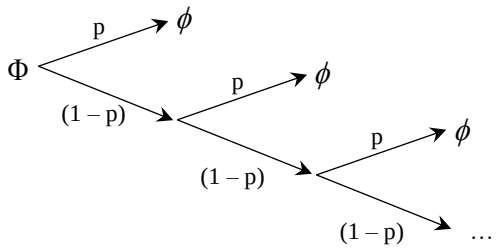
Internet Appendix for "Credit Default Swaps and Firm Value"

This Internet Appendix contains the following supplementary content:

Estimating the Impact of CDS-Related Increase in Bankruptcy Risk on Firm Value

Subrahmanyam, Tang, and Wang (2014) show that CDS initiation increases the annual probability of bankruptcy for the average firm from 1.58% to 5.31%.[1] We follow Almeida and Philippon (2008) to estimate the value impact of this CDS-related increase in bankruptcy risk. Accordingly, the net present value (NPV) of distress costs is modelled in a tree structure,



(IA 1)

where Φ is the NPV of financial distress costs, p is the probability of bankruptcy, and ϕ is the cost of financial distress measured as a percentage of firm value. In this framework, the NPV of financial distress costs equals,

$$\Phi = \frac{p}{p + r_{\phi}} \phi \qquad \text{(IA 2)}$$

where r_{ϕ} is the discount rate for financial distress costs.

Following the authors' parsimonious estimation procedure, we assume that r_{ϕ} equals the risk-free rate of 5% and ϕ equals 16.5%. Accordingly, for annual bankruptcy probabilities of 1.58% and 5.31%, the NPV of distress costs equals 3.96% and 8.50% of firm value, respectively. Therefore, by increasing the NPV of financial distress costs, the onset of CDS trading can decrease firm value by 4.73% [–0.0473 = (1 – 0.0850)/(1 – 0.0396) – 1].

[1] Subrahmanyam, Tang, and Wang (2014) show that the monthly probability of bankruptcy increases 3.36 times following the inception of CDS trading. This finding suggests that CDS initiation increases the annual probability of bankruptcy for their sample firms from 1.58% (1,628 bankruptcy filings divided by 102,718 firm-years) to 5.31% (3.36 × 1.58%).

Estimating the Expected Default Frequency

Expected Default Frequency (EDF) is the implied probability of default derived from the Merton's (1974) distance to default model. EDF equals,

$$EDF = N\left(-\left(\frac{\log(V/F)+(\mu-0.5\sigma_V^2)T}{\sigma_V\sqrt{T}}\right)\right), \quad \text{(IA 3)}$$

where V is the value of the firm's assets, F is the face value of debt, μ is the expected return on V, σ_V is the standard deviation of V, T is the time-to-maturity of debt, and $N(.)$ is the cumulative standard normal distribution function. Equation IA 3 shows that EDF increases when firm value decreases, face value of debt increases, expected return on assets decreases, and volatility of assets increases.

In Equation IA 3, the variables F and T are observable, while V, μ, and σ_V must be estimated using the Merton model. According to this model, the total firm value follows a geometric Brownian motion,

$$dV = \mu V dt + \sigma_V V dW, \quad \text{(IA 4)}$$

where dW is a Wiener process. Assuming that the firm has issued one discount bond with the face value of F maturing in T periods, the value of the equity can be presented as a call option on the firm value,

$$E = VN(d_1) - e^{-rT}FN(d_2), \quad \text{(IA 5)}$$

where E is the market value of equity and r is the risk-free rate. The values of d_1 and d_2 equal,

$$d_1 = \frac{\log(V/F)+(r+0.5\sigma_V^2)T}{\sigma_V\sqrt{T}}, \quad \text{(IA 6)}$$

$$d_2 = d_1 - \sigma_V\sqrt{T}. \quad \text{(IA 7)}$$

In these equations, E, F, T, and r are observable variables, while V and σ_V must be inferred from Equations IA 5–7. We follow the method of Bharat and Shumway (2008) to numerically estimate the values of V and σ_V. Accordingly, E is the actual market value of equity, T equals one-year, r is the T-bill rate, and F is the sum of short-term debt and one half of long-term debt. Given that two variables (V and σ_V) must be estimated simultaneously, the numerical estimation process starts with an assumption that σ_V equals $\sigma_E \times E/(E + F)$ where σ_E is the annualized standard deviation of daily stock returns.

Using the aforementioned variables, we solve for V in Equation IA 5 for every day during the one-year period prior to the end of each firm-quarter. The estimated series of daily V allows for computing the new asset volatility (σ_V). Using this σ_V, we again solve for the daily values of V during the year. We repeat this iterative process until the difference between the consecutively estimated asset volatilities is less than 0.001.

The process described above estimates V and σ_V. The last variable that is required for computing EDF is μ—the expected return on V, which is the annualized daily return of V in the given year. Using these variables, EDF is computed for 134,048 out of 160,142 firm-quarter observations in the sample. The average EDF equals 5.97% with a standard deviation of 17.80%.

Table IA-1. Baseline Results using CDS Variables Measured at the Firm Level

Table IA-1 presents the baseline regression results reported in Table 3 using CDS activity variables measured at the individual firm level, without considering the CDS trading status of the firm's subsidiaries. The dependent variable in all regressions is Log(TOBIN'S_Q). See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**NOTIONAL**		**CDS_LIQ**	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEPT	-0.588***	-1.787***	-0.719***	-1.987***	-0.595***	-1.789***
	(-12.45)	(-56.53)	(-10.68)	(-37.57)	(-12.69)	(-56.91)
Log(MVE)	0.168***	0.318***	0.170***	0.355***	0.169***	0.318***
	(40.12)	(60.74)	(29.22)	(45.77)	(40.49)	(60.82)
STOCK_TURNOVER	0.005***	0.004***	0.004***	0.003***	0.005***	0.004***
	(10.44)	(10.31)	(5.49)	(6.34)	(10.45)	(10.31)
ROA	-0.251***	0.121***	-0.635***	-0.074*	-0.259***	0.122***
	(-4.03)	(3.86)	(-5.70)	(-1.65)	(-4.15)	(3.86)
CAPX_TO_SALES	0.000	-0.000**	0.000	-0.000	0.000	-0.000**
	(0.57)	(-2.05)	(1.32)	(-0.07)	(0.59)	(-2.00)
DEBT_TO_ASSETS	-0.212***	0.032	-0.168***	-0.021	-0.209***	0.033
	(-5.79)	(1.03)	(-3.11)	(-0.51)	(-5.71)	(1.07)
DIVIDEND_DUM	-0.056***	-0.013	0.005	0.022**	-0.053***	-0.013
	(-3.38)	(-1.34)	(0.24)	(2.39)	(-3.22)	(-1.34)
AGE_TRANS	-0.523***	-0.254***	-0.696***	-0.445***	-0.518***	-0.253***
	(-12.57)	(-6.60)	(-10.18)	(-6.86)	(-12.46)	(-6.57)
CDS_TRADED	-0.199***	.	-0.202***	.	-0.213***	.
	(-7.45)	.	(-5.68)	.	(-8.90)	.
CDS_TRADING	-0.150***	-0.041**	.	.	.	.
	(-6.99)	(-2.54)	.	.	.	.
NOTIONAL_DUM	.	.	2.194***	0.794	.	.
	.	.	(3.70)	(1.63)	.	.
Log(NOTIONAL)	.	.	-0.104***	-0.039*	.	.
	.	.	(-4.00)	(-1.65)	.	.
CDS_LIQ_DUM	.	.	.	.	-0.002	0.012
	.	.	.	.	(-0.06)	(0.71)
Log(CDS_LIQ)	.	.	.	.	-0.334***	-0.075**
	.	.	.	.	(-6.71)	(-2.32)
Number of Observations	151895	151895	49632	49632	151895	151895
Number of Clusters	5660	5660	3350	3350	5660	5660
Adjusted R^2	0.336	0.345	0.336	0.324	0.338	0.345
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-2. Illustration of CDS Gross Notional Calculations

Table IA-2 illustrates the computation of CDS gross notional. In this example, there are three counterparties that trade in the CDS market on a given reference entity. The gross notional equals $290 million because it represents the aggregate dollar amount of CDS contracts bought (or sold).

