, they would demand stronger corporate governance. Second, they would pay greater attention to the firm's financial performance and seek improved quality of financial reports. We find strong evidence supporting these two hypotheses. We contribute to the literature by showing enhanced shareholder interest in firm affairs and a shift in control rights from managers and lenders toward shareholders in the years following the CDS inception (Aghion and Bolton 1992; Kim, Shroff, Vyas, Wittengerg-Moerman 2017).

The onset of CDS trading could be harmful to the reference firm's shareholders in two ways. First, the lender, having purchased insurance on its credit risk, retains the legal rights attached to the lending arrangement, but loses interest in the efficient continuation of the borrower as much as before (Hu and Black, 2008; Bolton and Oehmke, 2011). In particular, the "empty" lender does not derive the same benefit from renegotiating with the borrower, and accommodating the needs of a distressed borrowers, by giving additional loans for example, as much as before (Morrison 2005; Arentsen, Mauer, Rosenlund, Zhang, and Zhao 2015; Martin and Roychowdhuy 2015). At an extreme, a CDS-holding lender might strategically encourage the distressed borrower to default on its loan obligations, in order to receive a more handsome insurance payment now

[1] For example, Hu and Black (2008), Bolton and Oehmke (2011), Subrahmanyam, Tang, and Wang (2014), and Danis (2016).

[2] For example, Berle and Means (1933); Jensen and Meckling (1976), Watts and Zimmerman (1978, 1983), and Ball (2001).

rather than wait for the distressed borrower to recover and meet its loan obligations (Pollack 2013). Such an increase in lender intransigence post CDS inception violates the trust based on which the borrower initially entered into the debt contracts, particularly, the anticipation of future accommodation and renegotiation, as is evident from 90% of corporate long-term loans being renegotiated before maturity (Roberts and Sufi 2009). The altered lender behavior can cause inefficient bankruptcy or termination of the borrowing firm even when the borrower can meet the lender dues with high probability after riding over its temporary liquidity problems (Subrahmanyam et al. 2014). The suboptimal discontinuation of the borrower can jeopardize shareholder value.[3]

Furthermore, after having hedged its risk post–CDS inception, the lender would likely reduce its costly monitoring efforts and impose lesser discipline upon the borrower in the event of a covenant violation (Chakraborty, Chava, and Ganduri 2015).[4] The weakened lender monitoring and oversight might increase managerial opportunism (Diamond 1984; Besanko and Kanatas 1993; Ahn and Choi 2009; Kim and Zhang 2016). For example, managers might began implementing the second-best projects, from which they can derive private benefits of control, instead of the first-best projects that create firm value (Morrison 2005). Another concern is that, managers can start trading on their private information in CDS markets without having to disclose all their trades, because the insider trading in CDS markets is not regulated unlike other securities markets (Batta et al. 2016). Thus, managers can pursue their private interests to a greater extent

[3] For example, the suboptimal discontinuation of the borrower can endanger the time value of shareholders' call option, which is increasing with the time remaining to the option exercise date or expiration date. The time value of the call option arises from the possibility that the company can turn around and create value for residual claim holders.

[4] In addition, the lender's asset is now assigned the risk of the CDS guarantor instead of that of the borrower (Basel II, page 49, Article 141). The resultant change of the counterparty risk from borrower to CDS writer reduces the lender's regulatory capital requirement, allowing it to expand its loan portfolio (Shan, Tang, and Yan 2014). Such a portfolio expansion further dilutes the lender's monitoring effort per client.

after CDS trading than before, at the expense of outside shareholders. Both increased lender intransigence and lowered lender monitoring, following the CDS inception, can therefore harm shareholder interests.

On the flip side of the same coin, the weakened monitoring by lenders can benefit shareholders if the borrowing firm can take actions that improve shareholder wealth, which were previously constrained by lender monitoring (Chang et al. 2017; Campello and Matta 2012; Acharya and Ryan, 2016; Jensen and Meckling, 1976). Given their limited liability and infinite upside potential, shareholders' equity is synonymous with a call option with face-value of debt as the strike price. The value of this option increases with asset volatility. The same volatility increases the downside risks for the firm's lenders, because lenders bear all losses from decline in firm value below the face value of the debt but get no upside. Lenders therefore actively monitor clients to prevent asset substitution and undertaking of risky projects. The reduced lender monitoring post CDS inception can, therefore, permit the borrowers to implement risky projects, thus transferring wealth from lenders to shareholders.

To sum up the above discussion, the onset of CDS trading increases both the downside investment risk and the upside potential for the outside shareholders. We argue that shareholders, being the residual claimholders, must enhance their interest in firm affairs post–CDS inception to protect their interests (e.g., Kim et al. 2017). We test this hypothesis by examining two principal avenues available to outside shareholders: (1) demanding improved corporate governance and (2) paying greater attention to, and insisting on improved quality of, financial reporting.

We first examine changes in the structure of the board of directors following the CDS inception. Thousands of dispersed shareholders are unable to control or monitor corporate business decisions (Bainbridge 2006). Shareholders collectively appoint directors to the board and empower

them to make decisions on their behalf with respect to the corporation's significant actions and transactions (Berle and Means 1932). Independent directors are more likely to protect shareholder interests than are directors who are managers of the company as is evident from the fact that independent directors are often appointed in response to crisis situations (Gordon 2007).[5] Thus, we hypothesize that shareholders would demand an increase in board independence post–CDS inception. The effectiveness of board independence, however, is compromised when the chief executive officer (CEO) also holds the position of board chairman (Jensen 1993; Goyal and Park 2002). Hence, we expect that shareholders would demand a reduction in CEO–chairman duality post–CDS inception. We find results consistent with our expectations, that is, an improvement in board independence and decline in CEO–chairman duality in years following the onset of CDS trading.

Second, we hypothesize that post–CDS inception, outside investors would demand higher quality financial reports (those that more accurately reflect the underlying firm performance in the current period) and that they would pay greater attention to financial reports. We complement prior literature which shows that managers' earnings guidance and analyst earnings forecasts become more informative after CDS inception, arguably because managers respond to shareholder demands for improved voluntary disclosures (Kim et al. 2017; Batta et al. 2016). Despite the existence of equity analysts' reports and managers' voluntary earnings guidance, SEC-mandated financial reports remain an important source of value-relevant information for outside investors (Beyer et al. 2010). Accordingly, we expect post–CDS inception improvement in financial reporting quality, particularly for firms that do not provide earnings guidance.

[5] See, for example, Weisbach (1988), Core, Holthausen, and Larcker (1999), Chhaochharia and Grinstein (2009), Beasley (1996), Dechow, Sloan, and Sweeney (1996), Beasley, Carcello, Hermanson, and Lapides (2000), and Bebchuk, Cohen, and Ferrell (2008).

We test our hypothesis by examining post–CDS changes in measures of financial reporting quality and shareholder attention to financial reports. We find increases in earnings response coefficient (Ball and Brown 1967; Holthausen and Verrecchia 1988; Liu and Thomas 2000) and trading volume on earnings announcement dates (Beaver 1968). We also observe a decline in post–earnings announcement drift (PEAD), which suggests that equity investors underreact less to value-relevant information contained in earnings on earnings announcement dates (e.g., Hirshleifer, Lim, and Teoh 2009). In addition, the estimation errors of working capital accruals decline (Dechow and Dichev 2002). These developments show heightened shareholder attention to, or improved quality of, earnings reports in the years following CDS inception. Our results are stronger or hold only for firms that do not provide earnings guidance, and therefore, cannot improve management guidance post CDS inception. In this respect, we extend Kim et al. (2017), who document an increase in frequency of firm voluntary disclosure following CDS trading. We demonstrate that the *mandated* financial reports and shareholder control mechanisms improve subsequent to the CDS inception, when value-relevant information is not more forthcoming from the managers on a *voluntary* basis.

We conduct five cross-sectional tests to strengthen our identification strategy and to gain further insights. We expect stronger results in settings in which the lender had less effective monitoring power before CDS inception or more likely loses its interest post CDS inception. First, we isolate banks that likely hedged their exposure upon CDS inception (Minton, Stulz, and Williamson 2009; Subrahmanyam et al. 2014).[6] Our results are stronger for the subsample of borrowers associated with those lenders. Second, we find stronger results for syndicated loans than

[6] Lending banks can increase their risky assets after hedging their existing credit risks via CDS contracts (Martin and Roychowdhury 2015). Thus, banks that increased their risk-weighted assets in the year of their client's CDS initiation, likely hedged their credit risks.

for solo lenders. Syndicated loans face greater coordination issues and agency problems among the consortium members, compared to solo lenders, and both problems are likely to worsen after one or more consortium lenders hedge their client risks via a CDS (Preecea and Mullineaux 1996; Ivashina 2009; Amiram, Beaver, Landsman, and Zhao, 2017). Third, our documented results are stronger when loans carry fewer financial covenants, the main device for lender monitoring (Dichev and Skinner 2002; Kim et al. 2017). Fourth, we find stronger effects when the borrower displays greater financial distress pre-CDS. Lenders to borrowers with greater ex-ante likelihood of financial failure suffer lower reputational damage upon the borrower failure, because lower lender monitoring cannot be pinpointed as the principal reason for the ex-post borrower bankruptcy (Gopalan, Nanda, and Yerramilli 2011; Kim et al. 2017).[7] These cross-sectional results support our conclusion that the heightened shareholder interest post CDS inception is related to reduced monitoring efforts and increased intransigence by lender banks. Fifth, we find at least some evidence that borrowers with dedicated institutional investors, those who can demand and obtain larger changes in governance and financial reporting quality, witness larger changes in governance and financial reporting quality than do borrowers with transient shareholders.

Overall, our results indicate that the financial reporting quality improves post–CDS inception. Some may argue that our findings run contrary to Martin and Roychowdhuy (2015), who show a post–CDS inception decline in accounting conservatism, which is another measure of financial reporting quality. This apparent contradiction can be resolved by the prior studies' argument that there does not exist a single, universal measure of financial statement quality that

[7] Lending is a repeated game and lender's poor monitoring that affects the borrower's performance can affect lender' reputation and track. Banks, trading monitoring costs against reputational costs, would reduce the monitoring of their CDS-traded borrowers, only when the reputational fallouts are lower than reduction in monitoring costs (Ashcraft and Santos 2009; Parlour and Winton 2013; Martin and Roychowdhury 2015).

befits all decision contexts of all financial statement users (Ball 2001; Holthausen and Watts 2001; Dechow, Ge, and Schrand 2010). All else equal, lenders prioritize conservatism to relevance, because they face large downside risk but have limited upside potential (Watts 2003). By receiving bad news in a timelier manner than good news, conservatism helps lenders to enforce debt covenants and promptly arrest further decline in values of securitized assets after a bad event occurs (LaFond and Watts 2008). In contrast, shareholders, given their limited liability and infinite upside potential, prioritize relevance, that is, timely provision of both good and bad news in financial reports (Barth, Beaver, and Landsman 2001, Lambert 2010). For example, equity investors demand timely recording of revenues and assets that signal improvement in future cash flows, even when their recording violates the tenet of conservative accounting (Guay and Verreccchia 2006). So, our apparently contradictory results, on shifts in attributes of financial reporting from conservatism towards value relevance, can be justified by the post–CDS inception heightening and diminishment of interests in firm affairs by shareholders and lenders, respectively.

Even though a third party initiates the CDS trading, the timing of the inception of CDS trading may not be a random event and could be associated with simultaneous changes in corporate governance and earnings quality. We address the potential endogeneity problems related to CDS inception, particularly omitted factors that determine the demand for and supply of CDS contracts (Ashcraft and Santos 2009), by conducting all our tests using a difference-in-differences approach relative to non-CDS firms. [Subrahmanyam et al. (2014), Martin and Roychowdhury (2015), Batta et al. (2016), and Kim et al. (2017) use a similar approach.] In addition, we use a Heckman two-stage procedure to control for selection bias (Martin and Roychowdhury 2015).

Our paper contributes to two streams of literature. The first examines a range of economic consequences of CDS inception, including improved analyst earnings forecasts (Batta et al. 2016),

higher bankruptcy risk (Subrahmanyam et al. 2014), more conservative cash holding policies (Subrahmanyam, Tang, and Wang 2017), less conservative financial reporting (Martin and Roychowdhury 2015), and enhanced managerial disclosures (Kim et al. 2017). We add to this literature by showing changes in the structure of boards of directors, the quality of financial reports, and equity shareholders' interest in financial reports post–CDS inception. Our results support the premise in Kim et al. (2017) that shareholders step up their monitoring of firm affairs after the start of CDS trades. Our findings are consistent with the reallocation of control rights from lenders toward shareholders post–CDS inception (Aghion and Bolton 1992).

