A Test of Classic Mechanisms Used to Mitigate Manager-Shareholder Agency Conflicts

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ABSTRACT: We examine shareholder reactions to a unique credit market event that increases the divergence between managers' and shareholders' interests. Managers' freedom to enhance the value of call options held by shareholders increases following that event, but doing so aggravates managers' personal cost-benefit tradeoffs. We investigate ensuing changes in classic mechanisms that external shareholders use to protect their interests. We find an increase in the independence of the board of directors and a decline in the dual position of chief executive officer and board chairman. We also find higher earnings response coefficient, greater trading volumes on earnings announcement dates, lower post–earnings announcement drift, and increases in Google search frequencies for the firm. These results point to shareholders' heightened attention to financial reports and improved corporate governance following the credit market event that exacerbates manager-shareholder agency conflicts. Our paper demonstrates that shareholders continue to consider corporate governance and financial reporting as valid instruments to protect their interests, despite the suggestions in recent literature that those instruments have become largely ineffective. At a broader level, our paper supports the existence of institutions, that promote corporate governance and assure financial reporting, as both are raison-d'etre for public corporations.

JEL Classifications: G32, G33; M41; M48

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I. INTRODUCTION

Theory suggests that financial reporting and corporate governance via the board of directors are essential mechanisms for mitigating the conflicts between managers and external shareholders, and therefore, for the existence of modern public corporations. Recent literature, however, questions the usefulness of these instruments in protecting shareholder interests and argues that these instruments have become largely ineffective (for example, Lev and Sougiannis, 1996; Hirshleifer and Teoh, 2003; Bebcuck, 2009; Lev and Gu, 2016; Lynch, 2017). We examine a unique credit-market event that exacerbates manager-shareholder agency conflicts, because that event increases the divergence between the interests of the two parties. Following that event, we find an increase in board independence, decline in CEO-chairman duality, significant improvements in financial reporting quality, and heightened shareholder attention to financial reports. Our results indicate that shareholders continue to consider corporate governance and financial reporting as valid mechanisms for protecting their interests, despite a rising concern that the efficacy of those mechanisms is largely eroded. At a higher level, our paper demonstrates the necessity of those mechanisms, as well as institutions supporting them.

Among many reasons, agency conflicts arise because of differences in the risk preferences of professional managers and well-diversified shareholders (Jensen and Meckling 1976). Shareholders benefit when the firm value exceeds the face value of debt, but they face limited liability on the downside. Asset volatility, therefore, can increase shareholder wealth at the cost of lender wealth, even without a change in firm value (Merton 1974). However, managers shun asset volatility because their human capital and firm-related portfolio investments are highly concentrated in firm value. Extreme left-tail events, caused by failures of the firm or its risky investments, incur more severe costs on managers than on shareholders (Eckbo, Thorburn, and

Wang 2016). The ensuing difference in risk preference between managers and shareholders is a principal source of agency conflict (Jensen and Mecklin, 1976).

Managers' inclination therefore is to take actions that protect their interests, those that could be inconsistent with shareholder's interests. In the absence of appropriate incentives and oversight, managers could opt for safe choices such as low financial and operating leverage, low dividends payouts, and loans with short maturity. They would pursue projects with low but certain payoffs while avoiding those with high but uncertain payoffs. They would diversify business segments, suppliers, and customers, even when doing so lowers firm value. In addition, managers could avoid defaulting stratgeigically on the firm's debt obligations that enable the firm to renegotiate loans and obtain more favorable loan terms, because such defaults would also increase the foreclosure risk, and consequently, increase the job-loss risk (Hart and Moore 1994).

Shareholders use several active and passive methods when their interests conflict with those of managers. Active methods include corporate governance mechanisms such as the appointment of their representatives on the board of directors. Passive mechanisms include reading financial reports and scrutinizing financial disclosures, and having a say in the appointment, firing, and pay of CEOs. Recent occurrences and literature, however, question whether those mechanisms work. Shareholders increasingly opt for equity that offer inferior or zero voting rights, indicating that voting rights serve little or no purpose (Govindarajan and Srivastava 2018).[1] Studies argue that the relevance of financial reports has declined (e.g., Lev and Sougiannis, 1996; Lev and Gu, 2016) and that shareholders do not pay attention to financial reports (e.g., Hirshleifer and Teoh, 2003). Loughran and McDonald (2017) find that a surprisingly low number of investors access the annual financial reports from EDGAR database at the time of their initial filing: an average of just

[1] For example, megacap companies such as Alphabet (Google), Facebook, Alibaba, and Netflix.

28.4 and a median of just nine. They conclude that investors generally no longer perform fundamental research based on financial statement analysis. Other studies claim that entrenched CEOs appoint the board of directors who support management instead of protecting shareholder interests (e.g., Bebcuck, 2009).

It is, however, not easy to test whether shareholders still consider the classic mechanisms as effective instruments for protecting their interests. This question is difficult to examine because the quality and relevance of financial reports and corporate governance mechanisms are endogenously related to firm characteristics as well as to manager-shareholder conflicts. We investigate this question by exploiting a unique setting of an event that exacerbates the manager-shareholder conflict but is beyond the control of managers and shareholders: the onset of trading of credit default swap (CDS). CDS trading is typically initated by a third party. Yet, it offers lenders an opportunity to buy insurance against the risk of adverse credit events.

