Has the CDS market lowered the cost of corporate debt?

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Motivation

"[T]he innovation of credit derivatives has plausibly taken us a further step towards complete markets, in effect providing a richer market for credit insurance than previously existed...reducing the price of risk."

Paul Tucker

"The new instruments of risk dispersion have enabled...banks...to divest themselves of much credit risk... These increasingly complex financial instruments have contributed...to the development of a far more flexible, efficient, and hence resilient financial system."

Alan Greenspan

- In this paper, we investigate the claim that credit derivatives have reduced the cost of debt for corporate borrowers.

CDSs and the cost of corporate debt

- A CDS is an instrument that provides its buyer with a lump sum payment made by the seller in the case of a "credit event" of a reference entity against a periodic payment made by the buyer.
- Credit events include bankruptcy; failure to pay, restructuring and obligation default
- The periodic payment expressed as a function of its notional value is the CDS rate.
- We hypothesize that the CDS market can affect the cost of corporate debt through three channels:
  - The diversification channel
  - The information channel
  - The bank monitoring channel

Diversification channel

- New opportunities to hedge credit risk

  It is difficult to short bonds or syndicated loans

  It is risky and expensive to hedge credit risk in the equity market

  Bonds and loans purchased by buy-and-hold investors, so these markets are illiquid

=> benefit risky firms

Information channel

- Hull, Predescu, and White (2004), Longstaff, Mithal, and Neis (2004), Norden and Weber (2004), Blanco et al. (2005) and others find that CDSs' prices are a source of valuable information on firms
- Reduce information premium

  Illiquidity of cash markets and heterogeneity of instruments makes secondary market price a poor source of information
- Reduce ability of banks to hold up firms with private information

=> benefit opaque firms

Bank monitoring channel

- Retained share is an important mechanism to address the asymmetry information problem which exists between lead banks and investors when syndicating a loan
- The option to hedge through credit derivatives reduces the usefulness of retained share

=> adversely affect risky and opaque borrowers

=> adversely affect both bonds and loans (due to free-riding of bond investors on bank monitoring)

Outline of the paper

- We investigate the effects that trading on the CDS of a firm have on the future cost of debt financing (bond and loan financing) for that firm.
- We also investigate if these effects are more pronnounced for riskier and informationaly opaque firms.
- We compare the cost firms pay to raise funding in both debt markets after their CDSs start to trade with the cost they use to pay beforehand.
- We use a matched sample approach to control for the potential endogeneity of the set of firms with traded CDSs.
- Finally, we investigate the effect of CDS trading on lead banks' loan share.

Overview of data

- Start with sample of publicly-traded non-financial firms 1996:1 to 2005:4, merging CRSP-Compustat with OptionMetrics and I/B/E/S.
- Windsorize variables at 5th and 95th percentiles
- Identify firms with actively-traded credit derivatives using Markit which starts in January 2001.
- Focus on US dollar-denominated five-year contract
- Remove 88 firms that start trading in first month of the Markit data. This left us with a sample of 434 Traded firms

Corporate bond data

- Start with all public bond issues from Mergent's Fixed-Income Securities Database (FISD) over 1996:1 to 2006:4
- Aggregate by firm-quarter weighted by issue amount
- Match to CRSP-Compustat with CUSIP
- Require credit rating of A+ to B in quarter before issue
- For traded firms, keep issues 3 years before trading or 2 years after; and ensure at least one bond issue before and after the onset of trading (111 firms with 426 firm-quarters of issuance)
- For non-traded firms, require at least two bond issues in order to be candidates for the matched sample.