The second stream of literature, we contribute to, examines the changes in properties of financial reports after a given event. We identify a unique event that contrastingly affects the proxies for earnings quality. These proxies change in a direction consistent with the opposing shifts in two principal stakeholders' interests—improvement in relevance from the equity investors' enhanced interests, but decline in conservatism from the lenders' reduced interests (Martin and Rowchowdhury 2015). We support the assertion in Dechow et al. (2010) that all proxies for earnings quality need not be in sync with each other and that they could even move in opposite directions depending on the shifts in demands of different stakeholders.

The rest of the paper proceeds as follows. Section II reviews prior literature and develops the main hypotheses. Section III discusses the research design, sample selection, and measurement of variables. Section IV presents the empirical results. Section V describes robustness tests, and Section VI concludes the paper.

II. LITERATURE REVIEW AND MOTIVATION OF HYPOTHESES

In this section, we review prior literature and formulate hypotheses.

Prior Literature

CDSs were initially created to hedge the credit risk of bank loans. After the International Swaps and Derivatives Association (ISDA) standardized CDS contracts, new CDS writers with no direct association with the underlying firm, such as hedge funds and asset managers, entered the CDS market. The notional amount of outstanding CDS contracts peaked at $62.2 trillion by the end of 2007. After the financial crisis of 2008–2009, the notional amount declined, but it remains at the double-digit trillion-dollar level.

A CDS buyer purchases insurance against a credit event of an underlying reference entity by paying an annuity premium to the protection seller (Augustin et al. 2014). A credit event is an occurrence that adversely affects the reference entity's creditworthiness, such as a default of interest or principal payment or a violation of a covenant of a junior or senior debt. The initiation of CDS trades thus offers the lender an opportunity to change its counterparty risk to the one based on a more creditworthy CDS writer, even if the CDS is not written on the lender's original asset. The lender, being the legal claimant to the original debt, continues to hold the rights associated with the lending contract despite having purchased the credit risk protection and having reduced its economic interest in the borrower (Hu and Black 2008; Bolton and Oehmke, 2011). This post–CDS trade phenomenon is referred to in prior literature as the separation of control rights and cash flow rights.

Borrowers enter into lending arrangements with an understanding that the lender would renegotiate the contract in the future if adverse changes in the firm's environment occur (Roberts and Sufi 2009; Denis and Wang 2014). The lender's interest in the efficient continuation of the

debtor, however, declines after having obtained insurance (Bolton and Oehmke 2011). The lender becomes less flexible in negotiating with the client upon any credit event and is less willing to provide additional loans to the borrower to ride out its temporary liquidity problems. It could even push the borrower into a credit default, inefficient bankruptcy, or liquidation to collect a more handsome insurance payment.[8] The increased lender intransigence post–CDS inception thus enhances the likelihood of the reference entity's bankruptcy, even though the reference entity plays no role in the creation of CDSs or the inception of their trades (Subrahmanyam et al. 2014). Stated differently, CDS inception is an event over which the shareholders of the reference entity have little control, but it increases the likelihood of sudden decline in share price and loss of shareholder wealth, all else held equal.

Lenders actively monitor client activities to ensure the security of their assets. Furthermore, lenders enforce their rights in the event of debt covenant violations. Monitoring and contract enforcement, however, are costly. An empty lender is less likely to monitor clients' activities and enforce contractual provisions as much as before (Morrison 2005; Ashcraft and Santos 2009; Subrahmanyam et al. 2014). In addition, its monitoring efforts would be spread over a larger number of clients, because its regulatory capital requirement are reduced on account of improved counterparty risk, allowing it to expansion its loan portfolio (Shan et al. 2014). Such reduced lender monitoring and laxer enforcement of lender covenants could harm shareholder interest because lender monitoring improves managerial commitment and reduces managerial opportunism.[9]

[8] See https://www.bloomberg.com/view/articles/2017-11-17/blackstone-may-do-its-cleverest-cds-trade-again (last access Dec 22, 2017). Blackstone Group LP's GSO Capital Partners credit fund, which owned a CDS on distressed Spanish gaming company Codere SA, forced Codere to miss an interest payment on its bonds to trigger default.

[9] Bank monitoring is useful for other lenders and shareholders because closely monitored loans signal a borrowing firm's creditworthiness and lowers the information costs of other agents in the firm (Diamond 1984; Fama 1985; Sufi 2007).

In certain circumstances, lesser lender monitoring could benefit shareholders who own a European call option on the firm's assets, with the face value of debt being the strike price.[10] Shareholders thus have a strong incentive to increase asset volatility. However, the same increase in asset volatility increases the downside risk for lenders. Reduced oversight from lenders following CDS inception could permit the client firm to change its real activities in ways that benefit company shareholders, but were previously constrained by lenders (Campello and Matta 2012). To the extent that rival lender and shareholder forces determine the corporate investment policy, that equilibrium would shift toward shareholder interests once the lender loses its interests in monitoring client activities (Jensen and Mecking 1976).

Thus, on one hand, CDS inception could cause a sudden loss of shareholder wealth with firm bankruptcy. On the other hand, CDS inception can increase upside potential for firm shareholders via changes in the firm's investment policy. Furthermore, insiders can trade on their private information in CDS markets without having to disclose all of their trades (Batta et al. 2016). In any of these cases, external investors would be better protect the value of their investments by taking greater interest in the firm affairs post–CDS inception and enforcing their control and monitoring rights (Kim et al. 2017). We examine two avenues to achieve this purpose: corporate governance and financial reporting.

Corporate Governance

The board of directors plays the single most important role in the corporate-governance system. The thousands of dispersed shareholders of the modern publicly traded corporation are unable to come together to dictate business decisions. Therefore, they elect a centralized group—

[10] They get to keep an increase in firm value beyond the face value of debt, but they do not have to compensate lenders when the firm value declines below the face value of debt.

the board of directors—to represent their interests (Berle and Means 1932). Under the corporate laws of most states, the board is entrusted with the management of the business and affairs of the corporation (Mourning 2007). State laws typically provide the board with the final legal say on most of the corporation's significant decisions and transactions. Ideally, directors, acting as a board, must keep the interests of the shareholders foremost in their collective mind.

Given that directors work based on their own personal incentives and reputational concerns (Masulis and Mobbs 2013), shareholders are allowed to elect those who have their trust and confidence and vote out those who are not responsive to their concerns and requests (DeGaetano 2004). Prior studies show that independent directors better protect shareholder interests than executive directors, on average. Director independence is associated with an increase in turnover of poorly performing CEOs (e.g., Weisbach 1988), more efficient executive compensation decisions (e.g., Core et al. 1999; Chhaochharia and Grinstein 2009), a decrease in the incidence of fraud (e.g., Beasley 1996; Dechow et al. 1996; Beasley et al. 2000), and a decrease in the opportunistic timing of stock option grants (e.g., Bebchuk, Cohen, and Ferrell 2008). Hence, shareholders respond to adverse events by appointing more independent directors to the board (Gordon 2007). Based on the idea that shareholders would take greater interest in firm affairs post–CDS inception, we hypothesize that the percentage of independent directors on the board of a company would increase after the onset of CDS trading. Independent directors' efforts to protect shareholder rights are, however, hindered by a CEO who also holds the position of chairman of the board. Therefore, we also expect a reduction in the frequency of CEO–chairman duality post–CDS inception.

Theoretical support for our hypothesis comes from the notion that board structure is determined by the demands of firm stakeholders (Hermalin and Weisbach 1988, 1998, 2003).

Nevertheless, Kroszner and Strahan (2001) and Güner, Malmendier, and Tate (2008) find evidence of conflicts of interest between board directors appointed by creditors and shareholders. For example, Ferreira, Ferreira, and Mariano (2017) find an increase in bankers' representation on corporate boards following the violations in loan covenants. Given that CDS initiation could be followed by reduced lender interest in monitoring the company, but heightened shareholder interest (Kim et al. 2017), we expect the opposite of trends documented in Ferreira et al. (2017), that is, a shift in board of directors towards shareholder interest, all else held equal.

However, prior research indicates several other economic reasons that could potentially predict null results on earnings quality and corporate governance after CDS trade initiation. First, the sellers of CDS contracts may anticipate the negative externalities of CDS initiation on a borrower and price them into the CDS premium. In principle, CDS sellers, many of which are large financial institutions, can price-protect themselves by increasing a premium if they can infer reduced lender monitoring by observing bankruptcies of borrowers following the onset of CDS trading. To lower protection prices or avoid the reputation costs arising from adverse credit events due to reduced monitoring, CDS-insured lenders may continue to intensively monitor borrowers in the post–CDS period, thereby reducing the necessity for shareholders to step up their monitoring through stronger governance or higher quality reporting. Moreover, the costs of demanding stronger governance and higher reporting reporting may be costly to shareholders and might not be achievable at all, given dispersed ownership. Additionally, CDS contracts are still largely traded in the informationally opaque over-the-counter markets (Qiu and Yu 2012). Thus, shareholders might not learn about the initiation of CDS trading. Thus, it remains an empirical question whether CDS trading is associated with any change in governance as well as financial reporting quality.

We examine this question in H1in a null hypothesis.

H1: *Board independence and CEO–chairman duality do not change following the onset of CDS trading*.

Financial reporting quality

External shareholders should pay greater attention to firm affairs post–CDS inception. Consistent with this idea, Kim et al. (2017) find that shareholders seek, and managers provide, more frequent voluntary earnings guidance. Despite the existence of managers' voluntary disclosures and analysts' forecasts, SEC-mandated financial reports remain a principal source of value-relevant information for investors (Beyer et al. 2010). Financial statement information is also used for managerial contracting and stewardship.. We therefore hypothesize that outside investors would demand improvement in financial reporting quality and would pay greater attention to firms' financial reports post–CDS inception.

H2: *Investor attention to financial reports increases, and the proxies for decision usefulness of earnings improve, following the onset of CDS trading*.

We test our hypothesis by examining changes in earnings response coefficient (Ball and Brown 1967; Holthausen and Verrecchia 1988; Liu and Thomas 2000), trading volume on earnings announcement dates (Beaver 1968), and PEAD (Hirshleifer et al. 2009). In addition, we examine estimation errors in working capital accruals (Dechow and Dichev 2002). Thus, the empirical proxies we examine are also considered the measures of financial reporting quality. Our hypothesis of improvement in financial reporting quality therefore seemingly contradicts prior findings of post–CDS inception decline in accounting conservatism, which is another proxy for financial reporting quality (Martin and Roychowdhury 2015). This apparent contradiction is supported in prior literature which highlights the multiple facets and uses of financial reports to different stakeholders.

Financial statements support a wide range of decisions for different stakeholders. Therefore, the attributes of financial reporting are shaped by the stakeholders' demands (Ball 2001). The relative weights of those demands, when they differ, determine the final attributes (Holthausen and Watts 2001). Lenders place higher weight on accounting conservatism (timelier recognition of losses than gains) than do shareholders, as lenders stand to lose more from a decline in firm value than the amount they gain from an increase in firm value (LaFond and Watts 2008).

Conservatism, however, is just one attribute of a firm's financial reporting system. The Financial Accounting Standard Board (FASB) conceptual framework stipulates that financial statements should help investors in ''assessing the amounts, timing, and uncertainty'' of future cash flows (FASB Concepts No. 1. 1978, p.3). A firm's performance, as summarized in its income statement, is an important factor in investors' assessment of current-period changes in the present value of future cash flows (Ou and Penman 1989). Equity investors therefore demand timely reporting of value-relevant information to identify profitable investment opportunities. For example, equity investors could demand recording of revenues and assets that signal improvement in future cash flows, even when their recording violates the tenet of conservative accounting. Furthermore, shareholders could be better off with the reporting of profits for a firm that is on the verge of debt default and whose dividend payouts are determined by reported profits. The same dividend payment would cause wealth transfer from lenders to shareholders.

In sum, the proxies for earnings quality differ by the contexts of decisions made based on financial statements. They could change based on variation in demands from different stakeholders in response to the same event (Dechow et al. 2010). H2, therefore, also tests the proposition put forward by Dechow et al. (2010).

III. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

In this section, we describe the selection of sample and control firms and discuss their key statistics.