After buying CDS insurance, the lenders retain the legal rights attached to the loan but have reduced economic interest left in borrower's affairs. The resulting divergence between the lender's legal rights and cash flow exposure engenders an "empty" lender (Bolton and Oehmke 2011; Subrahmanyam, Tang, and Wang 2014), which increases manager-shareholder conflicts. The empty lender reduces its monitoring over lender affairs, because the monitoring is costly and the adverse credit consequences of reduced monitoring are at least partly covered by CDS insurance.[2] This reduced lender monitoring permits borrower to pursue actions that benefit shareholders, those that were previously constrained by the lender monitoring. For example, borrowers can increase

[2] After obtaining credit insurance, lenders reduce restrictive covenants (Shan, Tang, and Winton 2015) and loosen investment constraints upon the (Chakraborty, Chava, and Ganduri 2015).

asset volatility and pay large dividends.[3] However, with little skin left in the game, the lender can forestall a loan renegotiations when the lender faces temporary financial distress and could even enforce inefficient bankruptcy in anticipation of a handsome CDS settlement (Subrahmanyam et al. 2014).[4] Managers thus face a heightened foreclosure threat and reduced lenders' support in tough times. Borrower's bankruptcy risk, therefore, increases after the lender obtains credit insurance (Subrahmanyam, Tang, and Wang 2014). Antipating enhanced bankruptcy likelihood, risk-averse managers take actions that could harm shareholder interest, such as to reduce asset volatility and dividend payouts, despite getting an enhanced opportunity to benefit shareholders. CDS inception thus increases the divergence between manager-shareholder interests.

If corporate governance and financial reporting are effective mechanisms in mitigating agency conflicts, then shareholders must react to CDS inception in two ways. First, they should demand stronger and more shareholder-oriented corporate governance to protect their interests (Berle and Means 1932). Second, they should pay greater attention to the firm's financial performance and seek improved financial reporting quality to take timelier investment and divestment decisions (Ball 2001).

We first examine changes in the structure of the board of directors following 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 concerning the corporation's significant actions and transactions (Berle and Means 1932). If independent directors are more likely to protect

[3] Lenders face substantial downside risk if the firm's net asset value falls below the face value of debt, but Therefore, lenders monitor borrowers' activities to ensure that they do not undertake activities that enhance risks (e.g., Jensen and Meckling, 1976).

[4] See Holmstrom and Tirole (1997), Sufi (2007), Hu and Black (2008), Bolton and Oehmke (2011), Arentsen, Mauer, Rosenlund, Zhang, and Zhao (2015), Chakraborty, Chava, and Ganduri (2015), Martin and Roychowdhury (2015), and Amiram, Beaver, Landsman, and Zhao (2017).

shareholder interests than do employee directors, shareholders must respond to increased agency conflicts by appointing more independent directors to the board (Gordon 2007).[5] So, we hypothesize that the 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 the separation of CEO and chairman positions more than before. We find results consistent with our expectations. Unsing a difference-in-difference approach with respect to firms that did not have their CDS trade, we find that CDS inception is followed by increase in board independence and CEO-Chairman duality.

We also hypothesize that post–CDS inception, outside shareholders would demand higher quality financial reports (those that more accurately reflect the underlying firm performance in the current period), and would pay greater attention to financial reports. We test our earnings quality and earnings attention hypothesis by examining changes in shareholder reaction to the firm's earnings announcements after the onset of its CDS trading. 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 investors underreact less to value-relevant information contained in earnings, post CDS (e.g., Hirshleifer, Lim, and Teoh 2009). In addition, the estimation errors of working capital accruals decline, indicating improved financial reporting quality (Dechow and Dichev 2002).

We corroborate our governance and financial reporting quality results by using a more

[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).

direct measure of shareholder attention, that is, Google's Search Volume Index (SVI).[6] Da, Engelberg and Gao (2011) establish that SVI a more timely measure of retail investors' attention as it leads other measures such as abnormal stock returns and trading volumes. Using handcollected data, we find that SVI increases after the inception of CDS trading, consistent with heightened shareholder attention following the inception of CDS trading attracting.

Kim et al. (2017) show that shareholders demand and managers respond to CDS inception by providing more frequent earnings guidance following the onset of CDS trading. We extend Kim et al. (2017) by finding stronger results for firms that do not provide earnings guidance. Voluntary disclosures such as earnings guidance are complementary to mandataory financial reports (Ball, Jayaraman and Shivakumar 2012). Thus, our focus on mandatory reports following CDS inception complements Kim et al (2017) who focus us voluntary disclosures.

Our finding of improved financial reporting quality post–CDS inception ostensibly runs contrary to Martin and Roychowdhuy (2015), who find a decline in accounting conservatism post–CDS inception. Their finding is explained by the reduced post-CDS interest in firm affairs from empty lenders, who demand high conservatism in financial reports pre–CDS, but do less so post-CDS (LaFond and Watts 2008). The contrasting shifts in proxies of financial reporting quality, that is, the post–CDS decline in accounting conservatism but an improvement in value relevance and accrual quality, can be explained by the notion that financial statements support a wide range of decisions for different stakeholders (Ball 2001; Holthausen and Watts 2001; Dechow, Ge, and Schrand 2010). Our results indicate that CDS inception is followed by shifts in attributes of financial reporting systems toward the demands of shareholders and away from the demands of lenders, reflecting their heightened and diminished interests in firm affairs, respectively.

[6] Obtained from http://www.google.com/trends.

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 the proxies of corporate governance and earnings quality. We address the potential endogeneity problem related to CDS inception, particularly the 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; Kim et al. 2017).

Our study is built on the idea that lender monitoring declines after the onset of CDS trading. However, we don't observe either the lender's purchase of CDS contracts or the subsequent reduction in lender monitoring. However, we can identify certain CDS settings in which lenders likely purchased CDS contracts as well as reduced their monitoring after the onset of CDS trading. We should find stronger results in those settings. One such proxy is the share of loans that the lead arranger retains post CDS inception. Lead arrangers with larger loan retention suffer less from moral hazard and likely to continue monitoring the borrower (Sufi 2007; Ivashina 2009). However, a lead arranger with small loan share is more likely to reduce the rigor and efficiency of monitoring.[7] We find stronger results for the subsample of borrowers associated with low lead-share lenders. Thus, results are stronger in settings where the banks likely reduced their monitoring post CDS inception. In addition, we use a Heckman two-stage procedure to control for selection bias (Martin and Roychowdhury 2015).