Counterparty	Notional Amount of CDS Bought	Notional Amount of CDS Sold
Counterparty A	$100,000,000	$50,000,000
Counterparty B	$150,000,000	$75,000,000
Counterparty C	$40,000,000	$165,000,000
Total	$290,000,000	$290,000,000

Table IA-3. Event Study

Table IA-3 presents results from an event study of quarterly RELATIVE_Q over a three-year window around the initiation of CDS trading. RELATIVE_Q for a CDS firm *i* in quarter *t* equals:

$$RELATIVE\_Q_{i,t} = Log(TOBIN'S\_Q_{i,t}) - \sum_{j=1}^{n_t} Log(TOBIN'S\_Q_{j,t}) / n_t$$

where *j* indicates a non-CDS firm and n_t equals the number of non-CDS firms in quarter *t*. The non-CDS firms include all firms without trading CDS in the given quarter. Accordingly, the average RELATIVE_Q measures the average percentage difference in TOBIN'S_Q between CDS and non-CDS firms in a quarter. The CDS sample includes 353 firms with CDS that have non-missing TOBIN'S_Q over the entire event window period. "Relative Quarter" column reports the quarters relative to the CDS initiation quarter. "RELATIVE_Q_{post} – RELATIVE_Q_{pre}" column reports the mean pairwise differences in RELATIVE_Q between the post- and pre-periods followed by t-values from a t-test of whether the mean is zero.

	Relative Quarter		**RELATIVE_Q_{post} – RELATIVE_Q_{pre}**	
N	**Pre-CDS**	**Post-CDS**	**Mean**	**t-value**
353	[-1,-1]	[0,0]	-0.032	-4.88***
353	[-1,-1]	[+1,+1]	-0.023	-2.58**
353	[-3,-1]	[+1,+3]	-0.045	-4.02***
353	[-4,-1]	[+1,+4]	-0.063	-5.31***
353	[-8,-1]	[+1,+8]	-0.14	-9.72***
353	[-12,-1]	[+1,-12]	-0.171	-10.38***

*** denotes significance at the one percent level for a two-tailed test.

Table IA-4. Correlation Matrix

Table IA-4 presents the Pearson correlation coefficients for the variables used in multivariate analyses. See Table 1 for sample selection criteria and the Appendix for variable definitions. *Log Tob. q*, *Log M/B*, and *Log MVE* are the natural logarithms of TOBIN'S_Q, MB_RATIO, and MVE, respectively. *Log Gross Not.* and *Log CDS Liq.* are the natural logarithms of one plus NOTIONAL and one plus CDS_LIQ, respectively.

	Log Tob. *q*	**Log M/B**	**CDS Traded**	**CDS Trading**	**Log Gross Not.**	**Log CDS Liq.**	**Log MVE**	**Share Turn.**	**ROA**	**CAPX/ Sales**	**LTD/ Assets**	**Div. Dummy**	**Age Trans.**
Log Tob. *q*	1.00	.	.	.	.	.	.	.	.	.	.	.	.
Log M/B	0.82	1.00	.	.	.	.	.	.	.	.	.	.	.
CDS Traded	-0.07	0.04	1.00	.	.	.	.	.	.	.	.	.	.
CDS Trading	-0.08	0.03	0.83	1.00	.	.	.	.	.	.	.	.	.
Log Gross Not.	-0.06	0.01	0.46	0.56	1.00	.	.	.	.	.	.	.	.
Log CDS Liq.	-0.08	0.02	0.66	0.79	0.68	1.00	.	.	.	.	.	.	.
Log MVE	0.24	0.30	0.54	0.48	0.28	0.42	1.00	.	.	.	.	.	.
Share Turn.	0.16	0.14	0.05	0.06	0.06	0.05	0.20	1.00	.	.	.	.	.
ROA	-0.05	-0.05	0.08	0.07	0.04	0.05	0.20	0.01	1.00	.	.	.	.
CAPX/Sales	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	1.00	.	.	.
LTD/Assets	-0.18	0.03	0.25	0.21	0.13	0.15	0.21	0.02	0.07	0.01	1.00	.	.
Div. Dummy	-0.07	0.03	0.36	0.32	0.20	0.30	0.43	-0.05	0.15	-0.01	0.18	1.00	.
Age Trans.	-0.16	-0.11	0.16	0.15	0.10	0.14	0.13	-0.05	0.11	-0.01	0.05	0.25	1.00

Table IA-5. Baseline Regressions excluding the Financial Crisis Period

Table IA-5 presents the baseline regression results reported in Table 3 for the subsample of firm-quarters that excludes the financial crisis period (from the fourth quarter of 2007 to the second quarter of 2009). The dependent variable in all regressions is Log(TOBIN'S_Q). See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-values computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**NOTIONAL**		**CDS_LIQ**	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEPT	-0.486***	-1.673***	-0.735***	-1.944***	-0.504***	-1.678***
	(-10.38)	(-45.38)	(-12.86)	(-33.04)	(-10.84)	(-45.78)
Log(MVE)	0.168***	0.312***	0.169***	0.349***	0.169***	0.312***
	(40.18)	(56.69)	(27.94)	(40.22)	(40.61)	(56.80)
STOCK_TURNOVER	0.005***	0.004***	0.004***	0.002***	0.005***	0.004***
	(10.12)	(9.69)	(5.53)	(5.70)	(10.13)	(9.69)
ROA	-0.293***	0.099***	-0.691***	-0.144***	-0.299***	0.100***
	(-4.49)	(3.08)	(-5.99)	(-3.09)	(-4.57)	(3.10)
CAPX_TO_SALES	0.000	-0.000**	0.001***	-0.000	0.000*	-0.000**
	(1.64)	(-2.47)	(3.41)	(-0.05)	(1.74)	(-2.13)
DEBT_TO_ASSETS	-0.223***	0.015	-0.194***	-0.053	-0.220***	0.016
	(-6.06)	(0.45)	(-3.47)	(-1.20)	(-5.99)	(0.49)
DIVIDEND_DUM	-0.063***	-0.015	0.003	0.027***	-0.061***	-0.016
	(-3.85)	(-1.49)	(0.16)	(2.96)	(-3.71)	(-1.53)
AGE_TRANS	-0.507***	-0.229***	-0.703***	-0.495***	-0.503***	-0.226***
	(-12.11)	(-5.68)	(-10.06)	(-7.48)	(-12.01)	(-5.59)
CDS_TRADED	-0.174***	.	-0.226***	.	-0.211***	.
	(-6.63)	.	(-6.32)	.	(-9.01)	.
CDS_TRADING	-0.204***	-0.065***	.	.	.	.
	(-9.69)	(-3.92)	.	.	.	.
NOTIONAL_DUM	.	.	2.308***	0.968	.	.
	.	.	(3.74)	(1.59)	.	.
Log(NOTIONAL)	.	.	-0.108***	-0.046	.	.
	.	.	(-4.01)	(-1.56)	.	.
CDS_LIQ_DUM	.	.	.	.	-0.053	-0.043*
	.	.	.	.	(-1.29)	(-1.93)
Log(CDS_LIQ)	.	.	.	.	-0.294***	-0.009
	.	.	.	.	(-4.50)	(-0.23)
Number of Observations	132390	132390	44348	44348	132390	132390
Number of Clusters	5639	5639	3261	3261	5639	5639
Adjusted R^2	0.338	0.320	0.330	0.283	0.340	0.320
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-6. Effect of CDS Reversal on Firm Valuations