Sample Selection

We collect data from the Markit database, which covers CDS quotes of U.S. firms starting in 2001. Markit verifies its CDS data through a multistage scrubbing procedure that includes assessing the legal relation between a reference entity and a reference obligation as well as corporate actions, CDS succession events, and credit events. We collect financial and stock price data from Compustat North America and the Center for Research in Security Prices (CRSP), respectively. We merge the Markit data with information from Compustat North America and CRSP using the ticker and by cross-validating the match between these data sets based on company names. We use two separate samples to examine our hypotheses. Testing H1 requires data on boards of directors that we obtain from Institutional Shareholder Services (formerly RiskMetrics) and BoardEx. We identify 520 U.S. firms (6,699 firm-years) that initiated trading on single-name CDS contracts and use 2,202 U.S. firms (14,708 firm-years) as non-CDS firms (control firms) during the sample period from 1998 to 2014. Our sample period begins in 1998 because the data coverage of Institutional Shareholder Services starts then. Testing H2 requires data for calculating proxies for earnings quality and PEAD. We need analyst forecasts from Institutional Brokers' Estimate System (I/B/E/S), daily stock price and volume data from CRSP, and quarterly and annual financial variables from Compustat. We identify 610 U.S. firms (13,252 firm-years) that initiated trading on single-name CDS contracts and use 11,322 U.S. firms (94,203 firm-years) as non-CDS firms (control firms) during the sample period from 1983 to 2014. Sample selection is described in Panel A of Table 1.

[Insert Table 1 near here]

Proxies for Corporate Governance

We use two proxies for corporate governance: board independence (*BD_INDEP*), measured by the number of independent directors divided by the total number of directors (e.g., Guest 2008; Cornett, Marcus, and Tehranian 2008; Lobo and Zhao 2013), and *Duality*, an indicator variable that takes the value of one if the CEO is also the chairman of the board and zero otherwise (e.g., Boyd 1995; Cornett et al. 2008; Lobo and Zhao 2013).

Proxies for Shareholder Attentiveness and Earnings Quality

We use four proxies for shareholder attentiveness: (1) earnings response coefficient (*ERC*) and (2) *R*-squared (*RSQ*) from a regression of three-day size-adjusted stock returns on quarterly earnings announcement dates on changes in earnings, (3) abnormal trading volume on annual earnings announcement (*ABVOL*), and (4) post–earnings announcement drift (*PEAD*). The first three proxies of shareholder attentiveness are also considered in the literature as measures of earnings quality. We examine accrual quality (*DDAQ*) as another measure of earnings quality. Thus, we have three proxies of earnings quality and four proxies of shareholder attentiveness, with *ERC*, *RSQ*, and *PEAD* representing both constructs.

Equity valuation uses information from income statements to forecast future revenues, earnings, and cash flows (Ou and Penman 1989). A long stream of literature going back to Ball and Brown (1967) considers the association between earnings and stock prices as a measure of usefulness of earnings from the equity investors' perspective. Consistent with this idea, Liu and Thomas (2000) conclude that *ERC* is a strong proxy for earnings relevance, representing investor reaction to new information contained in earnings. We estimate a regression of cumulative three-day size-adjusted stock returns on the earnings announcement date on the changes in quarterly

earnings. We estimate the following regression on a firm-year basis using four quarterly observations:

$$Ret_{iq} = \beta_1 + \beta_2 \times \Delta Earnings_{i,q} + \varepsilon_i, \quad (1)$$

where *Ret* is the cumulative three-day size-adjusted stock returns on the quarterly earnings announcement date (day −1 to 1). Δ*Earnings* is firm *i*'s quarterly earnings change, scaled by total assets. We measure *ERC* by the coefficient on Δ*Earnings* (that is, β_2). *R*-squared of equation (1) (*RSQ*) is the second proxy of earnings relevance. Both variables are also proxies for investors' attentiveness to news in earnings.

We consider estimation errors in working capital accruals as a converse measure of earnings quality (Dechow and Dichev 2002) as modified by McNichols (2002). This proxy is based on the reasoning that the role of accruals is to mitigate the noise in operating cash flow, which arises from exogenous or manipulative variation in firms' working capital levels, and makes the operating cash flow less useful for predicting firm performance. Working capital accruals, which incorporate assets such as inventory, prepayments, and accounts receivable and liabilities such as unearned revenue, warranty provisions, and accounts payable, shift the recording of cash flows to the adjusted number of earnings making it more useful for representing the firm's current performance and for predicting future cash flows. Nevertheless, the recording of accruals requires estimates about future cash flows, invariably leading to measurement errors. Therefore, estimating errors in accruals are considered an inverse measure of earnings quality (Dechow and Dichev 2002). We define *DDAQ* as the standard deviation of three firm-year residuals on a rolling basis, ending in the measurement year, obtained from the cross-sectional estimation

$$\Delta WC_t = \beta_0 + \beta_1 \times CFO_{t-1} + \beta_2 \times CFO_t + \beta_3 \times CFO_{t+1} + \beta_4 \times \Delta Sales_t + \beta_5 \times PPE_t + \varepsilon_t, \quad (2)$$

All of the variables are scaled by beginning of year total assets.[11] Equation (2) is estimated cross-sectionally for each industry with at least 20 observations in a given year based on the Fama and French (1997) 48 industry classification. We drop the observations for the CDSs' initiation year and the next year, because their measurement includes the past three years' values, requiring data from the pre–CDS inception years. We multiply *DDAQ* by minus one such that the value of *DDAQ* increases with earnings quality.

We measure shareholder attentiveness by the abnormal volume of share trades on the earnings announcement dates (*ABVOL*). This measure represents the extent to which investors perceive earnings to contain value-relevant information, thus resolving or increasing disagreement among investors about firm value (Beaver 1968). At an extreme, if investors pay no attention to earnings announcements, then announcement dates would have no abnormal trading volume. Abnormal trading volume is measured by first subtracting the average of daily volume for the 60 trading days preceding the annual announcement interval from the average of daily volume in the three-day period around annual earnings announcement (day −1 to 1). Then, the difference is scaled by the standard deviation of daily volume in the 60 trading days preceding the annual announcement interval (Landsman and Maydew 2002; Hope, Thomas, and Winterbotham 2009).

Post–earnings announcement drift (*PEAD*) is our fourth proxy for investors' attentiveness to news in earnings. The construct is measured by the positive and significant correlation between surprises in current quarter's earnings and subsequent stock returns in the same direction. The correlation can result from neglect of value-relevant information contained in current-period

[11] ΔWC denotes changes in working capital accounts as disclosed on the statement of cash from operations, measured as the increase in accounts receivable (RECT) plus the increase in inventory (INVT) plus the decrease in accounts payable and accrued liabilities (APALCH) plus decrease in taxes accrued (TXACH) plus the increase (decrease) in other assets (liabilities) (UAOLOCH), scaled by beginning total assets. *CFO* denotes cash from operations in year *t* (OANCF). $\Delta Sales$ is change in sales (SALE) scaled by beginning total assets (AT), and *PPE* is property, plant, and equipment (PPENT) scaled by beginning total assets.

earnings (Hirshleifer, Lim, and Teoh 2011), investors' underreaction to earnings news arising from limited attention or other psychological biases (Bernard and Thomas 1989, 1990; Barberis, Shleifer, and Vishny 1998; Daniel et al. 1998), and limits to arbitrage (Shleifer and Vishny 1997). This neglect should decrease because of heightened investors' interest in and attention to the firm's reported performance post–CDS inception. Following prior work, we measure standardized unexpected earnings (*SUE*) by the earnings per share from the I/B/E/S Summary file minus the median of all analyst forecasts on the I/B/E/S Summary file:

$$SUE_{i,q} = \frac{E_{i,q} - Avg(E^*_{i,q})}{P_{i,q}}, \quad (3)$$

where E is actual quarterly earnings per share before extraordinary items for firm i in quarter q, $Avg\ (E^*)$ is the median analyst forecasts of quarterly earnings per share, and $P_{i,q}$ is the price per share for firm i at the end of quarter t from Compustat (see, e.g., Livnat and Mendenhall 2006). Each observation requires at least two analyst forecasts. We categorize the sample into three subgroups, contingent upon the size of *SUE* per calendar quarter. Hedge portfolios are formed using tertile classifications based on the magnitude of *SUE*. Subsequent stock returns (*POSTRET*) are accumulated over the three months after the portfolio formation date (from +2 to +64 trading days following the announcement date). The hedge portfolios are formed by taking a long position in the top tertile firms and a short position in the bottom tertile firms. Hedged returns are calculated separately for CDS and non-CDS firms.

Sample Distribution

The samples of firms we examine differ for each hypothesis test because of variations in data requirements, as presented in Panel A of Table 1. For brevity, we report in Panel B the sample distribution by year for testing just one aspect of H2 that yields the highest number of observations

(that is, 12,769 for CDS firms and 91,023 for non-CDS firms). The first (last) two columns report the distribution for CDS firms (non-CDS firms). The number of observations monotonically increases over the sample period for both CDS firms and non-CDS firms. Table 2 reports the sample distribution by industry, which is based on the Campbell (1987) industry classifier. Our sample covers a range of industries, the most heavily represented being Basic industry for CDS firms (16.09%) and Consumer durables industry for non-CDS firms (16.01%), followed by Utilities industry for CDS firms (14.00%) and Real estate and finance industry for non-CDS firms (14.97%).

[Insert Table 2 near here]

Descriptive Statistics

Table 3 reports descriptive statistics of the variables used in our main analyses. Following Subrahmanyam et al. (2014), we define *CDS_FIRM* as a dummy variable that equals one if the firm has a CDS contract traded during our sample period and zero otherwise. *CDS_TRADE* is a dummy variable that takes a value of one after CDS inception for CDS firms and zero otherwise. Effectively, it is an interaction of two dummy variables, *CDS_FIRM* (a variable that takes a value of one for CDS firms and zero otherwise) × *POST_CDS* (a variable that takes a value of one for years after CDS inception for the treatment firms and their matched control firms and zero otherwise). The mean of *CDS_TRADE* and *CDS_FIRM* is 0.0596 and 0.1230, respectively, indicating that firms with CDS contracts on their outstanding debt represent around 12 percent of our sample and those firms have their CDSs traded in approximately half of our study years. The mean value of *BD_INDEP* is 0.7282, indicating that three-fourths of boards of directors are independent. Mean *Duality* is 0.6381, showing that 64 percent of observations have CEOs also holding the position of board chairman. These descriptive statistics of corporate governance characteristics are

largely consistent with those reported by prior studies (e.g., Byrd and Hickman 1992; Shivdasani 1993; Brickley, Coles, and Terry 1994; Cotter, Shivdasani, and Zenner 1997; Gillette, Noe, and Rebello 2003; Arthaud-Day, Certo, Dalton, and Dalton 2006).

[Insert Table 3 near here]

The mean of *ERC* and *RSQ* is 0.133 and 0.363, respectively. These statistics are consistent with those reported in the literature (e.g., Easton and Harris 1991). The mean of *DDAQ* is −0.1087, consistent with prior studies (e.g., Myers, Myers, and Omer 2003; Francis, LaFond, Olsson, and Schipper 2004, 2005). The mean of *ABVOL* is 1.0224, indicating that the volume of share trading jumps up dramatically on earnings announcement dates. The mean of *POSTRET* and earnings surprise (*SUE*) is −0.0008 and 0.0038, respectively. The negative value of *POSTRET* is consistent with those documented by earlier works (e.g., Abarbanell and Bernard 1992; Mendenhall 2004; Livnat and Mendenhall 2006). The positive average value of *SUE* indicates that firms beat analyst expectations, on average. We later discuss univariate statistics showing the existence of the PEAD phenomenon, evident from the positive and significant hedged portfolio return over three months formed by taking long and short positions in observations with highest and lowest SUE, respectively.

IV. TESTS OF HYPOTHESES

This section presents tests of our two hypotheses.

Tests of H1: Changes in Corporate Governance upon CDS Inception

H1 examines whether shareholders demand improved corporate governance after CDS inception. We estimate the following regression to test this hypothesis:

$$BD\_INDEP_{i,t} \text{ or } Duality_{i,t} = \beta_0 + \beta_1 CDS\_TRADE_{i,t} + \beta_2 CDS\_FIRM_i + \sum \beta_n Controls_{i,t} + \varepsilon_{i,t}, \quad (4)$$

where the dependent variable is *BD_INDEP* or *Duality*. The dummy variable *CDS_TRADE* takes a value of one after CDS inception for CDS firms and zero otherwise. As noted earlier, it is

effectively an interaction of two indicators, *CDS_FIRM* (a variable that takes a value of one for CDS firms and zero otherwise) × *POST_CDS* (a variable that takes a value of one for years after CDS inception for the treatment firms and their matched control firms and zero otherwise). We do not include the term *POST_CDS* because it is not definable for non-CDS firms.

Including both *CDS_TRADE* and *CDS_FIRM* provides a difference-in-differences research design to distinguish the effect of CDS inception relative to concurrent changes in non-CDS firms. Hence, the coefficient on the variable *CDS_TRADE* represents the marginal effect of CDS introduction on corporate governance after controlling for any changes in the characteristics of non-CDS firms at the same time. If CDS firms enhance corporate governance following the onset of CDS trading, relative to non-CDS firms, then β_1 is expected to be significantly positive for the *BD_INDEP* regression and negative for the *Duality* regression.