Our paper contributes to the agency-conflict literature. Our results support the idea that financial reporting quality and corporate governance remain two potent mechanisms by which

[7] Amiram et al. (2017) demonstrate that loan syndicate participants demand that the lead arranger retain a high loan share to lower the chance that it reduces its monitoring after CDS inception

outside shareholders protect their interests. Thus, there should not be any let down in support and promotion of those mechanisms, without which, the idea of public corporations would cease to exist. Our results thus support the existence of institutions such as the Securities and Exchange Commission (SEC), Financial Accounting Standards Board (FASB), Public Company Accounting Oversight Board (PCAOB), mandatory auditing, and Institutional Shareholder Services (ISS), that oversee and implement policies related to financial reporting and corporate governance. These institutions impose costs on taxpayers, market operators, and public corporations. For example, the 2019 budgets for the SEC, FASB, and PCAOB for the 2019 fiscal year were $1,658, 40 million, and 285 million, respectively.[8] Some argue that their existence impose budgetary burden while others argue that their budgets have not kept up with the needs of the times.[9] In addition, external financial reporting and auditing requires costs, which are increasingly being questioned.[10] While we do not conduct a cost-benefit analysis of these budgets and costs, our paper demonstrates that these institutions remain raison-d'etre for the existence of public corporations.

In addition, we identify a specific event that contrastingly affects the proxies of earnings quality. We find that the proxies of earnings quality change in a direction consistent with shareholders' interest, but decline from the lenders' perspective (Martin and Rowchowdhury 2015). We thus support the assertion in Dechow et al. (2010) that all proxies of earnings quality

[8] See https://www.appropriations.senate.gov/imo/media/doc/FSGG.pdf, https://www.accountingfoundation.org/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobheadername1=Content-Disposition&blobheadername2=Content-Length&blobheadervalue1=filename%3D2019_Approved_Budget_Summary.pdf&blobheadervalue2=608349&blobkey=id&blobnocache=true&blobtable=MungoBlobs&blobwhere=1175835989185&ssbinary=true, and https://www.sec.gov/news/press-release/2019-266

[9] See, for example: https://thehill.com/opinion/finance/438651-the-secs-budget-shows-just-how-outgunned-it-is

[10] Hester Peirce, the SEC commissioner, stated: "If an investor in a small biotech company had the option of having her money go to an audit of internal controls or the hiring of another scientist, what would she choose?" (Michaels, 2019)

need not be in sync with each other and that they could even move in opposite directions, depending on the shifts in demands on attributes of financial reporting from 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 motivate hypotheses.

The Credit Market Event and Manager-Shareholder Conflicts

We exploit the introduction of credit insurance in the form of CDS contracts as a new setting to examine manager-shareholder conflicts. CDS contracts were initially introduced to hedge the credit risk of bank loans and were largely private contracts. 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. Their market increased thereafter. 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 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 debt covenant. 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). The introduction of CDS contracts create "empty" lenders following the separation of control rights and cash-flow rights.

The creation of "empty" lenders can affect shareholder interest in two opposite ways. First, the lender would reduce its costly monitoring and vigilance efforts over borrower activities (Bolton and Oehmke 2011). Furthermore, such efforts would be spread over more clients, because the change of the counterparty risk from the borrower to a more creditworthy CDS writer reduces the lender's regulatory capital requirements and allows the lender to expand its loan portfolio and lower its monitoring effort per borrower (Shan, Tang, and Winton 2014). Prior studies find evidence consistent with lower monitoring and covenant enforcement post CDS. For example, lenders reduce restrictive covenants based on the lender's net worth (Shan, Tang, and Winton 2015), loosen investment constraints upon the violation of covenants (Chakraborty, Chava, and Ganduri 2015), and reduce their demand for conservative reporting (Martin and Roychowdhury 2015). Such a dilution in lender vigilance post-CDS should permit managers to act more freely in shareholder interests. Managers can, for example, change the investment policies to enhance asset volatility and enhance dividends and share buybacks. Stated differently, CDS inception creates an opportunity for managers to increase shareholder wealth at the cost of lender wealth.

Second, while lenders continue to have the legal rights attached to the lending arrangement, they now have reduced interest in the efficient continuation of the borrower (Hu and Black, 2008; Bolton and Oehmke, 2011). This "empty" lender may refuse to renegotiate with, and to accommodate the needs of, a financially distressed client (Subrahmanyam, Tang, and Wang, 2014; Danis, 2016). It could even push the borrower into a credit default, inefficient bankruptcy, or

liquidation to collect a more handsome insurance payment. Lenders' intransigence post CDS would negatively impact on managers' monetary capital and human capital that are disproportionately invested in their firms (Aggarwal and Samwick 1999), unlike diversified shareholders. Corporate failure resulting from a credit default event thus more adversely impacts managers than diversified shareholders, by increasing the likelihood of forced termination, loss of labor market capital, and devaluation of firm-specific investments (Eckbo et al. 2016). Even for managers that hold stock and stock options, that normally encourage managers to take risks (Guay 1999), managers' risk aversion remains higher than shareholders. Managers can neither sell their stock options nor easily hedge the decline in value of their stock and option holdings. Therefore, managers shun stock price volatility more than diversified shareholders (Pratt 1964; Arrow 1965; Carpenter 2000).

Given increased lender intransingence post-CDS, risk-averse managers would tend to avoid investments that increase the volatility of firm value, and would instead, pursue policies such as lower financial and operating leverage, diversify business segments, supplier, and customer base, and reduce innovations. They might also preserve cash by cutting dividends and buybacks and reduce investments in positive net present value projects. They would less frequently undertake strategic debt default, which enables a firm to obtain more favorable loan terms, because lenders are expected to act tougher after having insures their loans. Stated differently, managers could take actions post CDS that both reduce firm value and lower asset volatility, which could be contrary to shareholder interests.

