

Internet Appendix to “Credit Default Swaps, Exacting Creditors and Corporate Liquidity Management” (not to be included for publication)

Table A1
Probability of Credit Default Swaps Trading

This table presents the estimates of the probability of credit default swaps (CDS) trading and the comparison between CDS and propensity score-matched firms. Panel A presents the estimates of the probability of CDS trading, obtained using a probit model. Propensity scores are estimated based on the model parameters. $\ln(\text{Assets})$ is the logarithm of the firm’s total asset value. *Leverage* is defined as the ratio of book debt to total assets. *ROA* is the firm’s return on assets. $r_{it-1} - r_{mt-1}$ is the firm’s excess return over the past year. *Equity Volatility* is the firm’s annualized equity volatility. *PPENT/Total Asset* is the ratio of property, plant and equipment to total assets. *Sales/Total Asset* is the ratio of sales to total assets. *EBIT/Total Asset* is the ratio of earnings before interest and tax to total assets. *WCAP/Total Asset* is the ratio of working capital to total assets. *RE/Total Asset* is the ratio of retained earnings to total assets. *Cash/Total Asset* is the ratio of cash to total assets. *CAPX/Total Asset* is the ratio of capital expenditure to total assets. *Rated* is a dummy variable that equals one if the firm is rated. *Senior Unsecured Debt* is the ratio of senior unsecured debt to total debt. *Lender Size* is a measure of the size of the lending banks and underwriters. *Lender Credit Derivatives* measures the credit derivative activities of the lenders. *Lender FX Usage* is a measure of the FX hedging activities of the lending banks and underwriters, and *Lender Tier 1 Capital* is the Tier 1 capital ratio of the lenders. The sample period is 1997-2009. Panel B compares the difference in characteristics between CDS and propensity score-matched non-CDS firms. Propensity score-matched firms are selected based on Model 3 in Table A1 Panel A, with nearest propensity score. *Cash* is the ratio of cash and marketable securities to total assets. *B/M* is the book-to-market ratio. *ROE* is the firm’s return on equity. *Distance-to-Default* is the firm’s distance-to-default calculated from Merton (1974). *Propensity Score* is the propensity score estimated from the model of probability of CDS trading presented in Model 3 of Table A1 Panel A. (***) denotes significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level. The numbers in parentheses are standard errors.)

Panel A: Probability of CDS Trading

	CDS Prediction Model 1	CDS Prediction Model 2	CDS Prediction Model 3
<i>Ln(Assets)</i>	0.790*** (0.006)	0.804*** (0.006)	0.797*** (0.006)
<i>Leverage</i>	0.429*** (0.025)	0.440*** (0.025)	0.431*** (0.026)
<i>ROA</i>	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
<i>r_{it-1} - r_{mt-1}</i>	-0.104*** (0.011)	-0.104*** (0.011)	-0.104*** (0.011)
<i>Equity Volatility</i>	0.063*** (0.017)	0.069*** (0.017)	0.067*** (0.017)
<i>PPENT/Total Asset</i>	0.306*** (0.031)	0.321*** (0.031)	0.307*** (0.031)
<i>Sales/Total Asset</i>	-0.026*** (0.009)	-0.027*** (0.003)	-0.026*** (0.003)
<i>EBIT/Total Asset</i>	0.315*** (0.064)	0.375*** (0.064)	0.338*** (0.064)
<i>WCAP/Total Asset</i>	0.142*** (0.024)	0.145*** (0.024)	0.143*** (0.024)
<i>RE/Total Asset</i>	0.022*** (0.005)	0.023*** (0.005)	0.024*** (0.005)
<i>Cash/Total Asset</i>	0.290*** (0.023)	0.302*** (0.023)	0.294*** (0.023)
<i>CAPX/Total Asset</i>	-1.611*** (0.122)	-1.677*** (0.122)	-1.604*** (0.122)
<i>Rated</i>	0.667*** (0.203)	0.645*** (0.205)	0.638*** (0.205)
<i>Senior Unsecured Debt</i>	0.375*** (0.014)	0.377*** (0.014)	0.375*** (0.014)
<i>Lender Size</i>	0.369*** (0.011)	0.378*** (0.011)	0.385*** (0.011)
<i>Lender Credit Derivatives</i>	1.006*** (0.024)	1.013*** (0.024)	1.019*** (0.025)
<i>Lender FX Usage</i>	8.979*** (0.788)		9.104*** (0.789)
<i>Lender Tier 1 Capital</i>		-3.865*** (0.756)	-4.000*** (0.757)
F-statistic (instruments)	129.89	26.13	159.74
p-value (F-statistic)	0.000	0.000	0.000
Credit Rating Controls	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes
Clustered Standard Error	Yes	Yes	Yes
Pseudo R^2	38.96%	38.79%	38.99%
N	690111	690111	690111