We follow prior research and include several control variables that affect the costs and benefits of monitoring, advisory needs of the board of directors, and CEO influence (e.g., Guest 2008): firm size (log of firm assets, *LNAT*), financial leverage (*LEV*), Tobin's Q (*TOBINQ*), corporate research and development expenditure (*RDEXP*), cash balances (*CASHSIZE*), profitability (return on assets, *ROA*), industry concentration (Herfindahl-Hirschman Index, *HHI*), firm age (log of firm age, *LNAGE*), and standard deviation of monthly stock returns over the 12 months preceding the financial year-end (*STRETVOL*). We include year and industry fixed effects in all regressions to control for year and industry idiosyncratic characteristics. Detailed variable definitions are provided in the Appendix.

Table 4 reports results of the multivariate regression analysis with respect to the effect of CDS trading upon corporate governance [Eq. (4)]. The first column reports results of Eq. (4) with *BD_INDEP* as the dependent variable; the second column, with *Duality* as the dependent variable.

Coefficients are estimated using standard errors that are adjusted using a two-dimensional cluster at the industry and year level (Peterson 2009). For *BD_INDEP,* the coefficient on *CDS_TRADE* is positive (0.0350) and significant (with p-value < 0.01), indicating that board independence increases by 3.5%, on average, in the years following the onset of CDS trading. For *Duality*, the coefficient is negative (−0.2968) and significant (with p-value < 0.05). While CEOs at firms with CDS trades during our sample period are more likely to also hold the position of board chairman, the CEO's dual position decreases by 29.68% following the onset of CDS trading, a significant change in corporate governance. These results support H1, positing that corporate governance improves after CDS inception, and the idea that shareholders demand greater allocation of control rights (Aghion and Bolton 1992).

[Insert Table 4 near here]

The coefficients on control variables are consistent with those reported by prior studies (e.g., Guest 2008). The coefficients on firm size and firm age are significantly positive in both regressions (with p-value < 0.05), consistent with the notion that larger firms have a higher percentage of outside directors and CEOs are likely to be the chairman of board. *ROA* is significantly negative for the *BD_INDEP* regression, yet significantly positive for the *Duality* regression (with p-value < 0.05 for both regressions). These results are consistent with the view that well-performing CEOs are able to negotiate a dual position with a lower number of outside directors.

Tests of H2: Changes in Shareholder Attention and Earnings Quality after CDS Inception

H2 considers whether shareholders become more attentive to financial reports after CDS inception or demand higher quality financial reporting. We estimate the following regression to test this hypothesis:

$$DependentVariable_{i,t}=\beta_0 + \beta_1 CDS\_TRADE_{i,t} + \beta_2 CDS\_FIRM_i + \sum\beta_n Controls_{i,t}+\varepsilon_{i,t}, \quad (5)$$

where the dependent variable is one of the five variables: *ERC*, *R_Square*, *DDAQ*, *ABVOL,* or *PEAD*. The definitions of *CDS_FIRM* and *CDS_TRADE* are the same as above. The coefficient on the variable *CDS_TRADE* represents the marginal effect of CDS introduction on the dependent variable relative to the effect on non-CDS firms. If the variables increase (decrease) for CDS following the onset of CDS trading, relative to changes in non-CDS firms over same time, then β_1 is predicted to be significantly positive (negative).

We include a set of control variables that are known to influence earnings quality by prior research: firm size (*LNAT*), profitability (*ROA*), financial leverage (*LEV*), growth opportunity (*MTB*), and volatility of firm operation (*SALESVOL* and *CFVOL*). We also include loss intensity (percentage of loss years in the last four years, *LOSS%*), sales growth (*D_Salesgrowth*), and firm's size-adjusted stock performance in the measurement year (*ABRET*) when the dependent variable is *ERC*, *R_Square*, or *DDAQ*. This set of controls is consistent with those used by DeFond and Park (2001) and Francis et al. (2004, 2005). When the dependent variable is *ABVOL*, the control variables are absolute value of the log of one plus the three-day market-adjusted returns around annual earnings announcement (*ABSLNRET*), log of stock price (*LNPRC*), log of market value (*LNMKV*), profitability (*ROA*), financial leverage (*LEV*), growth opportunity (*MTB*), and sales growth (*D_Salesgrowth*). These control variables are consistent with Hope et al. (2009). We include year and industry fixed effects in all regressions to control for year and industry idiosyncratic characteristics. Detailed variable definitions are provided in Appendix.

The first two columns of Panel A of Table 5 report results of Eq. (3) with *ERC* and *RSQ* as the dependent variables. Coefficients are estimated using standard errors that are adjusted using a two-dimensional cluster at the industry and year level (Peterson 2009). The coefficient on

CDS_TRADE is significantly positive for both *ERC* and *RSQ* at 0.0643 and 0.0097, respectively (with *p*-values < 0.01 for both regression models). These results support H2, positing that earnings relevance increases subsequent to CDS inception.

[Insert Table 5 near here]

The third column of Panel A reports results with *DDAQ* as the dependent variable. *DDAQ* is the standard deviation of the firm-level residuals from the Dechow and Dichev model as modified by McNichols (2002) over three years and multiplied by negative one. We drop the observations of CDS firms in the CDS initiation year and the next year to avoid the overlap of the estimation period of *DDAQ* between pre– and post–CDS periods. The coefficient on *CDS_TRADE* is significant and positive (with *p*-value < 0.05). Following the onset of CDS trading, *DDAQ* increases by 4.44%, on average, which is economically significant, given that the mean of *DDAQ* is −0.1087. Because *ERC*, *RSQ*, and *DDAQ* are widely and commonly accepted proxies for earnings quality, our results show that CDS initiation is followed by improvement in quality of financial reporting, at least from the equity investors' valuation perspective.

The last column of Table 5 Panel A reports results with *ABVOL* as the dependent variable. The coefficient on *CDS_TRADE* is significantly positive (with *p*-value < 0.05), showing an increase in trading volume following the onset of CDS trading. This result, combined with the results on *RSQ* and *ERC*, are consistent with the idea that investors pay greater attention to earnings announcements and use the information contained in earnings in price formation to a larger extent, post–CDS inception.

We next examine *PEAD*, which is a proxy for investors' underreaction to value-relevant information in earnings. For the *PEAD* tests, we categorize all firms into tertiles by the signed value of *SUE* by calendar quarters and then retain only the top and bottom tertiles. We report the

results in Panels B and C of Table 5. Panel B presents the univariate analysis results, based on the firms only in the top and bottom tertiles. Panel B shows that the PEAD phenomenon is significant for both CDS and non-CDS firms, on average. Hedges portfolio returns are 0.0093 and 0.0240, respectively, both statistically significant. This result indicates that the PEAD phenomenon exists in our sample. This measure of *PEAD* declines from 0.0185 (significant) to −0.0013 (insignificant) from pre–CDS years to post–CDS years for the CDS firms. These results support H2 on a univariate basis.

Panel C presents the multivariate results. *TopTertileSUE* is an indicator that takes a value of one if firm-year is categorized in the top tertile of *SUE* and zero otherwise. Panel C shows that the coefficient on *TopTertileSUE* is significantly positive (with p-value < 0.01), indicating that *PEAD* is statistically and economic significant for our sample CDS and non-CDS firms. However, the coefficient on *TopTertileSUE* × *CDS_TRADE* is significantly negative (with p-value < 0.01), supporting H2, which states that investor attention increases and the underreaction to earnings news decreases following the onset of CDS trading. *PEAD* for the top *SUE* tertile for CDS firms decreases by 1.68%, on average, subsequent to the CDS trading relative to those for the non-CDS firms.

V. CONTEXTS WITH GREATER H1 AND H2 EFFECTS

In this section, we examine whether our H1 and H2 findings apply more strongly in certain contexts than others. We conduct one test based on whether managers' improve earnings guidance post CD inception. We conduct four tests by partitioning our sample based on borrower and lender characteristics to isolate with greater decline in lender interest and monitoring post CD inception: borrower default risk, financial covenant intensity, number of lenders, and increase in lender's risk-weighted assets. We conduct another test based on the characteristics of outside shareholders.

Borrower Characteristic: Conditional on Earnings Forecasts

Kim et al. (2017) show that managers respond to shareholder demands for greater information, post–CDS inception, by providing more frequent earnings forecasts (Kim et al. 2017). Despite the existence of managers' earnings guidance, shareholders consider financial reports as a significant source of relevant information for valuation (Beyer et al. 2010; Holthausen and Watts 2001). Nevertheless, value relevant information in voluntary earnings guidance could preempt information provide by mandatory earnings reports (Kim and Verrecchia 1997; Cheynel and Levine 2015). Therefore, we expect a post–CDS demand for improvement in corporate governance and financial reporting quality to be higher when managers do not provide, and thus do not improve, voluntary earnings guidance.

We conduct H1 and H2 tests by dividing our sample into two groups—firm-year observations with earnings forecasts (EF) and without earnings forecasts (No EF). We then separately estimate Eqs. (4) and (5) for those two groups and test the statistical significance of the difference of coefficients on *CDS_TRADE.* As shown in Panel A of Table 6, the coefficient on *CDS_TRADE* is higher for the No EF group than the EF group, when the dependent variable is *BD_INDEP* (with *p*-values < 0.01), supporting the view that shareholders step up actions to secure their interests when more information is not forthcoming from managers on a voluntary basis after CDS trading. However, we do not find significant differences between the two groups when the dependent variable is *Duality*. Panel B of Table 6 shows that the coefficient on *CDS_TRADE* is higher for the No EF group than the EF group, when the dependent variable is *ERC*, *RSQ*, and *ABVOL* (with *p*-values < 0.01). We do not find significant differences between the two groups for *DDAQ*.

In H1 and H2 tests, described in Section IV, we find strong support for the idea that shareholders take greater interest in firm affairs post–CDS inception, as advanced by Kim et al. (2017). Results from four out of our six dependent variables complement Kim et al. (2017) by showing an additional yet important instance in which this idea is manifested—attention to mandated financial reports and corporate governance, when managers do not improve information provision on a voluntary basis.

[Insert Table 6 near here]

Lender Monitoring: Increase in Risk-Weighted Assets

We document a positive correlation between the onset of CDS trading and shareholder attentiveness, and our tests assume that lenders hedge their risks post–CDS inception. An ideal test would focus only on lenders that buy CDS protection on the reference firm's credit risk. However, identifying CDS traders is empirically challenging because CDS contracts are largely traded over the counter and the parties have no obligation to reveal their trades to investors. In this subsection, we rely on previous research and strive to identify CDS traders.

We follow the approach of Martin and Roychowdhury (2015). They illustrate that banks likely purchase CDS contracts to hedge their exposure to the underlying borrower's credit risk when the percentage of total risk-weighted assets for a bank that lends to a borrower with CDS contracts increases in the same year as the onset of the CDS contracts. We distinguish lending banks by extracting data on lending relationships from the Dealscan database, and we manually collect the risk weights on banks' assets from the Federal Reserve's Y-9C reports. We create the variable *POS_RISKASSET*, which takes a value of one if the lending bank exhibits an increase in the percentage of total risk-weighted assets in the same year of CDS initiation, and zero otherwise. That bank is likely to have hedged its risk with respect to the focal firm. We then categorize the

sample into two groups: one in which lenders likely hedged their risk (*More Likely*) and another in which it is less likely (*Less Likely*) based on *POS_RISKASSET*. We then separately estimate our multivariate regression models [Eqs. (4)–(5)] for each group.

Panel A of Table 7 presents the regression results. When the dependent variable is *BD_INDEP*, the coefficient on *CDS_TRADE* is positive and significant only for the group in which lenders likely hedged their risk (with *p*-value of difference in coefficients being less than 0.10). However, we have insignificant difference when the dependent variable is *Duality*.

[Insert Table 7 near here]

Panel B of Table 7 presents the regression results when the dependent variable is *ERC, RSQ*, *DDAQ*, or *ABVOL*. For each variable, the coefficient on *CDS_TRADE* is bigger for the subgroup in which lenders more likely hedged their risk (*More Likely*) than for the subgroup in which lenders less likely hedged their risk (*Less Likely*) (with *p*-value of difference in coefficients being less than 0.10). This finding are consistent with the proposition that investor interest and earnings relevance and usefulness increase to a greater extent when lenders change their behavior after the onset of CDS trading.