In sum, undiversified managers might take actions that lower shareholder value despite having the enhanced opportunity to improve shareholder value post CDS. CDS inception would thus increase manager-shareholder conflicts. As a result, external investors' interests would be

better served by taking a greater interest in firm affairs post–CDS inception and by 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—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 impacts turnover of poorly performing CEOs (e.g., Weisbach 1988), executive compensation decisions (e.g., Core et al. 1999; Chhaochharia and Grinstein 2009), the incidence of fraud (e.g., Beasley 1996; Dechow et al. 1996; Beasley et al. 2000), and the opportunistic timing of stock option grants (e.g., Bebchuk, Cohen, and Ferrell 2008). Hence, shareholders respond to adverse events by electing 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). Kroszner and Strahan (2001) and Güner, Malmendier, and Tate (2008) find evidence of conflicts of interest between board directors appointed by creditors and shareholders. Ferreira, Ferreira, and Mariano (2017) find an increase in bankers' representation on corporate boards following financial covenant violations in credit agreements. 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 a board of directors towards shareholder interest, all else held equal.

We, therefore, present H1.

H1: *Board independence increases and CEO-chairman declines 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, post–CDS. 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 of decision usefulness of earnings improve, following the onset of CDS trading*.

We test H2 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), PEAD (Hirshleifer et al. 2009), and Google search volume (Da et al. 2011)). In addition, we examine estimation errors in working capital accruals (Dechow and Dichev 2002). The empirical proxies we examine are also considered the measures of financial reporting quality, but largely from the shareholder perspective.[11]

Managers' voluntary disclosures, by way of earning guidance, typically preempt financial reports. Thus, we expect greater changes in the mandated financial report for firms that do not provide voluntary earnings guidance.

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 from 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

[11] 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 based on the multiple facets and uses of financial reports.

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 five 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*), (4) post–earnings announcement drift (*PEAD*); and (5) abnormal search volume index (*ASVI*). The first three proxies of shareholder attentiveness are also considered in the literature as measures of earnings quality. In addition, we examine accrual quality (*DDAQ*) as another measure of earnings quality. The last proxy is a more direct measure of shareholder attention developed by Da et al. (2017). Thus, we have three proxies of earnings quality and five proxies for 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:

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

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 inverse 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 evaluating the firm's current performance and for predicting future cash flows. Nevertheless, the recording of accruals requires estimates about future cash flows, invariably resulting in 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

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

All of the variables are scaled by beginning of year total assets.[12] Equation (2) is estimated cross-sectionally for each industry with at least 20 observations in a given year based on the Fama

[12] Δ*WC* 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). Δ*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.

and French (1997) 48 industry classification. We drop the observations for the CDS initiation year and the next year, because their measurement includes the past two years' values, and including those years' observations would necessitate 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 or the information in earnings does not update the investors' expectatiod of future casg flows and risks, then the 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 the current-period 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).

We expect that such a neglect should decrease because of investors' heightened interest in, and greater 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.

We employ a direct proxy for investor attention, that is, search frequency in Google (Search Volume Index (SVI)). SVI captures the attention of investor, particularly retail investors, in a more timely manner than other measures such a abnormal stock returns and trading volumes (Da et al. 2011). SVI is known to be a strong predictor of home sales, automotive sales, and tourism (Choi and Varian 2009), flu outbreaks (Ginsberg et al. 2009) and asset pricing (Da et al. 2011). Google makes the Search Volume Index data public via the product Google Trends (http://www.google.com/trends). These data are available from January 2004. We calculate

Abnormal Search Volume Index (*ASVI*) by subtracting the average weekly SVI over the one year before the earnings announcement from the SVI in the earnings annoucement, scaled by the average SVI over the past one year.

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 average ASVI is 0.0421, indicating that Google's weekly search volume increases in the earnings announcement week by 4.21%. The positive average value of *SUE* indicates that firms beat analyst expecations, 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). 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 over 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 last 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 six variables: *ERC, R_Square, DDAQ, ABVOL, PEAD,* or *ASVI.* 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* as the dependent variable; the last two columns, with *RSQ* 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). 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 of Table 5 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 0.044, 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 first column of Panel B of Table 5 reports results with *ABVOL* as the dependent variable. The coefficient on *CDS_TRADE* is significantly positive (0.2649, with *p*-value < 0.05), showing an increase in trading volume following the onset of CDS trading. This represents about 25% increase over the mean of 1.0224. The second column shows results with *ASVI* as the dependent variable. The coefficient on *CDS_TRADE* is positive (0.0372) and significant (with *p*-value < 0.05). These results based on both direct and indirect measures of shareholder attention are consistent with H1, positing that shareholder attention increases after CDS inception, 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 C and D of Table 5. Panel C presents the univariate analysis results, based on the firms only in the top and bottom tertiles. It 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 D 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 E 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.

Cross-Sectional Analysis 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). Furthermore, earnings are used for managerial contracting and stewardship purposes (Holthausen and Watts 2001). Nevertheless, voluntary earnings guidance could preempt mandatory earnings reports (Kim and Verrecchia 1997; Cheynel and Levine 2015).) We expect a post–CDS demand for improvement in corporate governance and financial reporting quality 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 subgroups—firm-year observations with earnings forecasts (EF) and without earnings forecasts (No EF). We then separately estimate Eqs. (4) and (5) for those two subgroups and test the statistical significance of the difference of coefficients on *CDS_TRADE*. Table 7 presents results with *BD_INDEP* and

Deuality (Panel A), *ERC*, *RSQ*, and *DDAQ* (Panel B), *ABVOL* (Panel C) amd *ASVI* (Panel D). We find significantly differenet coefficient on *CDS_TRADE* for the No EF group than the EF group, for all dependent variables except *DDAQ* and *Duality* (*p*-values of differences are significant at conventional levels).. Thus, we find stronger changes post–CDS inception for the No EF group than the EF group for most of our study variables. Hence, while we find strong support for the suggestion that shareholders take greater interest in firm affairs post–CDS inception, as advanced by Kim et al. (2017), we complement their study by showing an additional but important instance in which this idea is manifested—attention and reaction to mandated financial reports.