Table IA-6 presents the results from regressions that investigate the effect of CDS reversals on Log(TOBIN'S_Q). CDS_REVERSAL is a dummy variable that takes the value of one if a CDS firm has no CDS activity in a quarter following the CDS initiation date, and zero otherwise. A firm with CDS Trading has no CDS activity in a quarter if it has missing NOTIONAL and does not have any CDS prices listed in Bloomberg and CMA databases in that quarter. CDS_REVERSAL equals one for 13% of firm-quarters with CDS trading. See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

Variables	**(1)**	**(2)**
INTERCEPT	-0.593***	-1.785***
	(-12.55)	(-56.48)
Log(MVE)	0.169***	0.318***
	(40.67)	(60.75)
STOCK_TURNOVER	0.005***	0.004***
	(10.47)	(10.31)
ROA	-0.259***	0.121***
	(-4.16)	(3.84)
CAPX_TO_SALES	0.000	-0.000**
	(0.56)	(-2.02)
DEBT_TO_ASSETS	-0.209***	0.032
	(-5.72)	(1.05)
DIVIDEND_DUM	-0.056***	-0.013
	(-3.39)	(-1.29)
AGE_TRANS	-0.520***	-0.257***
	(-12.52)	(-6.66)
CDS_TRADED	-0.187***	.
	(-7.18)	.
CDS_TRADING	-0.212***	-0.065***
	(-9.69)	(-3.98)
CDS_REVERSAL	0.239***	0.076***
	(6.20)	(2.60)
Number of Observations	151895	151895
Number of Clusters	5660	5660
Adjusted R^2	0.338	0.345
Year Fixed Effects	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	No
Firm Fixed Effects	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-7. Baseline Regressions using M/B as a Proxy for Firm Value

Table IA-7 presents the baseline regression results reported in Table 3 using Log(MB_RATIO) as the dependent variable. See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-values computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**NOTIONAL**		**CDS_LIQ**	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEPT	-0.264***	-1.455***	-0.411***	-1.784***	-0.271***	-1.457***
	(-4.13)	(-31.42)	(-4.86)	(-20.84)	(-4.26)	(-31.62)
Log(MVE)	0.195***	0.322***	0.197***	0.392***	0.196***	0.322***
	(36.50)	(41.84)	(25.51)	(31.58)	(36.72)	(41.87)
STOCK_TURNOVER	0.005***	0.004***	0.005***	0.003***	0.005***	0.004***
	(9.14)	(8.63)	(5.05)	(5.03)	(9.13)	(8.63)
ROA	-0.688***	-0.083*	-1.250***	-0.376***	-0.693***	-0.083*
	(-8.78)	(-1.94)	(-8.00)	(-4.74)	(-8.82)	(-1.93)
CAPX_TO_SALES	-0.000	-0.000**	0.000**	-0.000	-0.000	-0.000**
	(-0.28)	(-2.08)	(2.24)	(-0.58)	(-0.20)	(-2.12)
DEBT_TO_ASSETS	0.589***	1.036***	0.759***	0.959***	0.592***	1.038***
	(9.61)	(18.01)	(7.80)	(9.92)	(9.65)	(18.05)
DIVIDEND_DUM	-0.025	-0.019	0.041	0.043***	-0.023	-0.019
	(-1.20)	(-1.23)	(1.50)	(2.81)	(-1.13)	(-1.23)
AGE_TRANS	-0.557***	-0.175***	-0.822***	-0.364***	-0.554***	-0.175***
	(-10.89)	(-3.11)	(-9.47)	(-3.46)	(-10.84)	(-3.11)
CDS_TRADED	-0.117***	.	-0.221***	.	-0.171***	.
	(-3.29)	.	(-4.10)	.	(-5.35)	.
CDS_TRADING	-0.179***	-0.076***	.	.	.	.
	(-5.65)	(-2.94)	.	.	.	.
NOTIONAL_DUM	.	.	1.463	0.316	.	.
	.	.	(1.52)	(0.34)	.	.
Log(NOTIONAL)	.	.	-0.067	-0.019	.	.
	.	.	(-1.59)	(-0.43)	.	.
CDS_LIQ_DUM	.	.	.	.	0.064	0.005
	.	.	.	.	(1.25)	(0.14)
Log(CDS_LIQ)	.	.	.	.	-0.375***	-0.129**
	.	.	.	.	(-4.24)	(-2.07)
Number of Observations	151895	151895	49632	49632	151895	151895
Number of Clusters	5660	5660	3350	3350	5660	5660
Adjusted R^2	0.238	0.208	0.238	0.200	0.238	0.208
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-8. Regressions of Transformed Tobin's *q*

Table IA-8 presents the baseline regression results reported in Table 3 using transformed Tobin's *q* as the dependent variable. Transformed Tobin's *q* equals –1/TOBIN'S_Q. See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**NOTIONAL**		**CDS_LIQ**	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEPT	-1.799***	-3.013***	-1.917***	-3.104***	-1.805***	-3.012***
	(-37.78)	(-59.16)	(-23.12)	(-40.60)	(-38.02)	(-60.79)
Log(MVE)	0.161***	0.313***	0.159***	0.340***	0.162***	0.312***
	(34.10)	(41.65)	(25.51)	(29.63)	(34.30)	(41.82)
STOCK_TURNOVER	0.003***	0.002***	0.002***	0.002***	0.003***	0.002***
	(8.26)	(6.70)	(2.89)	(4.89)	(8.26)	(6.71)
ROA	0.061	0.232***	-0.250***	0.097**	0.054	0.231***
	(1.23)	(6.49)	(-3.34)	(2.21)	(1.10)	(6.49)
CAPX_TO_SALES	0.000	-0.000	0.000	-0.000	0.000	-0.000
	(0.89)	(-1.17)	(1.36)	(-0.06)	(0.91)	(-1.13)
DEBT_TO_ASSETS	0.207***	0.382***	0.180***	0.165***	0.210***	0.383***
	(5.10)	(6.14)	(3.62)	(3.83)	(5.16)	(6.16)
DIVIDEND_DUM	-0.014	0.019*	0.038**	0.038***	-0.011	0.019*
	(-0.85)	(1.74)	(2.02)	(2.62)	(-0.72)	(1.77)
AGE_TRANS	-0.324***	-0.096**	-0.421***	-0.276***	-0.320***	-0.098**
	(-8.20)	(-2.27)	(-7.04)	(-3.32)	(-8.10)	(-2.27)
CDS_TRADED	-0.214***	.	-0.218***	.	-0.240***	.
	(-5.47)	.	(-6.56)	.	(-8.14)	.
CDS_TRADING	-0.155***	-0.025	.	.	.	.
	(-5.09)	(-1.09)	.	.	.	.
NOTIONAL_DUM	.	.	1.853***	1.147**	.	.
	.	.	(3.43)	(2.09)	.	.
Log(NOTIONAL)	.	.	-0.088***	-0.057**	.	.
	.	.	(-3.70)	(-2.22)	.	.
CDS_LIQ_DUM	.	.	.	.	-0.003	0.013
	.	.	.	.	(-0.11)	(0.59)
Log(CDS_LIQ)	.	.	.	.	-0.304***	-0.088**
	.	.	.	.	(-6.70)	(-2.33)
Number of Observations	151895	151895	49632	49632	151895	151895
Number of Clusters	5660	5660	3350	3350	5660	5660
Adjusted R^2	0.216	0.225	0.258	0.214	0.217	0.226
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-9. Regressions of Industry Adjusted Tobin's *q*