Lender Monitoring: Borrower Default risk

Lead bank suffers reputation costs in loan syndicate markets when inadequate monitoring is a contributing factor towards borrower default (Gopalan, Nanda, and Yerramilli 2011). However, such reputational fallout is lower when loans are made to riskier clients because it is difficult to identify the lead bank's poor monitoring as the main cause for borrower default. So, to the extent that banks lower their monitoring upon obtaining CDS protection, and this lowering is moderated by banks' reputational concerns, that moderation would be lower when loans are made to riskier clients. Consistent with this idea, Ashcraft and Santos (2009) find that post–CDS loan

spreads increase to a great extent for riskier clients. Kim et al. (2017) find greater post CDS inception increase in management forecasts for clients with greater default risk.

Accordingly, we expect improvement in corporate governance and earnings quality, that is associated with reduced lender monitoring following the onset of CDS trading, to be more pronounced for riskier borrowers. To test our prediction, we categorize firm-year observations into two groups (*Low Default Risk* and *High Default Risk*), based on the sample median of modified *Z*-score score model (Altman (1968; Campello et al. 2011). We then conduct H1 and H2 tests separately in these two subgroups. Table 8 report the results, conditional on the default risk.

[Insert Table 8 near here]

Panel A of Table 8, the effect of CDS trading on corporate governance variables, while Panel B reports the results of the earnings quality proxies. We find that bigger coefficients on *CDS_TRADE* for the *High Default Risk* group when the independent variable is *BD_INDEP*, *ERC*, and *ABVOL*. The differences between *Low Default Risk* and *High Default Risk* are not significant when *Duality*, *RSQ*, and *DDAQ* are the independent variables for the coefficients of other three variables. Thus, we find partial support for the idea of greater heightening of shareholder interest, associated with reduced lender monitoring after the onset of CDS trading, for borrowers closer to debt default.

Lender Monitoring: Financial Covenants

Lenders monitor borrower's operating and investing activities principally through financial covenants (Dichev and Skinner 2002, Nini et al. 2009). These covenants serve as automatic "tripwires" whose violations affect borrowers' activities such as investments, net debt issuance, line-of-credit availability, and could cause changes in management (Chava and Roberts 2008, Roberts and Sufi 2009, Nini et al. 2009, 2012). Therefore, a larger (smaller) number of financial covenants implies greater (weaker) effect of lender monitoring on the borrower behavior. All else

held equal, thus, any post CDS inception change in borrower behavior, caused by reduced lender monitoring, should be more pronounced for firms with fewer financial covenants (Kim et al. 2017).

To test this prediction, we follow Kim et al. (2017) to categorize the sample into two groups, based on the sample median of a firm's average number of financial covenants across its syndicated loans per year: (1) firms with less than or equal to the sample median of financial covenants in a loan contract (Fewer Financial Covenants) and (2) firms with greater than the sample median of financial covenants (More Financial Covenants). We estimate the number of financial covenants as the total number of financial covenants in a loan contract (e.g., Hong, Hung and Zhang 2015). All variables are defined in the Appendix. We then reestimate Eqs. (2)–(5) separately for these two groups. Table 9 report those results.

[Insert Table 9 near here]

Panel A of Table 9 shows that the effect of CDS trading on board independence is stronger for the Fewer Financial Covenants group versus the More Financial Covenants group, as indicated by a significant difference of coefficients on *CDS_TRADE* (with p-value < 0.10). Similarly, the effect of CDS trading upon CEO duality is negative and significant only for the Fewer Financial Covenants subgroup, and the difference between two subgroups is significant (with p-value < 0.01).

Panel B of Table 9 reports the results of the earnings quality proxies. We find that the positive effect of CDS trading upon *ERC* , *RSQ* and *DDAQ* is stronger for the Fewer Financial Covenants group, as indicated by a significant difference of coefficients on *CDS_TRADE* between two subgroups (with p-value < 0.05). However, we find insignificant differences with respect to *ABVOL*. For five out of six study variables, the effect of CDS initiation on earnings quality and corporate governance is significantly stronger for firms with fewer financial covenants.

Lender Monitoring: Syndicated Lenders versus Sole Lenders

Prior studies indicate that when loan is obtained from a syndicate of lenders than from a single lender, free-rider problem in monitoring and information asymmetry and coordination costs between lender and borrower are more severe, and contractual flexibility and capacity to renegotiate is lower (Preecea and Mullineaux 1996, Ivashina 2009). Amiram et al. (2017) document that the lead arranger's share of the loan and premium demanded by syndicate members increases following the onset of CDS trading, indicating that syndicate participants anticipate lowering of lead banker's monitoring post CDS inception. Similarly, Kim et al. (2017) find lower demand for management forecasts when lead arranger has higher than the median share of loans, that is, when the lead banker has higher economic stake in the loan. Extending this logic, the heightening of shareholder should be least pronounced when the lender holds 100% of loans.

To test this conjecture, we categorize firm-year observations into two groups, *Syndicated* and *Solo Lender*, by using the data on the lead arrangers of their syndicated loans from DealScan. All variables are defined in the Appendix. We then conduct H1 and H2 tests separately for these two groups. Table 10 report the results, conditional on the loan syndication.

[Insert Table 10 near here]

Panel A of Table 10 shows that the effect of CDS trading on board independence is stronger for the *Syndicated* group versus the *Solo Lender* group (difference has p-value < 0.10) but the difference is not significant for *Duality*. Panel B of Table 10 reports the results of the earnings quality proxies. We find that the improvements in *ERC*, *RSQ*, and *DDAQ* are stronger for the Syndicated group (differences have p-values < 0.05), but not for *ABVOL* These results are consistent with the view that when there are coordination frictions among syndication members, a decline in lender monitoring and lender interest in continuation of the borrower occurs to a greater extent following the onset of CDS trading than when the loan is obtained from a solo bank. Shareholders

step up their information acquisition and strengthen their monitoring to protect their interest, depending on whether or not the loan was obtained from a syndicate of banks.

Shareholder Influence: Dedicated and Focused versus Transient and Diversified Institutional Investors

In this subsection we test whether our results are stronger for firms with the possibility of stronger shareholder intervention in corporate affairs post CDS inception. We classify the institutional shareholders into transient and dedicated investors based on two portfolio characteristics: portfolio turnover and holdings concentration (Bushee 1998, 2001; and Bushee and Noe 2000). Investors are classified into the transient subgroup if they have high portfolio turnover and highly diversified portfolio holdings. In contrast, dedicated investors have longer investment horizons as captured by low portfolio turnover and focused portfolio holdings. We obtain data for this classification from Thomson Reuters Institutional Holdings, which are based investment firms'13F forms reported to the Securities and Exchange Commission (SEC) each quarter.

Using the above data file, we test whether our results are stronger for Dedicated Investors or Institutional Investors. Results presented in Table 11 show stronger results for dedicated investors when the dependent variable is *ERC* and *ABVOL*. However, for other variables, we dnot find significant differences between the two groups of investors.

[Insert Table 11 here]

V. ROBUSTNESS CHECKS

Two-Stage Least Squares (2SLS) Specification

To further address the endogeneity concern related to the onset of CDS trading, we use a 2SLS specification. In the first stage, we estimate a regression of a binary variable, *CDS_TRADE*, on all control variables of the CDS determinant model specified in Eq. (2) and on two instrumental

variables: *Industry Peers' Bond Trading Volume* and *Investment Grade/Speculative Grade Frontier* (Kim et al. 2017). These two variables predict the onset of CDS trading but are likely to be unrelated to the residuals in the second-stage regression. The first proxies for the degree to which lenders hedge in the bond market in the absence of the CDS market. Oehmke and Zawadowski (2015) show that credit investors elect the CDS market as the trading venue for their credit hedging and for speculative purposes when they experience trading frictions in the underlying bond market. Following their study, we measure this variable by the average of the industry peers' bond trading volume (Boehmer, Chava, and Tookes 2015; Kim et al. 2017). Bond trading volume, which provides liquidity to investors, is predicted to mitigate trading frictions and reduce investors' demand for hedging and speculation through CDS contracts, thus decreasing the likelihood of the onset of CDS contracts. We gather data on the bond trading volume for industry peers from the Trade Reporting and Compliance Engine (TRACE) database. We also extract data on the face value of the traded bonds at the issue date from the Mergent database. We estimate bond trading volume by dividing the dollar volume of a traded bond by its face value. We then measure the average bond trading volume of industry peers each year. We standardize this measure by converting it into a decile rank (*Industry Peers' Bond Trading Volume*).

Our second instrumental variable, *Investment Grade/Speculative Grade Frontier*, represents the demand for CDS trade. Qiu and Yu (2012) show an inverse U-shaped relationship between CDS liquidity and credit rating. Bond investors' hedging demand is the highest for bonds at the border of investment and speculative grades. Bonds with very high credit quality have little hedging demand because of their high credit quality, and bonds with below-investment grades have a very steep cost of credit protection. We thus create *Investment Grade/Speculative Grade Frontier*, which is an indicator variable that equals one if the credit rating of a firm's bonds is close to the crossover

from investment to speculative grades and zero otherwise; that is, the bonds have an average credit rating of BBB–, BBB, or BBB+. We collect corporate long-term bond credit ratings from Compustat.

We present the results of our probit model of board independence in Panel A of Table 12. We use *CDS_TRADE* as the dependent variable and *Industry Peers' Bond Trading Volume* and *Investment Grade/Speculative Grade Frontier* as an inverse and a direct proxy, respectively, for bond investors' trading demand. As expected, the coefficients on *Industry Peers' Bond Trading Volume* and *Investment Grade/Speculative Grade Frontier* are significantly negative and positive, respectively (with p-value < 0.01).

[Insert Table 12 near here]

In the second stage, we use the predicted value of *CDS_TRADE* from the first stage and estimate a regression of board independence proxies (*BD_IND* and *Duality*) using the fitted value of *CDS_TRADE*. Results for those tests are presented in the last two columns of Table 12, Panel A. The coefficient on *CDS_TRADE* is positive and significant for *BD_IND* (with p-value < 0.01) and is insignificant and positive for *Duality*. To validate our choice of instrumental variables, we follow Larcker and Rusticus (2010) and implement weak instrument identification tests.[12] These results suggest that the instrument passes the weak instrument tests and that it explains a significant amount of the variation in corporate governance structure.

We also use a 2SLS method to address the endogeneity concern related to the onset of CDS trading in our earnings quality analysis. In the first stage, we estimate a regression of a binary

[12] The partial F is 1504.74 (p-value < 0.0001), and the under-identification test (chi-squared) is 56.51 (p-value < 0.0001). These results suggest that the instrument passes the under-identification test and explains a significant amount of the variation in CDS trading inception. The weak instrument test yields a Cragg-Donald Wald F of 28.20 that is significant at p-value less than 0.05 based on Stock-Yogo critical value table.

variable, *CDS_TRADE*, on all control variables of the CDS determinant model specified in Eq. (2) and on two instrumental variables: *Industry Peers' Bond Trading Volume* and *Investment Grade/Speculative Grade Frontier*. In the second stage, we use the predicted value of *CDS_TRADE* from the first stage and estimate a regression of earnings quality proxies (*ERC, RSQ, DDAQ,* and *ABVOL*) using the fitted value of *CDS_TRADE*. Results for those tests are presented in Panels B–D of Table 8. The coefficient on *CDS_TRADE* is positive for *ERC, RSQ, DDAQ,* and *ABVOL* (with *p*-value < 0.01). Thus, our main results remain qualitatively unchanged using the 2SLS model, indicating that they are less likely contaminated by endogeneity issues. To validate our choice of instrumental variables, we follow Larcker and Rusticus (2010) and implement weak instrument identification tests.[13] These results suggest that the instrument passes the weak instrument tests and that it explains a significant amount of the variation in corporate risk-taking behavior.

VI. CONCLUSION

Most borrowers enter into loan agreements with an understanding that the lender would renegotiate the loan terms and would accommodate their needs in the event of adverse economic developments. A bank's interest in accommodating a distressed client's needs, however, declines after the bank purchases a CDS-based insurance on the client's loan. CDS trades are therefore followed by increased lender intransigence and higher frequency of borrower bankruptcy. The creation of CDS markets also provides insiders with an avenue to trade on their private information about bankruptcy risk without having to reveal those trades to outsiders. The onset of CDS trade

[13] For Panel B, the partial F is 1386.03 (*p*-value < 0.0001), and the under-identification test (chi-squared) is 7,693.69 (*p*-value < 0.0001). For Panel C, the partial F is 766.53 (*p*-value < 0.0001), and the under-identification test (chi-squared) is 3620.82 (*p*-value < 0.0001). Finally, for Panel D, the partial F is 368.96 (*p*-value < 0.0001), and the under-identification test (chi-squared) is 1750.76 (*p*-value < 0.0001). These results suggest that the instrument passes the under-identification test and explains a significant amount of the variation in CDS trading inception. The weak instrument test yields a Cragg-Donald Wald *F* ranging from 53.87 (*p*-value < 0.01) for Panel D to 872.88 (*p*-value < 0.01) for Panel B, compared with the Stock-Yogo critical value. Stock and Yogo (2005) provide a critical value table for a 5% Max IV size 24.09, 10% Max IV size 16.38, and 15% Max IV size 8.96.

thus increases the likelihood of loss of values of external shareholders relative to those of lenders and insider shareholders. In this study, we find results consistent with the notion that the outside shareholders of a CDS-referenced firm respond to the onset of CDS trading, an event beyond their control, by demanding improved corporate governance and financial reporting quality.