[Insert Table 6 near here]

V. ROBUSTNESS CHECKS

In this section, we examine whether our main findings are robust to alternative econometric specifications.

Identifying Lender Banks That Most Likely Reduce Monitoring Post-CDS

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 should 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 to improve the likelihood of identifying banks that reduce lender monitoring after CDS inception.

A lead arranger typically monitors borrowers on behalf of other loan syndicate participants. The lead arranger's tendency to shirk its monitoring responsibility depends on the loan share it retains in the loan consortium—the larger the lead arranger'sloan share retention, the higher to the

likelihood of monitoring(Sufi 2007; Ivashina 2009).Thus, lead arranger's with a smaller loan share are more likely to reduce themonitoring after hedging its credit risk exposure post-CDS. Consistent with this idear, Amiram et al. (2017) show that loan participants loan demand that the lead arranger retain a high loan share, anticipating a decline in monitoring lof low loan-share lead arragers.

We identify the lead arrangers of their syndicated loans by using Loan Pricing Corporation DealScan data. We compute a lead arranger's percentage share in the loan amount by averaging its share across all outstanding syndicated loan contracts for a given firm. We expect a greater reduction in loan monitoring and greater change in shareholder reaction for lead arrangers with lower loan share. We test this idea by categorizing the sample into three subgroups by loan share. We retain the observations in the higher (*High Loan Share* group) and lower lead loan share groups (*Low Loan Share* Group). We then separately estimate our multivariate regression models [Eqs. (4) and (5)] for each subgroup.

Table 7 presents the regression results. When the dependent variable is *BD_INDEP*, the coefficient on *CDS_TRADE* is positive and significant only for *Low Loan Share* group (with *p*-value of difference in coefficients being less than 0.05). Also, when the dependent variable is *Duality*, the coefficient on *CDS_TRADE* is negative and significant only for the *Low Loan Share* group (with *p*-value of difference in coefficients being less than 0.10).

[Insert Table 7 near here]

Panel B of Table 7 presents the regression results when the dependent variable is *ERC, RSQ,* and *DDAQ*. The coefficient on *CDS_TRADE* is more significantly positive for the *Low Loan Share* group than for the *High Loan Share* group when the dependent variable is *ERC* (with *p*-value of difference in coefficients being less than 0.01). Also, for the *Low Loan Share* group, the coefficient on *CDS_TRADE* is significantly positive when the dependent variable is *DDAQ* and the difference

in coefficients for the *Low* versus *High Loan Share* subgroup is significant *p*-value less than 0.01. However, we have insignificant results when the dependent variable is *RSQ*. These findings suggests that after the onset of CDS trading, earnings relevance and usefulness increase more for the *Low Loan Share* subgroup . Also for this group, the coefficient on *CDS_TRADE* is significantly positive when the dependent variables are *ABVOL* (Panel C) and *ASVI* (Panel D) (with *p*-value of differences in coefficients being less than 0.05). These results suggest that shareholder attentiveness to increases when lenders hedged their risks and reduced their monitoring.

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 8. 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 8 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 9, 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.[13] 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 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, ABVOL* and *ASVI*) using the fitted value of *CDS_TRADE*. Results for those tests are presented in Panels B–E of Table 89. The coefficient on *CDS_TRADE* is positive for all variables (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.[14]

[13] 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.

[14] 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

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

The interests of the real owners of public corporations, the widely dispersed shareholders, whose interests, could conflict with those of professional managers, who manage the day-to-day operations of the company. Using the onset of CDS trading as exogenous shock to manager-shareholder conflicts, we examine two mechanisms that shareholders use to protect their interests. We find improvement in corporate governance (increase in the independence of the board of directors and a decline in the dual position of CEO and board chairman). We also find heightened shareholders' attention to financial reports (increased earnings response coefficient, greater trading volumes on earnings announcement dates, greater Google searches for the company, and lower post–earnings announcement drift). Our paper demonstrates that corporate governance and financial reporting remain valid instruments to protect shareholder interests, despite the recent literature questioning their effectiveness.

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.

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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)

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

ASVI = The value of raw Google Search Volume Index (SVI) for the annual annoucement week in a given year t minus the average SVI over the past 1 year, scaled by the average SVI over the past 1 year.

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. (Source: Compustat North America)

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)

LNANALYST = Natural logarithm of one plus the number of analyst following. (Source: IBES)

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

LEAD_LOANSHARE = Average of lead arrangers' loan share across all outstanding syndicated loan contracts per firm. (Source: Loan Pricing Corporation DealScan). All borrower's are categorized into three groups by lead arranger's loan share. The observations in the higher and lower lead loan share groups are respectively called *High* and *Low Loan Share* groups. (Source: Dealscan database)

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
ASVI	0.0421	-0.1049	0.0160	0.1532	0.2554
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***
Variable	**(1)**	**(2)**	**(3)**
CDS_TRADE	0.0643	0.0097	0.0444
	(5.69)***	(2.90)***	(2.24)**
CDS_FIRM	−0.0291	−0.0057	−0.0077
	(−2.51)**	(−2.32)**	(−1.57)*
LNAT	−0.0653	−0.0054	0.0047
	(−6.54)***	(−5.17)***	(5.14)***
ROA	0.2408	0.0094	−0.0288
	(6.83)***	(1.75)*	(−4.38)***
LEV	−0.0516	0.0088	0.0144
	(−2.44)**	(1.12)	(2.81)***
MTB	0.0019	−0.0004	−0.0011
	(1.32)	(−0.99)	(−2.16)**
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
	(3.00)***	(0.53)	(−0.98)
ABRET	0.0005	−0.0001	0.0001
	(3.24)***	(−1.25)	(2.89)***
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	103,792	103,792	64,803
R-squared	0.025	0.002	0.313

Table 5 Continued.