Table IA-9 presents the baseline regression results reported in Table 3 using industry adjusted Log(TOBIN'S_Q) as the dependent variable. Industry adjusted Log(TOBIN'S_Q) equals Log(TOBIN'S_Q) minus the natural logarithm of the industry average TOBIN'S_Q. See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**NOTIONAL**		**CDS_LIQ**	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEPT	-1.153***	-1.952***	-1.211***	-2.404***	-1.161***	-1.956***
	(-24.38)	(-61.69)	(-18.05)	(-46.01)	(-24.71)	(-62.21)
Log(MVE)	0.166***	0.298***	0.168***	0.321***	0.167***	0.299***
	(39.80)	(57.03)	(28.96)	(42.26)	(40.27)	(57.15)
STOCK_TURNOVER	0.004***	0.003***	0.004***	0.003***	0.004***	0.003***
	(10.14)	(10.37)	(5.61)	(6.91)	(10.15)	(10.36)
ROA	-0.294***	0.069**	-0.659***	-0.105**	-0.302***	0.070**
	(-4.76)	(2.31)	(-5.97)	(-2.49)	(-4.87)	(2.32)
CAPX_TO_SALES	0.000	-0.000**	0.000	0.000	0.000	-0.000**
	(0.69)	(-2.24)	(1.57)	(0.18)	(0.71)	(-2.18)
DEBT_TO_ASSETS	-0.201***	0.054*	-0.157***	0.014	-0.199***	0.055*
	(-5.51)	(1.78)	(-2.91)	(0.33)	(-5.45)	(1.82)
DIVIDEND_DUM	-0.058***	-0.018*	0.004	0.018*	-0.055***	-0.018*
	(-3.49)	(-1.77)	(0.20)	(1.91)	(-3.35)	(-1.80)
AGE_TRANS	-0.512***	-0.231***	-0.691***	-0.509***	-0.507***	-0.228***
	(-12.33)	(-5.96)	(-10.17)	(-7.71)	(-12.22)	(-5.87)
CDS_TRADED	-0.171***	.	-0.221***	.	-0.207***	.
	(-6.57)	.	(-6.34)	.	(-8.84)	.
CDS_TRADING	-0.192***	-0.060***	.	.	.	.
	(-9.15)	(-3.69)	.	.	.	.
NOTIONAL_DUM	.	.	2.337***	1.171**	.	.
	.	.	(4.00)	(2.09)	.	.
Log(NOTIONAL)	.	.	-0.110***	-0.055**	.	.
	.	.	(-4.28)	(-2.04)	.	.
CDS_LIQ_DUM	.	.	.	.	-0.050	-0.035**
	.	.	.	.	(-1.61)	(-2.04)
Log(CDS_LIQ)	.	.	.	.	-0.287***	-0.013
	.	.	.	.	(-5.61)	(-0.40)
Number of Observations	151895	151895	49632	49632	151895	151895
Number of Clusters	5660	5660	3350	3350	5660	5660
Adjusted R^2	0.228	0.269	0.246	0.272	0.230	0.269
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-10. Median (Quantile) Regressions

Table IA-10 presents the results from median (quantile) regressions of Log(TOBIN'S_Q). See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors.

CDS Activity Proxy:	**CDS_TRADING**	**NOTIONAL**	**CDS_LIQ**
Variables	**(1)**	**(2)**	**(3)**
INTERCEPT	-0.730***	-0.786***	-0.738***
	(-78.47)	(-55.85)	(-77.92)
Log(MVE)	0.157***	0.160***	0.159***
	(136.04)	(83.56)	(134.59)
STOCK_TURNOVER	0.006***	0.004***	0.006***
	(24.30)	(10.82)	(23.71)
ROA	0.075***	-0.414***	0.056**
	(3.28)	(-7.66)	(1.99)
CAPX_TO_SALES	0.000	0.001*	0.000
	(0.60)	(1.76)	(1.60)
DEBT_TO_ASSETS	-0.161***	-0.086***	-0.160***
	(-17.37)	(-5.68)	(-16.72)
DIVIDEND_DUM	-0.046***	0.007	-0.042***
	(-11.71)	(1.08)	(-10.63)
AGE_TRANS	-0.535***	-0.667***	-0.530***
	(-34.07)	(-20.21)	(-33.24)
CDS_TRADED	-0.170***	-0.192***	-0.199***
	(-25.93)	(-18.40)	(-38.83)
CDS_TRADING	-0.186***	.	.
	(-25.96)	.	.
NOTIONAL_DUM	.	2.327***	.
	.	(13.97)	.
Log(NOTIONAL)	.	-0.110***	.
	.	(-15.30)	.
CDS_LIQ_DUM	.	.	0.008
	.	.	(0.41)
Log(CDS_LIQ)	.	.	-0.396***
	.	.	(-12.86)
Number of Observations	151895	49632	151895
Pseudo R^2	0.206	0.193	0.208
Year Fixed Effects	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-11. Baseline Results for CDS Initiated after September 2001

Table IA-11 presents the baseline regression results reported in Table 3 for the subsample of firm-quarters that excludes firms whose CDS contracts were initiated in September 2001, the earliest CDS initiation date from the Bloomberg and CMA matched database. The dependent variable in all regressions is Log(TOBIN'S_Q). See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**NOTIONAL**		**CDS_LIQ**	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEPT	-0.591***	-1.784***	-0.830***	-1.985***	-0.598***	-1.787***
	(-12.47)	(-56.51)	(-12.35)	(-37.56)	(-12.70)	(-56.92)
Log(MVE)	0.169***	0.318***	0.170***	0.355***	0.170***	0.318***
	(40.35)	(60.74)	(29.29)	(45.76)	(40.81)	(60.84)
STOCK_TURNOVER	0.005***	0.004***	0.004***	0.003***	0.005***	0.004***
	(10.45)	(10.31)	(5.56)	(6.34)	(10.46)	(10.31)
ROA	-0.256***	0.121***	-0.638***	-0.074*	-0.263***	0.121***
	(-4.10)	(3.84)	(-5.73)	(-1.66)	(-4.21)	(3.85)
CAPX_TO_SALES	0.000	-0.000**	0.000	-0.000	0.000	-0.000**
	(0.56)	(-2.06)	(1.32)	(-0.07)	(0.58)	(-2.00)
DEBT_TO_ASSETS	-0.210***	0.031	-0.167***	-0.022	-0.208***	0.033
	(-5.74)	(1.03)	(-3.09)	(-0.52)	(-5.68)	(1.07)
DIVIDEND_DUM	-0.057***	-0.013	0.004	0.023**	-0.054***	-0.013
	(-3.43)	(-1.30)	(0.18)	(2.42)	(-3.28)	(-1.31)
AGE_TRANS	-0.521***	-0.254***	-0.696***	-0.443***	-0.517***	-0.253***
	(-12.53)	(-6.60)	(-10.20)	(-6.81)	(-12.43)	(-6.56)
CDS_TRADED	-0.179***	.	-0.222***	.	-0.210***	.
	(-6.85)	.	(-6.37)	.	(-8.92)	.
CDS_TRADING	-0.180***	-0.051***	.	.	.	.
	(-8.45)	(-3.08)	.	.	.	.
NOTIONAL_DUM	.	.	2.343***	0.866*	.	.
	.	.	(3.91)	(1.71)	.	.
Log(NOTIONAL)	.	.	-0.110***	-0.042*	.	.
	.	.	(-4.18)	(-1.72)	.	.
CDS_LIQ_DUM	.	.	.	.	-0.014	0.003
	.	.	.	.	(-0.45)	(0.15)
Log(CDS_LIQ)	.	.	.	.	-0.340***	-0.074**
	.	.	.	.	(-6.58)	(-2.29)
Number of Observations	151626	151626	49540	49540	151626	151626
Number of Clusters	5654	5654	3345	3345	5654	5654
Adjusted R^2	0.337	0.345	0.337	0.324	0.339	0.345
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-12. Baseline Results for the Period September 2001–December 2013