Panel B: Comparison between CDS and Propensity Score-Matched Firms

	CDS Firm	Matching Firm	Difference
<i>Cash</i>	0.076	0.080	-0.004
<i>Leverage</i>	0.193	0.177	0.016
<i>ln(Asset)</i>	8.597	8.492	0.105*
<i>B/M</i>	0.600	0.849	-0.249**
<i>ROE</i>	-0.012	-0.172	0.161
<i>Distance-to-Default</i>	2.734	2.681	0.053
<i>Propensity Score</i>	0.561	0.556	0.005

Table A2
Effect of CDS on Cash Holdings: Robustness Checks

This table presents robustness checks for the effect of CDS trading on cash holdings. In Panel A, Model 1 is based on the sample of all Compustat firms. Model 2 is based on the sample of all Compustat firms, for firm-years with at least 100 million in assets. Model 3 is the cash-holding analysis conducted on the sample of all Compustat firms, excluding financial firms. Model 4 is the cash-holding analysis conducted on the sample of all Compustat firms with firm-years with at least 100 million in assets, excluding financial firms. Panel B investigates the CDS effect in the propensity-score-matched sample, excluding financial firms. Panel C conducts a placebo test on the propensity-score-matched sample. We use data from the 1980s, when there was no CDS trading, and perform the cash-holding analysis using pseudo-CDS firms and their control groups. (***) denotes significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level. The numbers in parentheses are standard errors.)

Panel A: All Compustat Firms As Control Group

	All Firms		Non-Financial Firms	
	(1)	(2)	(3)	(4)
<i>CDS Trading</i>	0.020*** (0.003)	0.024*** (0.003)	0.020*** (0.003)	0.023*** (0.003)
<i>Industry Sigma</i>	0.076*** (0.016)	0.071*** (0.017)	0.073*** (0.016)	0.074*** (0.017)
<i>Cash Flow/Assets</i>	0.066*** (0.009)	0.016 (0.013)	0.062*** (0.010)	0.013 (0.013)
<i>Market to Book</i>	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.007*** (0.001)
<i>Size</i>	-0.009*** (0.001)	-0.011*** (0.001)	-0.009*** (0.001)	-0.011*** (0.001)
<i>Net Working Capital/Assets</i>	-0.046*** (0.004)	-0.063*** (0.006)	-0.046*** (0.004)	-0.061*** (0.006)
<i>Capital Expenditure</i>	-0.211*** (0.012)	-0.146*** (0.011)	-0.212*** (0.012)	-0.148*** (0.011)
<i>Leverage</i>	-0.084*** (0.005)	-0.073*** (0.006)	-0.084*** (0.005)	-0.075*** (0.006)
<i>R&D/Sales</i>	0.195*** (0.015)	0.161*** (0.032)	0.196*** (0.015)	0.152*** (0.033)
<i>Dividend Dummy</i>	0.007*** (0.002)	0.001 (0.002)	0.008*** (0.002)	0.001 (0.002)
<i>Acquisition Activity</i>	-0.197*** (0.013)	-0.164*** (0.012)	-0.191*** (0.013)	-0.161*** (0.012)
<i>Foreign Pretax Income</i>	0.004* (0.002)	0.108*** (0.028)	0.004* (0.002)	0.101*** (0.027)
Time Fixed Effect	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Clustered Standard Error	Yes	Yes	Yes	Yes
N	308510	167492	294893	160998
<i>R</i> ²	74.94%	83.38%	75.05%	83.35%

Panel B: Propensity-score-matched Firms as Control Group, Excluding Financial Firms