Panel B: *ABVOL*

Variable	*ABVOL* (1)	*ASVI* (2)
CDS_TRADE	0.2649	0.0395
	(2.46)**	(4.53)***
CDS_FIRM	−0.0197	-0.0028
	(−0.22)	(-0.30)
ABSLNRET	9.6359	0.0154
	(11.69)***	(0.62)
LNPRC	0.1459	0.0039
	(5.15)***	(1.32)
LNMKV	0.0421	-0.0010
	(2.06)**	(-0.77)
ROA	0.9465	0.0124
	(17.58)***	(1.42)
LEV	−0.0140	0.0077
	(−0.13)	(1.09)
MTB	−0.0017	0.0002
	(−0.28)	(0.37)
D_Salesgrowth	0.0632	-0.0023
	(5.23)***	(-0.58)
ADEXP		0.1684
		(2.90)***
LNANALYST		0.0050
		(5.03)***
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	18,509	50,910
R-squared	0.243	0.05

Table 5 Continued.

Panel C: Univariate Analysis—*PEAD*

Tertile	Full Sample	Non–CDS Firms	CDS Firms, All years	CDS Firms, Pre-CDS	CDS Firms, 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 D: Regression Analysis—*PEAD*

Variable	Dependent 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 represents univariate comparisons between the *POSTRET* of pre–CDS initiation and post–CDS initiation and between CDS firms and non-CDS firms. Panel B shows a multivariate analysis. *TopTertileSUE* is an indicator variable that takes a value of one if firm-quarter is for the top tertile of *SUE* and zero otherwise. Panels C and D 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*. 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

	BD_INDEP	***BD_INDEP***	***Duality***	***Duality***
Variable	**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 of EF and NO EF groups				
	−0.0365		−0.0408	
	(−3.16)***		(−0.17)	
CDS_FIRM	−0.0352	0.0060	0.4179	0.3046
	(−2.66)***	(0.61)	(2.00)**	(1.75)*
LNAT	0.0110	0.0052	0.2079	0.2534
	(4.45)***	(1.17)	(3.71)***	(4.94)***
LEV	0.0226	−0.0124	−0.0282	−0.1668
	(0.97)	(−0.44)	(−0.08)	(−0.52)
TOBINQ	−0.0036	−0.0081	0.0370	0.0118
	(−1.40)	(−1.98)**	(1.42)	(0.33)
RDEXP	0.1371	0.1275	−2.2371	−2.1271
	(3.53)***	(1.71)*	(−2.81)***	(−2.58)***
CASHSIZE	0.0180	0.0371	0.2537	−0.2217
	(0.91)	(1.76)*	(1.00)	(−0.71)
ROA	−0.0219	−0.0512	0.2306	0.2376
	(−0.88)	(−2.82)***	(1.23)	(1.78)*
HHI	−0.0804	0.0108	−0.7562	−0.2791
	(−1.87)*	(0.14)	(−1.61)	(−0.37)
LNAGE	0.0180	0.0288	0.1866	0.2429
	(1.50)	(4.53)***	(4.00)***	(2.44)**
STRETVOL	−0.0000	0.0000	0.0172	0.0220
	(−0.10)	(0.03)	(2.45)**	(2.23)**
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

	ERC	***ERC***	***RSQ***	***RSQ***	***DDAQ***	***DDAQ***
Variable	**No EF**	**EF**	**No EF**	**EF**	**No EF**	**EF**
CDS_TRADE	0.0709	0.0220	0.0156	−0.0162	0.0541	0.0468
	(3.86)***	(1.49)	(2.68)***	(−2.11)**	(1.68)*	(1.83)*
Difference in coefficients of EF and NO EF groups	−0.0489 (−2.77)***		−0.0318 (−5.38)***		−0.0073 (−0.26)	
CDS_FIRM	−0.0262	0.0005	−0.0132	0.0106	−0.0123	−0.0060
	(−1.70)*	(0.03)	(−2.93)***	(0.98)	(−1.54)	(−0.59)
LNAT	−0.0652	−0.0433	−0.0059	0.0002	0.0073	0.0034
	(−5.64)***	(−7.62)***	(−4.70)***	(0.09)	(4.33)***	(2.91)***
ROA	0.2378	0.1592	0.0143	-0.0253	−0.0242	−0.0604
	(5.10)***	(7.42)***	(3.93)***	(−1.14)	(−2.92)***	(−3.35)***
LEV	−0.0405	−0.0570	0.0056	−0.0143	0.0014	0.0019
	(−1.57)	(−1.58)	(0.69)	(−1.41)	(0.09)	(0.14)
MTB	0.0028	−0.0010	−0.0007	0.0008	−0.0011	−0.0008
	(2.00)**	(−0.39)	(−1.77)*	(3.11)***	(−1.64)	(−1.60)
SALESVOL	−0.0627	0.0161	−0.0061	−0.0038	−0.0446	−0.0199
	(−1.41)	(0.44)	(−1.50)	(−0.27)	(−2.45)**	(−2.04)**
CFVOL	−0.2137	−0.3705	−0.0044	−0.0205	−0.4443	−0.4480
	(−2.47)**	(−3.11)***	(−0.19)	(−0.34)	(−9.78)***	(−10.08)***
LOSS%	−0.2479	−0.0829	0.0042	0.0044	−0.0210	−0.0125
	(−6.38)***	(−2.96)***	(0.93)	(0.31)	(−2.96)***	(−1.16)
D_Salesgrowth	0.0175	−0.0064	0.0011	−0.0039	−0.0020	−0.0028
	(2.47)**	(−0.50)	(0.38)	(−0.62)	(−0.67)	(−0.89)
ABRET	0.0004	0.0002	−0.0001	−0.0003	0.0001	0.0003
	(2.06)**	(0.35)	(−0.66)	(−2.13)**	(1.68)*	(2.18)**
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	64,814	18,091	64,814	18,091	44,349	15,022
R−squared	0.029	0.012	0.002	0.003	0.166	0.344

Table 6 Continued.