Table IA-12 presents the baseline regression results reported in Table 3 for the subsample firm-quarters between September 2001 and December 2013. The dependent variable in all regressions is Log(TOBIN'S_Q). See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**NOTIONAL**		**CDS_LIQ**	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEPT	-0.758***	-1.570***	-0.723***	-1.987***	-0.765***	-1.570***
	(-14.00)	(-46.51)	(-10.74)	(-37.54)	(-14.16)	(-46.55)
Log(MVE)	0.166***	0.320***	0.170***	0.355***	0.167***	0.320***
	(38.71)	(59.17)	(29.36)	(45.77)	(39.18)	(59.25)
STOCK_TURNOVER	0.005***	0.004***	0.004***	0.003***	0.005***	0.004***
	(10.24)	(10.04)	(5.55)	(6.35)	(10.26)	(10.03)
ROA	-0.314***	0.107***	-0.638***	-0.074*	-0.323***	0.107***
	(-4.64)	(3.28)	(-5.73)	(-1.65)	(-4.77)	(3.28)
CAPX_TO_SALES	0.000	-0.000**	0.000	-0.000	0.000	-0.000*
	(0.39)	(-1.99)	(1.32)	(-0.07)	(0.42)	(-1.94)
DEBT_TO_ASSETS	-0.218***	0.037	-0.166***	-0.021	-0.215***	0.038
	(-5.83)	(1.20)	(-3.07)	(-0.52)	(-5.77)	(1.24)
DIVIDEND_DUM	-0.050***	-0.010	0.004	0.022**	-0.048***	-0.010
	(-3.01)	(-1.07)	(0.19)	(2.40)	(-2.85)	(-1.07)
AGE_TRANS	-0.549***	-0.285***	-0.697***	-0.444***	-0.544***	-0.285***
	(-12.77)	(-7.27)	(-10.20)	(-6.82)	(-12.66)	(-7.25)
CDS_TRADED	-0.182***	.	-0.223***	.	-0.210***	.
	(-6.79)	.	(-6.38)	.	(-8.80)	.
CDS_TRADING	-0.176***	-0.043**	.	.	.	.
	(-8.05)	(-2.57)	.	.	.	.
NOTIONAL_DUM	.	.	2.322***	0.872*	.	.
	.	.	(3.94)	(1.72)	.	.
Log(NOTIONAL)	.	.	-0.109***	-0.042*	.	.
	.	.	(-4.22)	(-1.73)	.	.
CDS_LIQ_DUM	.	.	.	.	-0.007	0.008
	.	.	.	.	(-0.22)	(0.47)
Log(CDS_LIQ)	.	.	.	.	-0.349***	-0.071**
	.	.	.	.	(-6.85)	(-2.23)
Number of Observations	144179	144179	49632	49632	144179	144179
Number of Clusters	5376	5376	3350	3350	5376	5376
Adjusted R^2	0.335	0.352	0.337	0.324	0.337	0.352
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-13. Determinants of CDS Trading

Table IA-13 presents the average marginal effects from probit regressions of CDS trading. The sample includes 76,263 firm-quarters over the period between 2001 and 2013 with non-missing BANK_FOREX variable. Incremental Likelihood-Ratio (LR) Chi-Square Test reports the test statistic for the improvement in the estimated model fit with the inclusion of BANK_FOREX as an independent variable. The independent variables in Regression (2) are lagged by one-quarter to reduce the contemporaneous effect of CDS initiation on the independent variables. Change in Log(TOBIN'S_Q) equals Log(TOBIN'S_Q_{t-1}) minus Log(TOBIN'S_Q_{t-2}). See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are z-values computed using robust standard errors clustered at the firm level.

Regression Model:	**Probit Regression for IV Method**	**Probit Regression for PSM Method**
Variables	**(1)**	**(2)**
Log(MVE)	0.083***	0.098***
	(23.36)	(28.43)
STOCK_TURNOVER	0.001***	0.001***
	(2.93)	(3.22)
ROA	-0.347***	0.078*
	(-7.38)	(1.87)
CAPX_TO_SALES	-0.116***	-0.083***
	(-4.11)	(-3.66)
DEBT_TO_ASSETS	0.227***	0.283***
	(6.55)	(8.90)
DIVIDEND_DUM	0.023**	0.015*
	(2.46)	(1.71)
AGE_TRANS	0.203***	0.205***
	(4.39)	(5.06)
SEN_UNSEC_DUM	0.061***	0.048***
	(6.66)	(5.60)
BANK_FOREX	0.514***	0.335**
	(2.97)	(2.06)
Log(TOBIN'S_Q)	.	-0.150***
	.	(-16.18)
Change in Log(TOBIN'S_Q)	.	0.143***
	.	(18.40)
Number of Observations	73492	70456
Number of Clusters	3005	2931
Pseudo R^2	0.583	0.643
Incremental LR Chi-Square Test	76.46***	.
Year Fixed Effects	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively

Table IA-14. Alternative Propensity Score Matching Method

Table IA-14 presents the results from the propensity score matching method reported in Table 6 using Log(TOBIN'S_Q_{t-1}) minus Log(TOBIN'S_Q_{t-6}), instead of Log(TOBIN'S_Q_{t-1}) minus Log(TOBIN'S_Q_{t-2}), as a control variable in the probit regression for estimating the propensity scores. Panel A reports the summary statistics—measured relative to CDS initiation quarter, *t*—for PROPENSITY_SCORE$_t$, TOBIN'S_Q_{t-1}, change in Log(TOBIN'S_Q_{t-1}), and MVE_{t-1} across the CDS and benchmark firms followed by their tests of differences in means (t-value from a t-test) and medians (z-value from a Wilcoxon rank-sum test). Panel B reports the regression results using the matched sample where the dependent variable is Log(TOBIN'S_Q). The t-statistics reported in parenthesis are computed using robust standard errors clustered at the firm level.

Panel A: Matching Characteristics

Sample:	**CDS Firms**			**Benchmark Firms**			**Test of Diff.**	
Variables	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**t-value**	**z-value**
PROPENSITY_SCORE$_t$	380	0.350	0.305	380	0.360	0.327	-0.16	-0.13
TOBIN'S_Q_{t-1}	380	1.258	1.086	380	1.367	1.101	-1.90*	-1.08
Log(Q_{t-1}) – Log(Q_{t-6})	380	-0.013	-0.018	380	-0.026	-0.012	0.67	0.08
MVE_{t-1} ($billion)	380	13.630	4.450	380	16.452	6.070	-1.17	-1.45

Panel B: Regression Results

Variables	**(1)**	**(2)**
INTERCEPT	-0.963***	-2.146***
	(-8.12)	(-16.05)
Log(MVE)	0.103***	0.266***
	(9.48)	(20.08)
STOCK_TURNOVER	0.002**	-0.000
	(2.05)	(-0.60)
ROA	3.807***	1.487***
	(12.14)	(10.70)
CAPX_TO_SALES	0.000***	-0.000***
	(12.97)	(-5.14)
DEBT_TO_ASSETS	0.530***	0.404***
	(7.28)	(5.22)
DIVIDEND_DUM	-0.050**	-0.033**
	(-2.10)	(-2.18)
AGE_TRANS	-0.270**	0.000
	(-1.97)	(0.00)
CDS_TRADED	-0.015	.
	(-0.51)	.
CDS_TRADING	-0.160***	-0.039***
	(-8.46)	(-2.93)
Number of Observations	34670	34670
Number of Clusters	760	760
Adjusted R^2	0.472	0.369
Year Fixed Effects	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	No
Firm Fixed Effects	No	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-15. Characteristics of the Propensity Score Matched Sample