Syndicated loan data

- Start with all syndicated loan issues by non-financial firms from Loan Pricing Corporation's Dealscan over 1996:1 to 2006:4.
- Remove loans with missing spreads or loan amounts
- Aggregate loans by firm-quarter.
- Hand-match to CRSP-Compustat.
- Require credit rating of A+ to B in quarter before issue.
- For traded firms, keep issues 3 years before trading or 2 years after; and ensure at least one loan issues before and after the onset of trading (173 firms with 742 firm-quarters of issuance).
- For non-traded firms, require at least two loan issues in order to be candidates for the matched sample

Methodology

- **Simple differences in differences:** exploit differences in timing of the onset of trading
- **Matched sample estimation:** create matched sample of firms that are not traded by the end of the sample:

Empirical specification

- $SPREAD_{i,t} = c+\alpha_1 TRADING+\alpha_2 TRADED+\psi X_{i,t}+\beta Y_{i,t}+\eta Z_t +\varepsilon_{i,t}$
- i = Firm; t = Quarter

$TRADING_{i,t}$	Currently traded in CDS market
$TRADED_i$	Traded in CDS market by end of sample
$X_{i,t}$	Firm-level controls
$Y_{i,t}$	Instrument-level (bond or loan) controls
Z_t	Time effects

- Estimated by OLS. Standard errors corrected for heteroskedasticity and clustered at firm level in specifications without firm fixed effects

Controls

- Firm-level:
  - SALES; PROFMARGIN; LEVERAGE; VOLATILITY; RATING; MKTBOOK
- Bonds:
  - BONDAMT; MATURITY; PUTABLE; CALLABLE; SINKFUND
- Loans:
  - LOANAMT; MATURITY; SECURED; DIVRESTRICT; GUARANTOR; REFINANCE; TAKEOVER; WORKING CAP; LENDERS

Bond spreads at issue

	(1)	(2)	(3)	(4)	(5)	(6)
Trading	-3.478	-2.518	1.779	6.658	5.431	18.375
	(17.982)	(17.656)	(19.421)	(15.035)	(14.860)	(14.808)
Traded				-23.615	-25.170	
				(18.024)	(17.340)	
Matched	No	No	No	Yes	Yes	Yes
Bond controls	No	Yes	Yes	No	Yes	Yes
Firm effects	No	No	Yes	No	No	Yes
Observations	371	371	371	477	477	477
R-squared	0.71	0.71	0.88	0.73	0.74	0.90

Loan spreads at issue

	(1)	(2)	(3)	(4)	(5)	(6)
Trading	-15.972**	-5.580	1.908	-9.545*	-5.383	7.687
	(6.743)	(5.598)	(6.243)	(5.617)	(4.900)	(5.171)
Traded				-5.524	-1.366	
				(6.638)	(5.449)	
Matched	No	No	No	Yes	Yes	Yes
Loan controls	No	Yes	Yes	No	Yes	Yes
Firm effects	No	No	Yes	No	No	Yes
Observations	702	702	702	1151	1151	1151
R-squared	0.68	0.76	0.88	0.67	0.73	0.86

Preliminary conclusions

- No impact of CDS trading for the average firm
- It is possible that the benefits are concentrated in risky and opaque firms
- It is also possible that these positive effects of the CDS market are offset by the costs arising from a reduction in bank monitoring

Loan spreads and borrower risk

	(1)	(2)	(3)	(4)	(5)	(6)
Trading	6.000	5.363	-18.436*	14.085	25.808**	-11.219
	(10.915)	(11.192)	(9.842)	(10.823)	(11.013)	(9.739)
Trading x Igrade	-5.006			-8.716		
	(9.918)			(10.744)		
Trading x Volatility		3.591			18.672**	
		(8.774)			(9.308)	
Trading x Leverage			57.803**			53.775*
			(23.823)			(27.464)
Matched sample	No	No	No	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	702	702	702	1151	1151	1151
R-squared	0.88	0.88	0.88	0.87	0.87	0.87