We find an increase in the percentage of independent directors and a decline in the duality of the joint CEO–chairman position in the years following the onset of CDS trades. Prior literature shows that both of these factors are associated with enhanced protection of outsiders' rights. We also find increases in earnings response coefficient and trading volumes around the earnings announcement dates. In addition, the quality of working capital accruals improves and the post–earnings announcement drift declines. These results indicate that outside shareholders pay greater attention to financial reports or demand improvement in the quality of financial reports. Overall, our results indicate heightened shareholder interest in firm affairs and a contingent reallocation of control rights between managers, lenders, and shareholders post–CDS inception.

We find that the proxies of earnings quality change in directions consistent with their improvement from the equity shareholders' valuation informativeness perspective, in contrast to the prior finding of decline in conservatism, a significant earnings quality proxy from the lenders' perspective. Hence, our study also documents a financial market development that is followed by opposite shifts in attributes of financial reporting systems from the shareholders' and lenders' perspectives.

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APPENDIX. VARIABLE DEFINITIONS

ABSLNRET = Absolute value of the log of one plus the three-day market-adjusted returns around the annual earnings announcement (day −1 to 1). (Source: CRSP)

ABRET = Firm's annual size-adjusted returns for fiscal year *t*. (Source: Compustat North America)

ABVOL = Firm's actual trading volume for three days around earnings announcement period (day −1 to 1) less the mean of trading volume for the 60 days, scaled by the standard deviation of firm's trading volume for the 60 days preceding the annual announcement interval. (Source: CRSP)

BD_INDEP = Number of independent directors divided by the total number of directors. [Source: Institutional Shareholder Services (formerly RiskMetrics)]

CASHSIZE = Cash and cash equivalent divided by total assets at the end of fiscal year *t*. (Source: Compustat North America)

CDS_FIRM = Dummy variable that takes a value of one if the firm has traded CDSs anytime during our study period and zero otherwise. (Source: Markit)

CDS_TRADE = Dummy variable that takes a value of one after the inception of CDS trading for CDS firms and zero otherwise. (Source: Markit)

CFVOL = Standard deviation of firm's operating cash flow over total assets from fiscal year $t - 4$ to fiscal year *t*. (Source: Compustat North America)

D_Salesgrowth = Change in net sales in year *t* divided by net sales in year $t - 1$. (Source: Compustat North America)

DDAQ = Standard deviation of the firm-level residuals from the Dechow and Dichev (2002) model as modified by McNichols (2002) over three years and multiplied by negative one. The model is a regression of working capital accruals on lagged, current, and future cash flows plus the change in revenue and property, plant, and equipment. All variables are scaled by average total assets. The model is estimated cross-sectionally for each industry with at least 20 observations in a given year based on the Fama and French (1997) 48 industry classification. We drop CDS initiation year's and next year's observations. (Source: Compustat North America)

Duality = Indicator variable that equals one if the company's CEO is also chairman of the board and zero otherwise (Source: Institutional Shareholder Services)

ERC = Earnings response coefficient. We estimate each firm-year's *ERC* by regressing cumulative size-adjusted three-day stock returns on the quarterly earnings surprise. To estimate firm-year's *ERC*, we regress cumulative three-day size-adjusted stock returns on the quarterly earnings announcement date on quarterly earnings change for each firm year. We measure *ERC* by the coefficient on $\Delta Earnings$. (Source: Compustat North America and CRSP)

HHI = Herfindahl-Hirschman Index of two-digit Standard Industrial Classification (SIC) industry measured at the end of fiscal year *t*.

Industry Peers' Bond Trading Volume = Average annual bond trading volume for a firm's two-digit SIC industry peers. (Source: TRACE)

Investment Grade/Speculative Grade Frontier = Indicator variable that takes a value of one if a firm's long-term bonds outstanding in a given year have an average credit rating of BBB-, BBB, or BBB+ and zero otherwise. (Source: Compustat North America)

LEV = Total debt (short-term debt plus long-term debt) divided by total assets at the end of fiscal year *t*. (Source: Compustat North America)

LenderReputation = Derived from the principal component analysis based on two variables: natural logarithm of firm market value of equity and long-term Standard & Poor's (S&P) credit rating. Credit rating is defined by an ordinal variable ranging between 1 (AAA) and 19 (CCC-) for firms with S&P long-term debt rating. We assign a value of 20 for firms in default stage and 21 for firms with no debt rating.

LNAT = Natural logarithm of total assets at the end of fiscal year *t*. (Source: Compustat North America)

LNFIRMAGE = Natural log of firm *i*'s age, approximated by the number of years listed on CRSP. (Source: CRSP)

LNMKV = Natural logarithm of firm's market value at the end of fiscal year *t*. (Source: Compustat North America)

LNAGE = Natural logarithm of firm's market value at the end of fiscal year *t*. (Source: Compustat North America)

LNPRC = Log of price two days before the annual earnings announcement. (Source: CRSP)

LOSS% = Loss intensity over the previous four-year period defined as the number of years that a firm has negative pre-tax book income from year *t* - 4 to year *t* - 1 scaled to range between zero and one. (Source: Compustat North America)

MTB = Market value of equity divided by book value of equity at the end of fiscal year *t*. Market value is a firm's market capitalization, calculated as (number of outstanding shares × market price). (Source: Compustat North America)

Non–CDS Firm = A firm that is not CDS Firm.

PEAD = Difference in the mean *POSTRET* between the top and bottom tertiles formed by the magnitude of *SUE*.

POSTRET = Three-month (+2 to +64 trading days following the announcement) buy-and-hold return adjusted for contemporaneous buy-and-hold value-weighted market index return.

RDEXP = Research and development expenditure divided by total assets at the end of fiscal year *t*. Set to zero if missing. (Source: Compustat North America)

ROA = Net income before extraordinary items divided by total assets at the end of fiscal year *t*. (Source: Compustat North America)

RSQ = *R*-squared from firm-year's *ERC* regression. We regress cumulative three-day size-adjusted stock returns on the quarterly earnings announcement date on quarterly earnings change for each firm-year. (Source: Compustat North America and CRSP)

SALEVOL = Standard deviation of firm's sales over total assets from fiscal year $t - 4$ to fiscal year *t*. (Source: Compustat North America)

STRET = Firm's annual stock return for fiscal year *t*. (Source: Compustat North America)

STRETVOL = Standard deviation of a firm's monthly stock return in fiscal year *t*. (Source: Compustat North America)

SUE = Actual earnings per share minus last analyst consensus at least three days before the quarterly earnings announcement, scaled by stock price at least six but not more than 12 days prior to quarterly earnings announcement.

TOBINQ = Book value of total assets plus market value of equity minus book value of equity divided by book value of total assets at the end of fiscal year *t*. (Source: Compustat North America)

TopTertile = Indicator variable that takes a value of one if firm-year is for the top tertile of *SUE* and zero otherwise.

TABLE 1
Sample Selection

Panel A: Selection of Samples for Different Tests

Sample	
Corporate governance	
	Firm-years
Compustat firm-year observations, 1988–2014	334,866
Less:	
Firm-years missing total assets (net sales) and less than $1 million total assets (net sales)	(77,684)
Firm-years missing control variables and incomplete observations	(106,884)
Firm-years missing corporate governance measure	(128,891)
Testing board independence (2,722 unique firms)	21,407
ERC/RSQ, *DDAQ*, and *ABVOL*	
Compustat firm-year observations, 1983–2014	373,788
Less:	
Firm-years missing total assets (net sales) and less than $1 million total assets (net sales)	(107,117)
Firm-years missing control variables and incomplete observations	(132,138)
Firm-years missing *ERC* / *RSQ* sample	(30,741)
Testing *ERC / RSQ* (11,682 unique firms)	103,792
Firm-years missing *DDAQ*	(38,989)
Testing *DDAQ* (8,712 unique firms)	64,803
Firm-years missing *ABVOL*	(46,294)
Testing *ABVOL* (2,243 unique firms)	18,509
PEAD	
	Firm-quarters
Compustat firm-quarter observations, 1983–2014	1,350,084
Less:	
Firm-quarters with insufficient data and missing *SUE* and *POSTRET*	(906,393)
Firm-quarters not matched with ERC/RSQ Sample	(32,155)
Firm-quarters middle tertiles of *SUE*	(149,079)
Testing *PEAD* (11,155 unique firms)	262,457

Panel B: Yearly Distribution

	CDS_FIRM		*NON CDS_FIRM*	
Year	**Frequency**	**Percent**	**Frequency**	**Percent**
1983	26	0.20	235	0.25
1984	239	1.80	1,672	1.77
1985	236	1.78	1,740	1.85
1986	246	1.86	1,831	1.94
1987	253	1.91	1,852	1.97
1988	263	1.98	1,880	2.00
1989	293	2.21	2,129	2.26
1990	303	2.29	2,257	2.40
1991	316	2.38	2,368	2.51
1992	321	2.42	2,427	2.58
1993	335	2.53	2,593	2.75
1994	342	2.58	2,715	2.88
1995	365	2.75	2,890	3.07
1996	389	2.94	3,054	3.24
1997	411	3.10	3,268	3.47
1998	426	3.21	3,269	3.47
1999	458	3.46	3,626	3.85
2000	478	3.61	3,601	3.82
2001	488	3.68	3,388	3.60
2002	503	3.80	3,531	3.75
2003	512	3.86	3,451	3.66
2004	514	3.88	3,359	3.57
2005	522	3.94	3,700	3.93
2006	517	3.90	3,612	3.83
2007	512	3.86	3,544	3.76
2008	510	3.85	3,444	3.66
2009	509	3.84	3,470	3.68
2010	500	3.77	3,328	3.53
2011	497	3.75	3,247	3.45
2012	500	3.77	3,189	3.39
2013	491	3.71	3,183	3.38
2014	494	3.73	3,170	3.37
Total	12,769	100.00	91,023	100.00

Panel A describes the selection of sample of firms to examine H1 and H2. Panel B presents the yearly distribution of the sample for *ERC* and *RSQ* tests, the largest sample among all tests. All variables are defined in the Appendix.

TABLE 2
Sample Distribution by Industry (Number of Firm-Years)

	CDS_FIRM		*NON CDS_FIRM*	
Industry	**Frequency**	**Percent**	**Frequency**	**Percent**
Basic industry	2,055	16.09	9,977	10.96
Capital goods industry	1,250	9.79	13,064	14.35
Construction industry	413	3.23	1,681	1.85
Consumer durables industry	1,390	10.89	14,573	16.01
Food and tobacco industry	601	4.71	2,667	2.93
Leisure industry	462	3.62	3,782	4.15
Other industries	198	1.55	3,302	3.63
Petroleum industry	762	5.97	3,396	3.73
Real estate and finance industry	1,687	13.21	13,622	14.97
Services industry	859	6.73	11,554	12.69
Textiles and trade industry	980	7.67	5,578	6.13
Transportation industry	324	2.54	2,181	2.40
Utilities industry	1,788	14.00	5,646	6.20
Total	12,769	100.00	91,023	100.00

This table reports the sample distribution across the Campbell (1987) industry classifications for the sample used for the *ERC* and *RSQ* tests. The sample consists of 103,792 firm-year observations for the period between 1983 and 2015. All variables are defined in the Appendix.