Table IA-15 presents the firm characteristics for the propensity score matched sample. "CDS Firms" include 398 firms with trading CDS that are matched with a benchmark firm. "Non-CDS Firms" include 2,931 firms without trading CDS that have a propensity score matching score. "Benchmark Firms" are a subset of "Non-CDS Firms" that are one-on-one matched with the CDS firms. A benchmark firm has the predicted probability of CDS trading closest to that of the CDS firm in the quarter of CDS initiation. When there are multiple benchmark firms that meet the criteria, benchmark firm is the one with Tobin's *q* closest to that of the CDS firm. See Table 6 for details. CDS and benchmark firm characteristics are measured in the quarter prior to the CDS initiation quarter except for PROPENSITY_SCORE$_t$, which is the estimated probability of CDS trading in the CDS initiation quarter. ΔLog(TOBIN'S_Q$_{t-1}$) is Log(TOBIN'S_Q$_{t-1}$) minus Log(TOBIN'S_Q$_{t-2}$). Because a CDS initiation quarter is not identified for the non-CDS firms, their characteristics are presented quarterly (56,726 firm-quarters). "Tests of Differences" column reports the statistical tests of differences in means (t-value from a t-test) and medians (z-value from a Wilcoxon rank-sum test).

Sample:	**CDS Firms**		**Non-CDS Firms**		**Benchmark Firms**		**Test of Differences**			
	(A)		**(B)**		**(C)**		**(A) – (B)**		**(A) – (C)**	
Variables	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**t-val.**	**z-val.**	**t-val.**	**z-val.**
PROPENSITY_SCORE$_t$	0.395	0.361	0.069	0.001	0.393	0.360	25.85***	28.36***	0.81	0.09
TOBIN'S_Q$_{t-1}$	1.369	1.096	1.414	1.111	1.325	1.065	-1.01	-0.10	0.75	0.39
ΔLog(TOBIN'S_Q$_{t-1}$)	-0.019	-0.003	-0.001	0.007	-0.008	0.002	-2.61***	-2.57**	-1.27	-0.89
MVE$_{t-1}$ ($ billion)	16.421	5.882	2.323	0.684	15.082	5.185	7.64***	25.87***	0.56	0.51
STOCK_TURNOVER$_{t-1}$	8.077	6.536	8.804	6.479	7.601	5.585	-2.45**	0.90	1.10	2.21**
ROA$_{t-1}$	0.011	0.011	0.004	0.010	0.009	0.011	5.90***	2.57**	0.96	0.03
CAPX_TO_SALES$_{t-1}$	0.091	0.049	1.231	0.034	0.081	0.049	-3.28***	6.15***	1.19	-0.04
DEBT_TO_ASSETS$_{t-1}$	0.279	0.259	0.200	0.178	0.282	0.267	11.22***	10.81***	-0.31	-0.14
DIVIDEND_DUM$_{t-1}$	0.688	1.000	0.333	0.000	0.613	1.000	15.24***	14.97***	2.24**	2.23**
AGE$_{t-1}$	32.669	30.666	18.778	13.885	32.067	25.477	11.44***	11.47***	0.35	0.38

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-16. Baseline Results for the Detrended Tobin's *q*

Table IA-16 presents the coefficient estimates from regressions of detrended Log(TOBIN'S_Q) using the propensity score matching sample described in Table 6. The purpose of these regressions is to address the bias that could arise from the gradual decline in Log(TOBIN'S_Q) starting around four quarters before the CDS initiation (see Figure 1 for details). The matched sample design allows for detrending both the CDS and benchmark firms relative to the CDS initiation quarter. To detrend Log(TOBIN'S_Q), we first define a time variable as the difference (in number of quarters) between the observation and CDS initiation quarters. Therefore, time equals zero in the quarter of CDS initiation, and increases (decreases) as the observation quarter increases (decreases). Next, we fit a regression of Log(TOBIN'S_Q) using time as the explanatory variable. The linear model controls for only time, the quadratic model controls for time and time-squared, and the cubic model controls for time, time-squared, and time-cubed. Finally, we use the residuals from these regression as the detrended Log(TOBIN'S_Q). In Regressions (1)–(3), we estimate the detrended Log(TOBIN'S_Q) using the entire sample, assuming that CDS and benchmark firms have similar trends. In Regressions (4)–(6), we release this assumption by estimating the detrended Log(TOBIN'S_Q) separately for the CDS and benchmark firms. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

Assumption:	**CDS and Benchmark Firms Have the Same Trend**			**CDS and Benchmark Firms Have Different Trends**		
Trend:	**Linear**	**Quadratic**	**Cubic**	**Linear**	**Quadratic**	**Cubic**
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
INTERCEP	-2.247***	-2.245***	-2.228***	-2.246***	-2.241***	-2.228***
	(-15.48)	(-15.47)	(-15.23)	(-15.47)	(-15.37)	(-15.26)
Log(MVE)	0.254***	0.254***	0.252***	0.254***	0.253***	0.252***
	(18.22)	(18.21)	(18.00)	(18.22)	(18.12)	(17.99)
STOCK_TURNOVER	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.22)	(-0.22)	(-0.19)	(-0.21)	(-0.20)	(-0.01)
ROA	1.506***	1.507***	1.502***	1.507***	1.506***	1.505***
	(11.61)	(11.61)	(11.43)	(11.61)	(11.58)	(11.48)
CAPX_TO_SALES	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(-6.33)	(-6.32)	(-6.00)	(-6.35)	(-6.28)	(-6.28)
DEBT_TO_ASSETS	0.426***	0.425***	0.424***	0.425***	0.426***	0.428***
	(4.93)	(4.93)	(4.85)	(4.93)	(4.93)	(4.93)
DIVIDEND_DUM	-0.043***	-0.043***	-0.042***	-0.043***	-0.043***	-0.042***
	(-2.65)	(-2.66)	(-2.60)	(-2.65)	(-2.67)	(-2.64)
AGE_TRANS	-0.046	-0.046	-0.033	-0.045	-0.048	-0.030
	(-0.59)	(-0.60)	(-0.42)	(-0.58)	(-0.61)	(-0.38)
CDS_TRADING	-0.051***	-0.051***	-0.038***	-0.050***	-0.045***	-0.028*
	(-3.56)	(-3.56)	(-2.63)	(-3.49)	(-3.09)	(-1.90)
Number of Observations	35526	35526	35526	35526	35526	35526
Number of Clusters	796	796	796	796	796	796
Adjusted R^2	0.327	0.327	0.319	0.327	0.326	0.317
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-17. Baseline Results for the Investment-Grade Firms in the pre-Big Bang Period

Table IA-17 presents the baseline regression results with firm fixed effects reported in Table 3 for the investment-grade firms during the entire period and the pre-Big Bang Protocol (April 8, 2009). The dependent variable in all regressions is Log(TOBIN'S_Q). The analysis excludes NOTIONAL as a CDS activity variable because it is available for only one quarter in the pre-Big Bang Protocol period. See Table 1 for sample selection criteria and the Appendix for variable definitions. Reported in parenthesis are t-statistics computed using robust standard errors clustered at the firm level.