	Single Equation	Simultaneous Equations	
	(1)	(2)	
	Cash	Leverage	Cash
<i>CDS Trading</i>	0.025*** (0.006)	0.039*** (0.002)	0.017*** (0.003)
<i>Leverage</i>	-0.046 (0.039)		0.195* (0.101)
<i>Industry Cash</i>			0.405*** (0.031)
<i>Cash</i>		-0.574*** (0.071)	
<i>Industry Leverage</i>		0.143*** (0.018)	
<i>Industry Sigma</i>	0.067 (0.044)	0.002 (0.013)	0.036*** (0.009)
<i>Cash Flow/Assets</i>	-0.008 (0.070)	-0.222*** (0.021)	0.052* (0.027)
<i>Market to Book</i>	-0.001 (0.002)	-0.014*** (0.001)	0.003* (0.001)
<i>Size</i>	-0.026*** (0.007)	-0.028*** (0.002)	-0.024*** (0.001)
<i>Net Working Capital/Assets</i>	-0.057 (0.056)	-0.051*** (0.007)	-0.033*** (0.005)
<i>Capital Expenditure</i>	-0.167*** (0.025)	-0.190*** (0.021)	-0.124*** (0.016)
<i>R&D/Sales</i>	0.245** (0.110)	-0.005 (0.031)	0.275*** (0.022)
<i>Dividend Dummy</i>	-0.017* (0.010)	-0.023*** (0.002)	-0.012*** (0.002)
<i>Acquisition Activity</i>	-0.181*** (0.058)	0.075*** (0.019)	-0.212*** (0.020)
<i>Foreign Pretax Income</i>	0.223*** (0.058)	-0.045* (0.023)	0.236*** (0.021)
Time Fixed Effect	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes
Clustered Standard Error	Yes	Yes	Yes
N	40018	39652	39652
R ²	75.01%	71.47%	67.68%

Panel C: Placebo Test

	Cash
<i>Placebo CDS Trading</i>	0.007 (0.004)
<i>Industry Sigma</i>	-0.001 (0.001)
<i>Cash Flow/Assets</i>	-0.085** (0.036)
<i>Market to Book</i>	0.027*** (0.003)
<i>Size</i>	-0.010*** (0.002)
<i>Net Working Capital/Assets</i>	-0.229*** (0.018)
<i>Capital Expenditure</i>	-0.273*** (0.030)
<i>Leverage</i>	-0.201*** (0.015)
<i>R&D/Sales</i>	0.031 (0.028)
<i>Dividend Dummy</i>	-0.058*** (0.007)
<i>Acquisition Activity</i>	-0.104*** (0.013)
Time Fixed Effect	Yes
Firm Fixed Effect	Yes
Clustered Standard Error	Yes
N	10333
R ²	56.11%

Table A3
CDS outstanding and cash holdings

This table presents the estimates of the effect of CDS on corporate cash holdings in the sample of CDS firms. The overall sample of firms is taken from Compustat. The CDS data are taken from CreditTrade and the GFI Group. *CDS Outstanding/Total Debt* is the ratio of total notional CDS outstanding to the book value of the total debt. The coefficient of interest is that of *CDS Outstanding/Total Debt*, which captures the impact of the inception of CDS trading on cash holdings. The sample period is 1997-2009, based on quarterly observations. (***) denotes significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level. The numbers in parentheses are standard errors.)

	Cash
<i>CDS Outstanding/Total Debt</i>	0.005** (0.003)
<i>Industry Sigma</i>	0.040 (0.029)
<i>Cash Flow/Assets</i>	-0.039 (0.026)
<i>Market to Book</i>	0.000 (0.002)
<i>Size</i>	-0.007*** (0.002)
<i>Net Working Capital/Assets</i>	-0.056*** (0.012)
<i>Capital Expenditure</i>	-0.116*** (0.022)
<i>Leverage</i>	-0.050*** (0.013)
<i>R&D/Sales</i>	0.143** (0.063)
<i>Dividend Dummy</i>	0.004 (0.005)
<i>Acquisition Activity</i>	-0.082*** (0.024)
<i>Foreign Pretax Income</i>	0.164*** (0.037)
Time Fixed Effect	Yes
Firm Fixed Effect	Yes
Clustered Standard Error	Yes
N	29120
<i>R</i> ²	71.87%

Table A4

Effect of CDS on Corporate Finance: Corporate Governance Control

This table presents the estimates of the simultaneous effect of CDS on corporate leverage and cash holdings in a sample including firms with CDS and non-CDS propensity-score-matched firms. The leverage and cash equations are estimated simultaneously by two-stage least squares procedures. *E-index* is the entrenchment index, which is a measure of the quality of firms' governance provisions. The coefficients of interest are those of *CDS Trading* and *CDS Trading*×*E-index*, which capture the impact of the inception of CDS trading on cash holdings and leverage. The sample period is 1997-2009, based on quarterly observations. (***) denotes significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level. The numbers in parentheses are standard errors.)