Panel C: *ABVOL*

Variable	No EF		EF
CDS_TRADE	0.3891		−0.1722
	(4.02)***		(−1.04)
Difference in coefficients of EF and NO EF groups		0.5613	
		(3.07)***	
CDS_FIRM	−0.0586		0.2320
	(−0.76)		(1.65)
ABSLNRET	9.3799		10.8615
	(12.21)***		(7.01)***
LNPRC	0.1358		0.2346
	(4.62)***		(5.37)***
LNMKV	0.0379		0.0460
	(1.95)*		(1.24)
ROA	0.8945		1.2122
	(17.19)***		(12.85)***
LEV	0.0117		−0.1564
	(0.11)		(−1.20)
MTB	−0.0067		0.0165
	(−1.49)		(1.21)
D_Salesgrowth	0.0681		0.0135
	(6.10)***		(0.11)
Industry fixed effects	Yes		Yes
Year fixed effects	Yes		Yes
Observations	15,442		3,067
R−squared	0.232		0.269

Table 6 Continued.

Panel D: *ASVI*

Variable	No EF		EF
CDS_TRADE	0.0459		0.0148
	(4.18)***		(0.93)
Difference in coefficients of EF and NO EF groups		0.0311	
		(1.96)**	
CDS_FIRM	-0.0059		-0.0092
	(-0.49)		(-0.37)
ABSLNRET	0.0001		0.0671
	(0.00)		(1.48)
LNPRC	0.0054		-0.0045
	(1.67)*		(-0.89)
LNMKV	-0.0020		0.0038
	(-1.50)		(1.13)
ROA	0.0100		0.0065
	(1.20)		(0.61)
LEV	0.0126		-0.0304
	(1.35)		(-1.76)*
MTB	0.0002		0.0005
	(0.30)		(0.69)
D_Salesgrowth	-0.0039		0.0078
	(-1.19)		(0.75)
ADEXP	0.1456		0.1526
	(2.12)**		(1.38)
LNANALYST	0.0058		0.0024
	(5.92)***		(0.64)
Industry fixed effects	Yes		Yes
Year fixed effects	Yes		Yes
Observations	35,740		11,118
R−squared	0.06		0.10

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
Cross-Sectional Tests Conditioning on Likelihood of Lender Monitoring

Panel A: Board Independence

	BD_INDEP	***BD_INDEP***	***Duality***	***Duality***
Variable	**Low Loan Share**	**High Loan Share**	**Low Loan Share**	**High Loan Share**
CDS_TRADE	0.0385	0.0176	-0.7181	-0.3037
	(4.41)***	(1.38)	(-5.63)***	(-1.22)
Difference in coefficients of Low and High lead Loan Share				
	-0.0209		0.4144	
	(-1.98)**		(1.76)*	
CDS_FIRM	-0.0114	-0.0193	0.6908	0.8332
	(-1.22)	(-1.27)	(5.37)***	(3.33)***
LNAT	0.0042	0.0216	0.1835	0.1526
	(1.73)	(5.71)***	(4.77)***	(2.01)**
LEV	0.0348	-0.0233	0.1752	-0.2843
	(1.60)	(-0.47)	(0.81)	(-0.31)
TOBINQ	-0.0034	-0.0174	0.0435	-0.0002
	(-1.69)	(-3.31)***	(1.80)*	(-0.00)
RDEXP	0.0015	0.3741	-3.2921	-1.1096
	(0.04)	(1.62)	(-7.13)***	(-0.26)
CASHSIZE	0.0641	-0.0744	0.5115	-2.1481
	(3.70)***	(-1.38)	(3.50)***	(-5.95)***
ROA	-0.0275	-0.1162	-0.1386	1.4052
	(-2.23)**	(-1.45)	(-0.47)	(1.16)
HHI	0.0451	-0.0369	-0.5394	-1.3673
	(0.29)	(-0.31)	(-0.68)	(-0.98)
LNAGE	-0.0143	0.0204	0.2568	0.0688
	(-3.44)***	(2.41)**	(6.42)***	(0.51)
STRETVOL	-0.0005	0.0004	0.0003	0.0056
	(-0.83)	(0.34)	(0.04)	(0.22)
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	5,525	1,958	5,525	1,958
R-squared / pseudo *R*-squared	0.271	0.456	0.0694	0.1035

Table 7 Continued.