CDS Activity Proxy:	**CDS_TRADING**		**CDS_LIQ**	
Period:	**All**	**Pre-Big Bang**	**All**	**Pre-Big Bang**
Variables	**(1)**	**(2)**	**(3)**	**(4)**
INTERCEPT	-3.056***	-3.380***	-3.056***	-3.377***
	(-14.88)	(-17.23)	(-14.89)	(-17.20)
Log(MVE)	0.362***	0.386***	0.361***	0.385***
	(16.57)	(19.60)	(16.57)	(19.51)
STOCK_TURNOVER	-0.001	-0.001	-0.000	-0.000
	(-0.56)	(-0.48)	(-0.39)	(-0.36)
ROA	1.678***	1.086***	1.675***	1.087***
	(6.86)	(4.90)	(6.86)	(4.91)
CAPX_TO_SALES	-0.066	-0.036	-0.063	-0.032
	(-1.30)	(-0.49)	(-1.23)	(-0.45)
DEBT_TO_ASSETS	0.090	0.118	0.089	0.115
	(1.06)	(1.37)	(1.05)	(1.33)
DIVIDEND_DUM	-0.039*	0.016	-0.039*	0.015
	(-1.75)	(1.01)	(-1.78)	(0.90)
AGE_TRANS	0.205	0.175	0.202	0.173
	(1.18)	(0.83)	(1.15)	(0.81)
CDS_TRADING	-0.047***	-0.033***	.	.
	(-2.87)	(-2.63)	.	.
CDS_LIQ_DUM	.	.	0.004	0.003
	.	.	(0.23)	(0.25)
Log(CDS_LIQ)	.	.	-0.076**	-0.057**
	.	.	(-2.29)	(-2.29)
Number of Observations	20973	13821	20973	13821
Number of Clusters	686	625	686	625
Adjusted R^2	0.405	0.413	0.405	0.412
Year Fixed Effects	Yes	Yes	Yes	Yes
Credit Rating Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table IA-18. Probit Regressions of Credit Rating Downgrade – Marginal Effects

Table IA-18 presents the average marginal effects from the probit regressions of RATING_DOWN variable reported in Table 9. See Table 1 for sample selection criteria and the Appendix for variable definitions. For each firm-quarter, RATING_DOWN indicates a credit rating downgrade from the previous quarter, and it is available for firms with non-missing credit ratings in two subsequent quarters. For each CDS activity proxy, we control for the independent variables in the corresponding baseline regression model presented in Table 3. Reported in parenthesis are z-statistics computed using robust standard errors clustered at the firm level.

Variables	**(1)**	**(2)**	**(3)**
CDS Activity			
CDS_TRADING	0.016***	.	.
	(3.74)	.	.
Log(NOTIONAL)	.	0.013***	.
	.	(3.32)	.
Log(CDS_LIQ)	.	.	0.024*
	.	.	(1.79)
Number of Observations	42602	15302	42602
Number of Clusters	1557	1019	1557
Pseudo R^2	0.077	0.132	0.075
Firm Characteristics	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Figure IA-1. Illustration of CDS Trading and Traded Variables

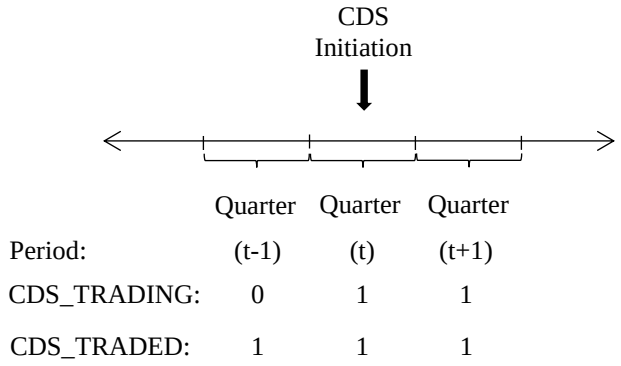


Figure IA-1 illustrates the definitions of CDS_TRADING and CDS_TRADED variables using a timeline. CDS_TRADING is a dummy variable equals one for quarters following the CDS initiation date, and zero otherwise. CDS_TRADED is a dummy variable equals one if there is a CDS market on the firm's debt at any time during the sample period, and zero otherwise.

Figure IA-2. Distributions of the Key Variables

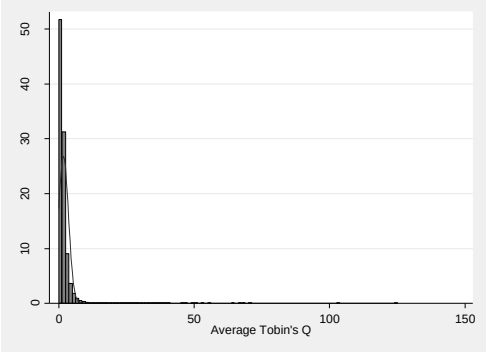
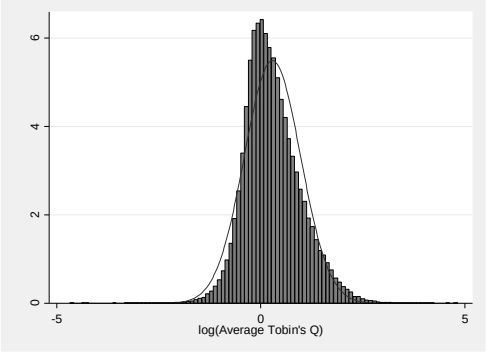
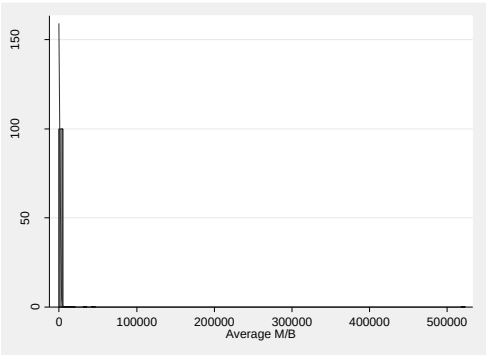
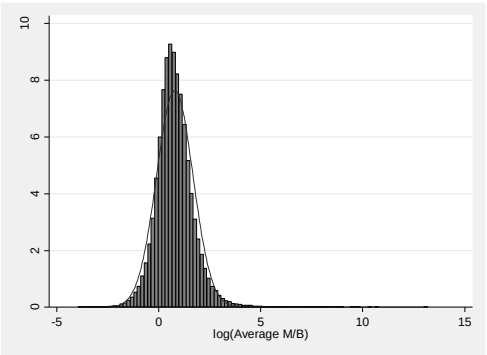
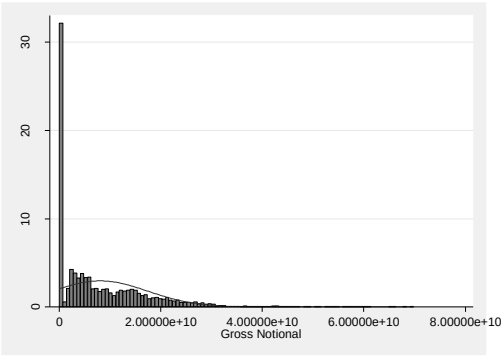
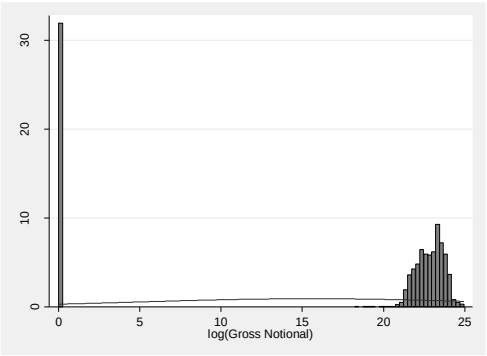
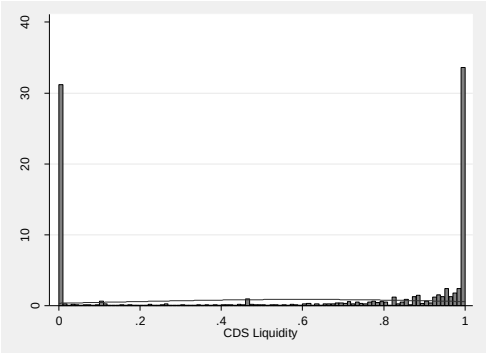
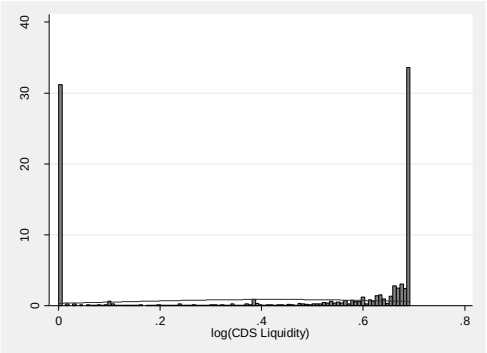
Variable	Levels	Log(Levels)
TOBIN'S_Q		
MB_RATIO		
NOTIONAL		
CDS_LIQ		