	Leverage	Cash
<i>CDS Trading</i>	0.064*** (0.003)	0.032*** (0.004)
<i>CDS Trading</i> × <i>E-index</i>	-0.008*** (0.001)	-0.004*** (0.001)
<i>E-index</i>	0.004*** (0.001)	0.002*** (0.001)
<i>Cash</i>	-0.582*** (0.072)	
<i>Industry Leverage</i>	0.164*** (0.019)	
<i>Leverage</i>		0.000 (0.077)
<i>Industry Cash</i>		0.376*** (0.028)
<i>Industry Sigma</i>	0.044*** (0.015)	0.059*** (0.009)
<i>Cash Flow/Assets</i>	-0.345*** (0.023)	0.005 (0.031)
<i>Market to Book</i>	-0.014*** (0.001)	0.002 (0.001)
<i>Size</i>	-0.031*** (0.002)	-0.022*** (0.002)
<i>Net Working Capital/Assets</i>	-0.052*** (0.007)	-0.010* (0.006)
<i>Capital Expenditure</i>	-0.200*** (0.023)	-0.139*** (0.016)
<i>R&D/Sales</i>	-0.043 (0.031)	0.239*** (0.021)
<i>Dividend Dummy</i>	0.016*** (0.005)	-0.035*** (0.004)
<i>Acquisition Activity</i>	0.101*** (0.019)	-0.168*** (0.018)
Time Fixed Effect	Yes	Yes
Firm Fixed Effect	Yes	Yes
Clustered Standard Error	Yes	Yes
N	34516	34516
R ²	72.06%	73.17%

Table A5
Simultaneous Effect of CDS on Leverage, Cash and Lines of Credit

This table presents the estimates of the simultaneous effect of CDS on corporate leverage, cash holdings and lines of credit in a sample including firms with CDS and non-CDS propensity-score-matched firms. Lines of credit data are drawn from Dealscan. The leverage, cash, and lines of credit equations are estimated simultaneously. (***) denotes significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level. The numbers in parentheses are standard errors.)

	Leverage	Cash	Lines of Credit
<i>CDS Trading</i>	0.040*** (0.002)	0.019*** (0.003)	0.127 (0.129)
<i>Lines of Credit</i>	0.009*** (0.001)	-0.004*** (0.001)	
<i>Industry Leverage</i>	0.150*** (0.018)		
<i>Cash</i>	-0.501*** (0.069)		-5.210** (2.319)
<i>Industry Lines of Credit</i>			0.931*** (0.025)
<i>Industry Cash</i>		0.385*** (0.026)	
<i>Leverage</i>		0.119 (0.087)	-5.976** (2.794)
<i>Industry Sigma</i>	-0.022* (0.013)	0.046*** (0.009)	0.388 (0.295)
<i>Cash Flow/Assets</i>	-0.214*** (0.021)	0.044* (0.024)	-2.987*** (0.788)
<i>Market to Book</i>	-0.014*** (0.001)	0.002* (0.001)	-0.026 (0.040)
<i>Size</i>	-0.025*** (0.002)	-0.025*** (0.001)	-0.266*** (0.092)
<i>Net Working Capital/Assets</i>	-0.036*** (0.007)	-0.040*** (0.005)	-1.324*** (0.210)
<i>Capital Expenditure</i>	-0.160*** (0.021)	-0.146*** (0.014)	-3.125*** (0.712)
<i>R&D/Sales</i>	-0.010 (0.029)	0.231*** (0.019)	-0.763 (0.641)
<i>Dividend Dummy</i>	-0.022*** (0.002)	-0.012*** (0.002)	-0.152* (0.085)
<i>Acquisition Activity</i>	0.095*** (0.019)	-0.200*** (0.018)	-0.334 (0.444)
Time Fixed Effect	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes
Clustered Standard Error	Yes	Yes	Yes
N	40293	40293	40293
R ²	72.23%	70.34%	53.03%