TABLE 3
Sample Descriptive Statistics

Variable	Mean	25th Percentile	50th Percentile	75th Percentile	Standard Deviation
CDS_TRADE	0.0596	0.0000	0.0000	0.0000	0.2367
CDS_FIRM	0.1230	0.0000	0.0000	0.0000	0.3285
BD_INDEP	0.7282	0.6364	0.7500	0.8571	0.1665
Duality	0.6381	0.0000	1.0000	1.0000	0.4806
ERC	0.1337	−0.0365	0.0061	0.1361	0.9357
RSQ	0.3635	0.0735	0.2865	0.6201	0.3125
ABVOL	1.0224	−0.1646	0.3832	1.4911	1.8249
DDAQ	−0.1087	−0.1081	−0.0516	−0.0260	0.1618
LNAT	5.9691	4.3724	5.8576	7.4205	2.1397
ROA	−0.0019	−0.0046	0.0320	0.0712	0.1676
LEV	0.1804	0.0113	0.1290	0.2907	0.1880
MTB	2.5163	1.0774	1.7216	2.9250	3.2551
SALESVOL	0.1714	0.0556	0.1176	0.2223	0.1784
CFVOL	0.0700	0.0244	0.0465	0.0853	0.0771
LOSS%	0.2491	0.0000	0.2000	0.4000	0.3195
D_Salesgrowth	−0.0286	−0.1465	−0.0116	0.1080	0.4428
ABRET	−0.4964	−6.9588	−1.0945	4.9431	12.3512
LNPRC	2.4452	1.7707	2.6119	3.2629	1.1297
POSTRET	−0.0008	−0.0138	0.0044	0.0133	0.0658
SUE	0.0038	−0.0913	0.0116	0.1090	0.2118
TopTertile	0.5009	0.0000	1.0000	1.0000	0.5000

This table reports descriptive statistics for the sample firms. All variables are defined in the Appendix.

TABLE 4
Changes in Corporate Governance in the Years following the Onset of Credit Default Swap (CDS) Trading

Variable	*BD_INDEP*	*Duality*
CDS_TRADE	0.0350	−0.2968
	(5.51)***	(−1.98)**
CDS_FIRM	−0.0135	0.3862
	(−1.34)	(2.24)**
LNAT	0.0094	0.2306
	(3.15)***	(4.53)***
LEV	0.0095	−0.0853
	(0.42)	(−0.47)
TOBINQ	−0.0054	0.0304
	(−2.60)***	(1.56)
RDEXP	0.1465	−2.1040
	(3.09)***	(−4.15)***
CASHSIZE	0.0190	0.0180
	(0.93)	(0.10)
ROA	−0.0286	0.2554
	(−2.14)**	(2.32)**
HHI	−0.0448	−0.5759
	(−0.79)	(−1.11)
LNAGE	0.0218	0.2105
	(2.33)**	(4.05)***
STRETVOL	0.0000	0.0185
	(0.03)	(2.66)***
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	21,407	21,407
R-squared / pseudo *R*-squared	0.173	0.087

This table reports the effect of CDS trading upon board independence: *BD_INDEP* and *Duality*. All variables are defined in the Appendix. The sample consists of 14,708 non-CDS firm-years and 6,699 CDS firm-years (1,763 firm-years for pre–CDS initiation and 4,936 firm-years for post–CDS initiation). Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

TABLE 5
Changes in Financial Reporting Quality in the Years following the Onset of Credit Default Swap (CDS) Trading

Panel A: Earnings Response Coefficient (*ERC*) and *R*-Squared (*RSQ*)

	ERC	***RSQ***	***DDAQ***	***ABVOL***
Variable	**(1)**	**(2)**	**(3)**	**(4)**
CDS_TRADE	0.0643	0.0097	0.0444	0.2649
	(5.69)***	(2.90)***	(2.24)**	(2.46)**
CDS_FIRM	−0.0291	−0.0057	−0.0077	−0.0197
	(−2.51)**	(−2.32)**	(−1.57)*	(−0.22)
LNAT	−0.0653	−0.0054	0.0047	
	(−6.54)***	(−5.17)***	(5.14)***	
ROA	0.2408	0.0094	−0.0288	0.9465
	(6.83)***	(1.75)*	(−4.38)***	(17.58)***
LEV	−0.0516	0.0088	0.0144	−0.0140
	(−2.44)**	(1.12)	(2.81)***	(−0.13)
MTB	0.0019	−0.0004	−0.0011	−0.0017
	(1.32)	(−0.99)	(−2.16)**	(−0.28)
SALESVOL	−0.0644	−0.0047	−0.0246	
	(−1.99)**	(−1.40)	(−3.94)***	
CFVOL	−0.2839	0.0042	−0.3761	
	(−3.70)***	(0.20)	(−14.07)***	
LOSS%	−0.2367	0.0035	−0.0277	
	(−6.80)***	(0.81)	(−3.79)***	
D_Salesgrowth	0.0154	0.0014	−0.0018	0.0632
	(3.00)***	(0.53)	(−0.98)	(5.23)***
ABRET	0.0005	−0.0001	0.0001	
	(3.24)***	(−1.25)	(2.89)***	
ABSLNRET				9.6359
				(11.69)***
LNPRC				0.1459
				(5.15)***
LNMKV				0.0421
				(2.06)**
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	103,792	103,792	64,803	18,509
R-squared	0.025	0.002	0.313	0.243

Table 5 Continued.

Panel B: Univariate Analysis—*PEAD*

Tertile	Full Sample	Non–CDS Firms	CDS Firms		
			All years	Pre-CDS	Post-CDS
Top tertile	0.0176	0.0169	0.0260	0.0317	0.0195
	(31.05)***	(28.17)***	(17.33)**	(15.17)**	(8.98)**
Bottom tertile	−0.0054	−0.0071	0.0167	0.0132	0.0208
	(−9.10)***	(−11.83)***	(9.82)***	(5.59)***	(8.55)**
Difference (top – bottom)	0.0230	0.0240	0.0093	0.0185	−0.0013
	(28.08)***	(27.74)***	(4.15)***	(5.91)***	(−0.42)

Penal C: Regression Analysis—*PEAD*

Dep. Variable=	*POSTRET* (1)	*POSTRET* (2)	*POSTRET* (3)	*POSTRET* (4)
TopTertileSUE	0.0223	0.0222	0.0222	0.0228
	(9.36)***	(9.37)***	(9.36)***	(13.09)***
CDS_FIRM		0.0133	0.0182	0.0182
		(4.25)***	(4.08)***	(7.40)***
CDS_TRADE			−0.0107	−0.0020
			(−1.94)*	(−0.42)
TopTertileSUE × *CDS_TRADE*				−0.0168
				(−4.90)***
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	262,457	262,457	262,457	262,457
R-squared	0.041	0.041	0.041	0.041

This table reports the effect of CDS trading upon earnings quality. The sample consists of 94,203 non-CDS firm-years and 13,252 CDS firm-years (6,585 firm-years for pre–CDS initiation and 6,667 firm-years for post–CDS initiation). Panel A shows a multivariate analysis on earnings quality of pre–CDS initiation and post–CDS initiation and between CDS firms and non-CDS firms. Panels B and C report the effect of CDS trading upon post–earnings announcement drift (*PEAD*). We split the sample into tertiles by *SUE* and calculate the difference in *POSTRET*. *TopTertileSUE* is an indicator variable that takes a value of one if firm-quarter is for the top tertile of *SUE* and zero otherwise. All other variables are defined in The Appendix. Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are presented in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

TABLE 6
Conditioning on Managers' Earnings Forecast (EF)

Panel A: Board Independence

Dep. Variable =	***BD_INDEP***		***Duality***	
	No EF	EF	No EF	EF
CDS_TRADE	0.0545	0.0180	−0.2682	−0.3090
	(6.22)***	(2.15)**	(−1.28)	(−1.88)*
Difference in coefficients on *CDS_TRADE* for the two groups	−0.0365		−0.0408	
	(−3.16)***		(−0.17)	
Firm-level controls	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	11,994	9,413	11,994	9,413
R-squared / pseudo *R*-squared	0.188	0.166	0.077	0.087

Table 6 Continued.

Panel B: ***Earnings quality***

Dep. Variable =	***ERC***		***RSQ***		***DDAQ***		***ABVOL***	
	No EF	EF	No EF	EF	No EF	EF	No EF	EF
CDS_TRADE	0.0709	0.0220	0.0156	−0.0162	0.0541	0.0468	0.3891	−0.1722
	(3.86)***	(1.49)	(2.68)***	(−2.11)**	(1.68)*	(1.83)*	(4.02)***	(−1.04)
Difference in coefficients on *CDS_TRADE* for the two groups	−0.0489 (−2.77)***		−0.0318 (−5.38)***		−0.0073 (−0.26)		−0.5613 (3.07)***	
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	64,814	18,091	64,814	18,091	44,349	15,022	15,442	3,067
R−squared	0.029	0.012	0.002	0.003	0.166	0.344	0.232	0.269

This table reports the effect of CDS trading upon board independence and earnings attributes, after dividing the sample into those do (EF) and do not (No EF) provide earnings forecasts. All variables are defined in the Appendix. Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

TABLE 7
Lender Identity Analysis

Panel A: Board Independence

Dep. Variable =	***BD_INDEP***		***Duality***	
	Hedged Risks More Likely	Hedged Risks Less Likely	Hedged Risks More Likely	Hedged Risks Less Likely
CDS_TRADE	0.0258	0.0045	0.0273	0.2330
	(2.18)**	(0.81)	(0.13)	(0.95)
Difference in coefficients on *CDS_TRADE* for the two groups	0.0213		−0.2057	
	(1.76)*		(−0.82)	
Firm-level controls	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	5,057	5,339	5,057	5,339
R-squared / pseudo *R*-squared	0.265	0.275	0.138	0.084

Table 7 Continued.

Panel B: ***Earnings quality***

Dep. Variable =	***ERC***		***RSQ***		***DDAQ***		***ABVOL***	
	Hedged Risks More Likely	Hedged Risks Less Likely	Hedged Risks More Likely	Hedged Risks Less Likely	Hedged Risks More Likely	Hedged Risks Less Likely	Hedged Risks More Likely	Hedged Risks Less Likely
CDS_TRADE	0.0351	0.0195	0.0160	−0.0033	0.0534	0.0260	0.3417	−0.1000
	(3.13)***	(2.35)**	(1.83)*	(−0.32)	(7.26)***	(1.50)*	(1.97)*	(−0.61)
Difference in coefficients on *CDS_TRADE* for the two groups	0.0156		0.0193		0.0274		0.4417	
	(1.83)*		(1.86)*		(1.87)*		(1.98)**	
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,097	14,221	15,097	14,221	10,253	9,421	2,660	2,835
R−squared	0.023	0.054	0.005	0.006	0.198	0.307	0.312	0.215

This table reports the effect of credit default swap (CDS) trading upon board independence and earnings quality. We identify lenders to CDS firms and non-CDS firms in our sample using the Dealscan database, and we collect the risk-weighted net assets on banks' assets from the Federal Reserve Y-9C reports. We identify lenders that increased their percentage of total risk-weighted assets in the same year of CDS initiation. We infer that those lenders likely hedged their risk to the specific borrower through CDS contracts. We categorize the sample into two subgroups: firm-year observations with lenders that increase risk-weighted net assets and those that decrease risk-weighted net assets. All variables are defined in the Appendix. Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

TABLE 8

Conditioning on default risk

Panel A: Board Independence

Dep. Variable =	***BD_INDEP***		***Duality***	
Variable	Lower Default Risk	Higher Default Risk	Lower Default Risk	Higher Default Risk
CDS_TRADE	0.0259	0.0480	-0.3705	-0.0208
	(3.45)***	(4.82)***	(-1.83)*	(-0.10)
Difference in coefficients on *CDS_TRADE* for the two groups	0.0221		0.3497	
	(1.96)**		(1.58)	
Firm Level Controls	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	8,898	8,898	8,898	8,898
R-squared / pseudo *R*-squared	0.178	0.194	0.103	0.072

Table 8 Continued.

Panel B: ***Earnings quality***

Dep. Variable =	***ERC***		***RSQ***		***DDAQ***		***ABVOL***	
	Lower Default Risk	Higher Default Risk	Lower Default Risk	Higher Default Risk	Lower Default Risk	Higher Default Risk	Lower Default Risk	Higher Default Risk
CDS_TRADE	0.0134	0.1086	0.0094	0.0043	0.0469	0.0523	-0.0904	0.3299
	(1.01)	(3.76)***	(1.21)	(0.62)	(4.45)***	(6.45)***	(-0.78)	(3.08)***
Difference in coefficients on *CDS_TRADE* for the two groups	0.0952		-0.0051		0.0054		0.4203	
	(3.24)***		(-0.54)		(0.45)		(3.22)***	
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	43,740	43,740	43,740	43,740	29,391	29,390	8,362	8,229
R−squared	0.011	0.033	0.002	0.005	0.391	0.274	0.141	0.263

This table reports the effect of CDS trading upon board independence and earnings attributes, after dividing the sample based on default risk (modified Z-Score), measured by 1.2 × working capital + 1.4 × retained earnings + 3.3 × EBIT + 0.999 × sales / total assets. All other variables are defined in the Appendix. Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

TABLE 9
Conditioning on the Covenant Intensity

Panel A: Board Independence

Dep. Variable =	***BD_INDEP***		***Duality***	
	Fewer Financial Covenants	More Financial Covenants	Fewer Financial Covenants	More Financial Covenants
CDS_TRADE	0.0418	0.0275	-0.5057	0.1984
	(5.22)***	(3.22)***	(-2.19)**	(0.75)
Difference in coefficients on *CDS_TRADE* for the two groups	0.0143		−0.7041	
	(1.76)*		(−2.70)***	
Firm Level Controls	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	4,077	2,932	4,077	2,932
R-squared / pseudo *R*-squared	0.232	0.221	0.1311	0.0855

Table 9 Continued.