Loan spreads and borrower opaqueness

	(1)	(2)	(3)	(4)	(5)	(6)
Trading	14.377*	-1.748	-5.041	16.903**	-0.953	-16.801
	(8.606)	(6.585)	(11.727)	(8.203)	(5.960)	(11.836)
Trading x Analysts	-1.306**			-0.941*		
	(0.525)			(0.538)		
Trading x Fcst Volatility		119.108			250.943***	
		(86.188)			(91.205)	
Trading x BidAsk Price			0.02			0.070**
			(0.031)			(0.032)
Matched sample	No	No	No	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	702	702	702	1151	1151	1151
R-squared	0.88	0.88	0.88	0.87	0.87	0.87

Further preliminary conclusions

- Spreads of safe firms decrease relative to risky firms
- Spreads of transparent firms decrease relative to opaque firms
- These results do not support the diversification or information channels; but they are consistent with the bank monitoring channel
- It is possible, though, that risky and opaque might be capturing CDS market illiquidity

Measuring CDS market liquidity

- Construct measure of liquid CDS trading using the number of dealer quotes on the five-year US-dollar contract
- Use five quotes as a threshold for liquid CDS trading
- 10 percent of Traded sample begins trading liquid
- 90 percent of Traded sample ends sample trading liquid
- It takes the average firm 5 quarters of trading to become liquid

Loan spreads, liquidity, and borrower risk

	(1)	(2)	(3)	(4)	(5)	(6)
Trading	-8.802	8.545	-16.757*	-15.113	32.229***	-5.782
	(16.449)	(11.292)	(9.963)	(18.095)	(11.447)	(10.277)
Trading x Liquid	-10.308*	-11.187*	-10.774*	-11.103**	-12.432**	-11.899**
	(5.884)	(5.869)	(5.873)	(5.617)	(5.613)	(5.612)
Trading x Igrade	1.158			2.525		
	(1.561)			(1.733)		
Trading x Volatility		5.136			19.390**	
		(8.782)			(9.350)	
Trading x Leverage			57.671**			53.893*
			(24.386)			(28.213)
Matched sample	No	No	No	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	702	702	702	1151	1151	1151
R-squared	0.88	0.88	0.88	0.87	0.87	0.87

Loan spreads, liquidity, and borrower opaqueness

	(1)	(2)	(3)	(4)	(5)	(6)
Trading	14.948*	-0.105	-5.513	20.941**	4.463	-12.138
	(8.631)	(6.754)	(11.721)	(8.516)	(6.679)	(12.243)
Trading x Liquidity	(9.633)	-10.810*	-11.542**	-11.041**	-11.435**	-12.741**
	(5.990)	(5.923)	(5.858)	(5.623)	(5.621)	(5.599)
Trading x Analysts	-1.218**			-0.834		
	(0.530)			(0.537)		
Trading x Fcst Volatility		117.858			246.560***	
		(86.687)			(91.583)	
Trading x BidAsk Price			0.026			0.073**
			(0.031)			(0.032)
Matched sample	No	No	No	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	702	702	702	1151	1151	1151
R-squared	0.88	0.88	0.88	0.87	0.87	0.87

Conclusions

- The impact of borrower risk and opaqueness is independent of CDS market liquidity
- Liquid CDS trading has a positive impact on spreads for the average firm

Winners and losers

- Our findings show an increase in spreads following CDS trading for risky and opaque firms relative to safe and transparent firms
- We argued these results are consistent with the bank monitoring hypothesis
- These findings may be driven by a reduction in spreads for safe and transparent firms rather than by an increase in spreads for risky and opaque firms
- The safest and most transparent firms do benefit from a reduction in spreads following the onset of CDS trading, but the differential effect across borrower risk and transparency is largely driven by an increase in spreads for risky and opaque firms.
- Our finding that bank loan shares increase following the onset of CDS further supports the bank monitoring channel

Final remarks

- Despite the rhetoric, there has been no impact of CDS trading on the average firm
- CDS trading appears to have reduced the cost of debt for a small set of the safest and transparent firms, but it seems to have had a larger negative effect on the cost of debt issue for risky and opaque firms
- These findings do not support the diversification and information hypotheses but are consistent with the bank monitoring hypothesis
- Regulators might consider requiring banks to disclose hedges to investors