Figure IA-2 presents the histograms of raw and log-transformed values of TOBIN'S_Q, MB_RATIO, NOTIONAL, and CDS_LIQ. The sample comprises 161,954 firm-quarters from 2001 to 2013. The distribution of NOTIONAL is based on the sample of 7,317 firm-quarters with CDS trading from 2009 to 2013. The distribution of CDS_LIQ is based on the sample of 15,008 firm-quarters with CDS trading.

Figure IA-3. Graph of Relative *q* – All CDS Firms

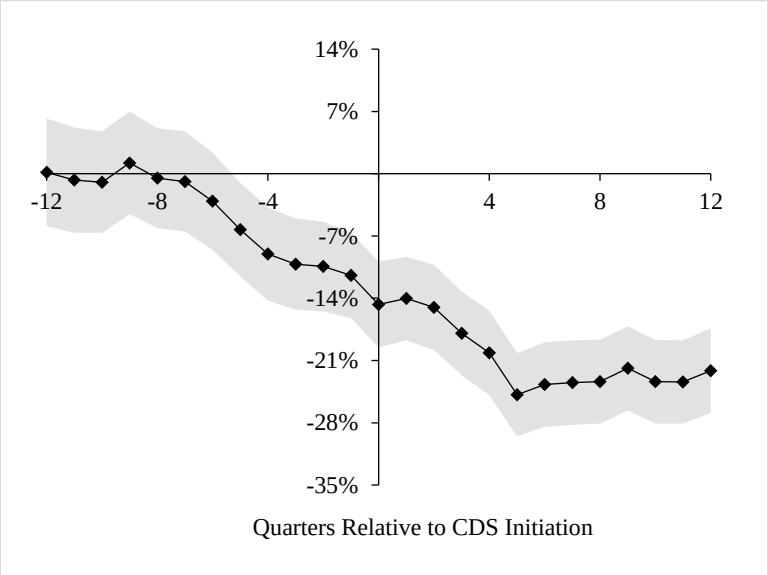


Figure IA-3 presents the average RELATIVE_Q and its 95% confidence interval in each quarter over a three-year event window around the initiation of CDS trading. RELATIVE_Q for a CDS firm *i* in quarter *t* equals:

$$RELATIVE\_Q_{i,t} = Log(TOBIN'S\_Q_{i,t}) - \sum_{j=1}^{n_t} Log(TOBIN'S\_Q_{j,t}) / n_t$$

where *j* indicates a non-CDS firm and n_t equals the number of non-CDS firms in quarter *t*. The non-CDS firms include all firms without trading CDS in the given quarter. Accordingly, the average RELATIVE_Q measures the average percentage difference in TOBIN'S_Q between CDS and non-CDS firms in a quarter. The CDS sample includes 494 firms with CDS.

Figure IA-4. Graph of Cumulative Abnormal Returns

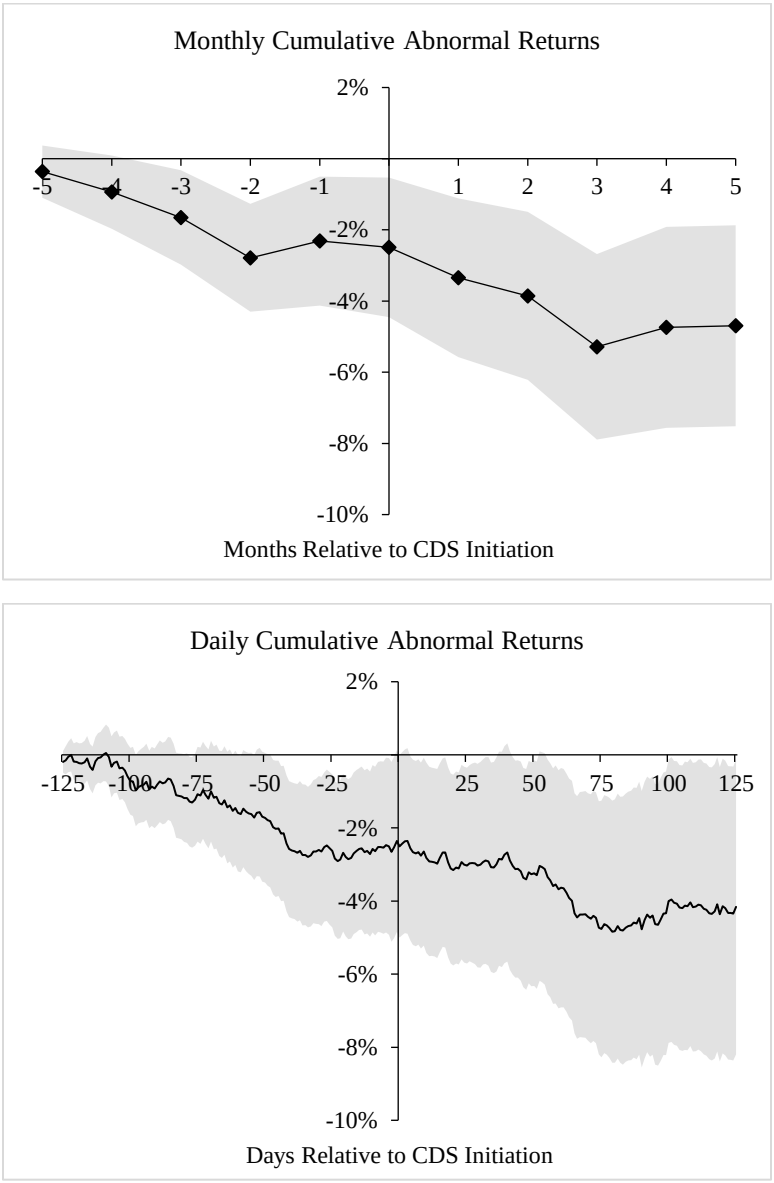


Figure IA-4 shows the average cumulative abnormal stock returns (CAR), along with their 95% confidence intervals, for CDS firms during the one-year period surrounding the initiation of CDS trading. We estimate the expected returns using the Fama-French 3-factor model (the factors are obtained from Kenneth R. French's Web site). For the monthly analysis, we estimate the factor loadings during the 60-month period before the event window and require firms to have at least 24 non-missing monthly returns. For the daily analysis, we estimate the factor loadings during the 252-trading day period before the event window and require firms to have at least 60 non-missing daily returns. The sample includes 438 CDS firms in the monthly analysis and 462 CDS firms in the daily analysis.