Panel B: ***Earnings quality***

Dep. Variable =	***ERC***		***RSQ***		***DDAQ***		***ABVOL***	
	Fewer Financial Covenants	More Financial Covenants	Fewer Financial Covenants	More Financial Covenants	Fewer Financial Covenants	More Financial Covenants	Fewer Financial Covenants	More Financial Covenants
CDS_TRADE	0.0410	0.0228	0.0224	-0.0066	0.0409	0.0230	0.1136	0.2284
	(3.52)***	(7.98)***	(2.67)***	(-0.39)	(4.56)***	(2.90)***	(0.44)	(1.54)
Difference in coefficients on *CDS_TRADE* for the two groups	0.0182		0.029		0.0179		−0.1148	
	(2.10)**		(2.91)***		(2.01)**		(−0.45)	
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,488	10,543	11,488	10,543	9,530	7,198	1,917	1,753
R−squared	0.021	0.051	0.007	0.008	0.237	0.416	0.268	0.270

This table reports the effect of CDS trading upon board independence and earnings attributes, after dividing the sample based on the sample median of the number of loan financial covenant (Fewer Financial Covenants and More Financial Covenants groups). The information on the total number of financial covenants included in borrower's loan package is obtained from Deal Scan database. All variables are defined in the Appendix. Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

TABLE 10
Conditioning on Loan Syndication

Panel A: Board Independence

Dep. Variable =	***BD_INDEP***	***BD_INDEP***	***Duality***	***Duality***
Variable	Syndicated	Solo Lender	Syndicated	Solo Lender
CDS_TRADE	0.0380	0.0232	-0.2872	-1.0481
	(5.36)***	(1.27)	(-1.90)*	(-0.71)
Difference in coefficients on *CDS_TRADE* for the two groups	0.0148 (1.97)**		0.7609 (0.72)	
Firm Level Controls	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	21,260	147	21,260	138
R-squared / pseudo *R*-squared	0.176	0.300	0.087	0.265

Panel B: *Earnings quality*

Dep. Variable =	***ERC***		***RSQ***		***DDAQ***		***ABVOL***	
	Syndicated	Solo Lender	Syndicated	Solo Lender	Syndicated	Solo Lender	Syndicated	Solo Lender
CDS_TRADE	0.0645	-0.0258	0.0090	-0.0264	0.0441	0.0097	0.1929	0.1596
	(5.36)***	(-0.35)	(3.18)***	(-1.17)	(2.24)**	(0.15)	(1.77)*	(1.18)
Difference in coefficients on *CDS_TRADE* for the two groups	0.0903 (3.23)***		0.0354 (2.00)**		−0.0344 (−2.14)**		−0.0333 (−0.51)	
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	100,515	3,277	100,515	3,277	62,274	2,529	17,732	2,893
R−squared	0.026	0.033	0.002	0.015	0.316	0.260	0.244	0.287

This table reports the effect of CDS trading upon board independence and earnings attributes, conditioning on the existence of the syndicated loan. The information on the syndicated loan versus sole lender loan is obtained from Deal Scan database. All variables are defined in the Appendix. Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

TABLE 11
Dedicated Institutional Investor Analysis

Panel A: Board Independence

Dep. Variable =	***BD_INDEP***		***Duality***	
	Transient Institutional Investors	Dedicated Institutional Investors	Transient Institutional Investors	Dedicated Institutional Investors
CDS_TRADE	0.0341	0.0438	−0.2615	−0.1892
	(4.35)***	(4.33)***	(−1.92)*	(−1.61)
Difference in coefficients on *CDS_TRADE* for the two groups	−0.0097		−0.0723	
	(−0.87)		(−0.63)	
Firm-level controls	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	10,703	10,704	10,703	10,704
R-squared / pseudo *R*-squared	0.185	0.167	0.0671	0.1076

Table 11 Continued.

Panel B: ***Earnings quality***

Dep. Variable =	***ERC***		***RSQ***		***DDAQ***		***ABVOL***	
	Transient Institutional Investors	Dedicated Institutional Investors	Transient Institutional Investors	Dedicated Institutional Investors	Transient Institutional Investors	Dedicated Institutional Investors	Transient Institutional Investors	Dedicated Institutional Investors
CDS_TRADE	0.0178	0.0982	0.0118	0.0075	0.0428	0.0534	−0.2523	0.3089
	(0.99)	(6.51)***	(1.73)*	(1.84)*	(4.52)***	(5.71)***	(−0.98)	(1.97)**
Difference in coefficients on *CDS_TRADE* for the two groups	0.0804		−0.0043		0.0106		0.5612	
	(3.55)***		(−0.62)		1.14		(2.81)***	
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,896	51,896	51,896	51,896	32,402	32,401	9,083	9,426
R−squared	0.024	0.027	0.003	0.003	0.376	0.284	0.083	0.242

This table reports the effect of credit default swap (CDS) trading upon board independence and earnings quality, conditional on the number of dedicated institutional investors. We identify lenders to CDS firms and non-CDS firms in our sample using the Dealscan database, and we collect the risk-weighted net assets on banks' assets from the Federal Reserve Y-9C reports. We identify lenders that increased their percentage of total risk-weighted assets in the same year of CDS initiation. We infer that those lenders likely hedged their risk to the specific borrower through CDS contracts. We categorize the sample into two subgroups: firm-year observations with lenders that increase risk-weighted net assets and those that decrease risk-weighted net assets. All variables are defined in the Appendix. Year and industry fixed effects are included. *t*-statistics based on robust standard errors clustered by year and industry are in parentheses. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed in control variables and one-tailed when discussing the results of hypothesis tests with predicted signs of coefficient estimates.

Table 12
Two-Stage Instrumental Variable Approach

Panel A: Board Independence

	First Stage	Second Stage	Second Stage
Variable	***CDS_TRADE***	***BD_INDEP***	***Duality***
CDS_TRADE		0.4604	0.1230
		(4.23)***	(0.44)
Industry Peers' Bond Trading Volume	−0.0356		
	(−9.78)***		
Investment Grade/Speculative Grade Frontier	0.3482		
	(33.12)***		
CDS_FIRM	0.8232	−0.3108	−0.0563
	(228.34)***	(−4.08)***	(−0.28)
LNAT	−0.0322	0.0013	0.0444
	(−17.64)***	(0.58)	(7.37)***
LEV	−0.0583	0.0038	−0.0228
	(−7.29)***	(0.48)	(−1.10)
TOBINQ	−0.0057	−0.0027	0.0062
	(−4.01)***	(−1.81)*	(1.60)
RDEXP	0.0642	0.1151	−0.5426
	(1.96)**	(3.31)***	(−6.02)***
CASHSIZE	−0.0067	0.0019	0.0070
	(−0.68)	(0.18)	(0.26)
ROA	−0.0309	−0.0199	0.0475
	(−2.26)**	(−1.44)	(1.32)
HHI	0.0531	−0.1034	−0.1609
	(2.30)**	(−3.64)***	(−2.18)**
LNAGE	−0.0199	0.0168	0.0396
	(−8.43)***	(6.38)***	(5.80)***
STRETVOL	−0.0004	0.0006	0.0042
	(−1.30)	(1.66)*	(4.80)***
Partial *F*-statistics		F = 1504.74 (p < 0.0001)	
Weak identification test		Cragg−Donald Wald F = 28.20	
		Stock-Yogo C.V.: 10% Max IV size 16.38	
		Stock-Yogo C.V.: 15% Max IV size 8.96	
Under-identification test		Chi^2 = 56.51 (p < 0.0001)	
Endogeneity test		Chi^2 = 21.27	Chi^2 = 0.44
		(p < 0.0001)	(p = 0.50)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	20,760	20,760	20,760
R-squared / pseudo *R*-squared	0.878	0.133	0.104

Table 12 Continued.

Panel B: *ERC* and *RSQ* as Dependent Variables

Variable	*ERC*	*RSQ*
CDS_TRADE	0.7976	0.0709
	(11.98)***	(3.18)***
CDS_FIRM	−0.3724	−0.0349
	(−11.25)***	(−3.15)***
LNAT	−0.0671	−0.0059
	(−33.27)***	(−8.76)***
ROA	0.2481	0.0101
	(10.93)***	(1.33)
LEV	−0.0648	0.0079
	(−3.65)***	(1.33)
MTB	0.0024	−0.0003
	(2.55)**	(−0.90)
SALESVOL	−0.0730	−0.0062
	(−3.79)***	(−0.95)
CFVOL	−0.2985	0.0012
	(−5.94)***	(0.07)
LOSS%	−0.2329	0.0048
	(−18.57)***	(1.14)
D_Salesgrowth	0.0152	0.0013
	(2.29)**	(0.60)
ABRET	0.0005	−0.0001
	(1.95)*	(−1.57)
Partial *F*-statistics	F = 1386.03 ($p < 0.0001$)	
Weak identification test	Cragg-Donald Wald F = 3843.47	
	Stock-Yogo C.V.: 10% Max IV size 16.38	
	Stock-Yogo C.V.: 15% Max IV size 8.96	
Under-identification test	Chi^2 = 7693.69 ($p < 0.0001$)	
Endogeneity test	Chi^2 = 131.50 ($p < 0.0001$)	Chi^2 = 8.10 ($p < 0.01$)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	103,792	103,792
R-squared	0.009	0.002

Table 12 Continued.

Panel C: Second-Stage Model, with *DDAQ* as Dependent Variable

Variable	***DDAQ***
CDS_TRADE	0.0748
	(5.50)***
CDS_FIRM	−0.0276
	(−4.72)***
LNAT	0.0050
	(14.62)***
ROA	−0.0314
	(−8.75)***
LEV	−0.0025
	(−0.84)
MTB	−0.0002
	(−0.99)
SALESVOL	−0.0323
	(−10.37)***
CFVOL	−0.3355
	(−40.33)***
LOSS%	−0.0129
	(−6.16)***
D_Salesgrowth	−0.0030
	(−2.73)***
ABRET	0.0001
	(3.48)***
Partial *F*-statistics	F = 766.53 ($p < 0.0001$)
Weak identification test	Cragg-Donald Wald F = 1808.19
	Stock-Yogo C.V.: 10% Max IV size 16.38
	Stock-Yogo C.V.: 15% Max IV size 8.96
Under-identification test	Chi^2 = 3620.82 ($p < 0.0001$)
Endogeneity test	Chi^2 = 7.12 ($p < 0.01$)
Industry fixed effects	Yes
Year fixed effects	Yes
Observations	65,250
R-squared	0.389

Table 12 Continued.

Panel D: Second-Stage Model, with *ABVOL* as Dependent Variable

Variable	*ABVOL*
CDS_TRADE	0.9564
	(3.54)***
CDS_FIRM	−0.3041
	(−2.54)**
ABSLNRET	9.6385
	(60.93)***
LNPRC	0.1526
	(8.17)***
LNMKV	0.0381
	(3.62)***
ROA	0.9292
	(10.51)***
LEV	−0.0468
	(−0.64)
MTB	−0.0017
	(−0.40)
D_Salesgrowth	0.0643
	(2.22)**
Partial *F*-statistics	F = 368.96 ($p < 0.0001$)
Weak identification test	Cragg-Donald Wald F = 872.88
	Stock-Yogo C.V.: 10% Max IV size 16.38
	Stock-Yogo C.V.: 15% Max IV size 8.96
Under-identification test	$Chi^2 = 1750.76$ ($p < 0.0001$)
Endogeneity test	$Chi^2 = 7.19$ ($p < 0.01$)
Industry fixed effects	Yes
Year fixed effects	Yes
Observations	18,509
R-squared	0.240

This table reports results on the effect of credit default swap (CDS) inception upon board independence and earnings quality using a two-stage least squares approach. Panel A reports results of the first stage with dependent variable *CDS_TRADE* and the second stage with dependent variables *BD_INDEP* and *Duality*. Panel B reports results of the second-stage model with dependent variables *ERC* and *RSQ*; Panel C, *DDAQ*; and Panel D, *ABVOL*. All variables are defined in the Appendix. *t*-statistics in parentheses are based on robust standard errors clustered by industry and year. ***, **, and * represent significance at the 1%, 5%, and 10% level, respectively.