Panel B: Earnings Quality

	ERC	*ERC*	*RSQ*	*RSQ*	*DDAQ*	*DDAQ*
Variable	**Low Loan Share**	**High Loan Share**	**Low Loan Share**	**High Loan Share**	**Low Loan Share**	**High Loan Share**
CDS_TRADE	0.1665	0.0402	0.0223	0.0243	0.0518	0.0251
	(5.38)***	(4.84)***	(1.72)*	(3.81)***	(4.48)***	(7.54)***
Difference in coefficients of Low and High lead Loan Share	-0.1263 (-4.37)***		0.002 (0.16)		-0.0267 (-2.91)***	
CDS_FIRM	-0.0491	-0.0210	-0.0035	-0.0170	-0.0107	-0.0081
	(-1.96)*	(-3.83)***	(-0.58)	(-3.15)***	(-3.59)***	(-2.83)**
LNAT	-0.0738	-0.0526	-0.0065	-0.0043	0.0042	0.0052
	(-6.29)***	(-7.20)***	(-5.06)***	(-4.01)***	(4.51)***	(5.30)***
ROA	0.2385	0.2527	0.0232	-0.0156	-0.0268	-0.0197
	(6.60)***	(6.36)***	(3.04)***	(-0.62)	(-3.59)***	(-1.88)*
LEV	-0.0080	-0.0657	0.0148	0.0114	0.0162	0.0018
	(-0.23)	(-3.82)***	(2.14)**	(0.79)	(2.34)**	(0.58)
MTB	0.0018	0.0021	0.0002	-0.0008	-0.0003	0.0001
	(0.88)	(0.90)	(0.64)	(-1.15)	(-0.90)	(0.39)
SALESVOL	-0.1018	-0.0231	-0.0045	-0.0147	-0.0343	-0.0337
	(-2.24)**	(-1.19)	(-0.65)	(-1.88)*	(-7.47)***	(-6.40)***
CFVOL	-0.3077	-0.2561	-0.0137	0.1304	-0.3508	-0.2644
	(-3.00)***	(-3.25)***	(-0.63)	(3.77)***	(-15.95)***	(-10.76)***
LOSS%	-0.3050	-0.1789	0.0042	0.0010	-0.0087	-0.0152
	(-7.48)***	(-5.64)***	(0.92)	(0.11)	(-1.37)	(-4.99)***
D_Salesgrowth	0.0265	0.0054	0.0045	0.0035	-0.0027	-0.0029
	(2.93)***	(0.73)	(1.30)	(0.63)	(-1.16)	(-1.19)
ABRET	0.0003	0.0009	-0.0002	-0.0001	0.0002	0.0001
	(0.96)	(2.75)***	(-1.30)	(-0.42)	(2.83)**	(0.85)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	54,310	28,413	54,310	28,413	28,912	17,269
R−squared	0.026	0.020	0.003	0.003	0.398	0.343

Table 7 Continued.

Panel C: *ABVOL*

Variable	Low Loan Share		High Loan Share
CDS_TRADE	0.3449		0.0283
	(2.17)**		(0.21)
Difference in coefficients of Low and High lead Loan Share		-0.3166	
		(-1.98)**	
CDS_FIRM	-0.0394		0.0176
	(-0.62)		(0.14)
ABSLNRET	8.7481		10.4271
	(10.31)***		(13.34)***
LNPRC	0.1980		0.1272
	(6.27)***		(2.34)**
LNMKV	0.0100		0.0764
	(0.55)		(2.31)**
ROA	0.1997		0.8291
	(2.96)***		(2.89)***
LEV	-0.1176		-0.0197
	(-0.83)		(-0.14)
MTB	-0.0239		0.0191
	(-3.61)***		(1.94)*
D_Salesgrowth	0.1008		-0.0178
	(5.55)***		(-0.34)
Industry fixed effects	Yes		Yes
Year fixed effects	Yes		Yes
Observations	10,014		5,453
R−squared	0.223		0.244

Table 7 Continued.

Panel D: *ASVI*

Variable	Low Loan Share		High Loan Share
CDS_TRADE	0.0683		0.0051
	(2.24)**		(0.22)
Difference in coefficients of Low and High lead Loan Share		-0.0632	
		(-2.17)**	
CDS_FIRM	-0.0185		0.0164
	(-0.54)		(0.72)
ABSLNRET	-0.0129		0.0014
	(-0.61)		(0.03)
LNPRC	0.0077		-0.0028
	(2.03)**		(-0.91)
LNMKV	-0.0016		0.0019
	(-1.22)		(0.95)
ROA	0.0136		-0.0115
	(1.05)		(-0.66)
LEV	0.0020		-0.0073
	(0.18)		(-0.47)
MTB	0.0009		0.0004
	(1.68)*		(0.45)
D_Salesgrowth	-0.0005		0.0031
	(-0.14)		(0.36)
ADEXP	0.1336		0.1474
	(1.18)		(1.67)*
LNANALYST	0.0096		-0.0040
	(4.25)***		(-1.41)
Industry fixed effects	Yes		Yes
Year fixed effects	Yes		Yes
Observations	22,464		11,701
R−squared	0.06		0.11

This table reports the effect of credit default swap (CDS) trading upon board independence and earnings quality, conditioning on the lender monitoring. We identify lenders to CDS firms and non-CDS firms in our sample using the Dealscan database, and we compute the lead arranger's loan share and retain borrower's attached to low and high loan share groups. 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
Two-Stage Instrumental Variable Approach

Panel A: Board Independence

Variable	First Stage, *CDS_TRADE*	Second Stage, *BD_INDEP*	Second Stage, *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 (*p* < 0.0001)	Chi^2 = 0.44 (*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 8 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 8 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 8 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

TABLE 8 Continued.

Panel E: Second-Stage Model, with *ASVI* as Dependent Variable

Variable	***ASVI***
CDS_ACTIVE	0.0172
	(3.43)***
CDS_FIRM	-0.0158
	(-3.35)***
ABSLNRET	0.0117
	(0.43)
LNPRC	0.0077
	(3.27)***
LNMKV	-0.0053
	(-2.97)***
ROA	0.0194
	(1.81)*
LEV	0.0209
	(2.16)**
MTB	0.0001
	(0.31)
D_Salesgrowth	-0.0021
	(-0.58)
ADEXP	0.3505
	(3.85)***
LNANALYST	0.0030
	(1.33)
Partial *F*-statistics	F = 57.81 ($p < 0.0001$)
Weak identification test	Cragg-Donald Wald F = 28.90
	Stock-Yogo C.V.: 10% Max IV size 16.38
	Stock-Yogo C.V.: 15% Max IV size 8.96
Under-identification test	$Chi^2 = 57.88$ ($p < 0.0001$)
Endogeneity test	$Chi^2 = 13.92$ ($p < 0.01$)
Industry fixed effects	Yes
Year fixed effects	Yes
Observations	46,858
R-squared	0.057

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.