Credit Risk Transfer: Implications for Financial Efficiency and Stability

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Moodys-NYU Credit Risk Conference
New York, May, 2008

Acknowledgements: Richard Cantor, Andreas Eckner, Cliff Gray, Roger Stein
Outline

• What is credit risk transfer all about?
• How is it changing financial markets?
• Implications for financial efficiency and stability?
Key Forms of Credit Risk Transfer

- Disintermediation.
- Loan sales and syndication.
- Default swap protection (CDS).
- Asset-backed commercial paper (ABCP) conduits.
- Collateralized debt obligations (CDOs).
- Credit derivative product companies (CDPCs).
- Structured investment vehicles (SIVs) and SIV-Lites.
- Other specialty finance companies.
Figure 1: Share of Private Nonfinancial Debt Outstanding. Source: Morgan Stanley from Federal Reserve Flow of Funds Data.
Institutional Investor Share of Primary Leveraged Loan Market

Source: Citibank
US Leveraged Loan Buyers

- Hedge, Distressed & High-Yield Funds
- Prime Rate Fund
- Finance Co.
- Insurance Company
- CLO

Source: Citibank
Figure 2: Estimates by Sufi (2007) of syndicated loan retention by lead arranger.
Figure 4: Buyer of protection pays coupons until default at $\tau$. Recovery of $Y(\tau)$ implies a loss-given-default settlement of $100 - Y(\tau)$. 

$\tau$
U.S. Bank Share of Credit Derivatives Volume


3 Third quarter of 2007 data for the U.S. is from the Federal Reserve Bank of Chicago. Third quarter of 2007 global data is provided by the Bank for International Settlements.
Net CDS Protection Purchased as a Fraction of Loan Book

- Bank of America
- J.P. Morgan Chase & Co.
- Citigroup Inc.
J.P. Morgan Chase & Co.'s Dealer Net Notional Protection Purchased (Billions of Dollars)
Figure 5: “Waterfall” of a collateralized debt obligation.
Figure 6: NationsBank 1997-1 CLO tranches (Source: Fitch)
Figure 7: Retention of toxic waste at low leverage.
Figure 9: Issuance of CLOs by year and region. Source: Morgan Stanley.
2007-08 Quarterly CLO and Structured Finance CDO Issuance
($ Billion, Source: Morgan Stanley)
Benefits of credit risk transfer

1. Releases lender’s capital for new credit intermediation, improving the efficiency of credit markets.

2. Provides diversification to lenders.

3. Distributes risk to investors that are less critical to the provision of liquidity to the financial system.

4. Provides an improved menu and supply of assets and hedging opportunities to asset managers.
Direct costs of credit risk transfer

1. The lemon’s premium that the investor charges because of the lender’s inside information regarding the borrower’s credit risk.

2. Moral hazard: inefficient control by the lender of borrowers’ default risks.


4. Legal, marketing, and other arrangement costs.
Systemic Risks of Credit Risk Transfer

1. Credit squeeze: Hoarding of credit.

2. Interference with central-bank monetary policy.

3. Bank runs (Northern Rock, Florida Pool, Bear Stearns).

4. Too-big-to-fail adverse incentives.

5. Spillover to other credit markets (e.g. muni bonds).

Key Concerns Going Forward

1. Even specialists in CDOs are ill equipped to measure the risks and fair valuation of tranches that are sensitive to default correlation.

2. Credit risk transfer has reduced the degree to which credit is intermediated by banks, relative to hedge funds, credit derivative product companies, and specialty finance companies. This reduces the ability of banks to be sources of liquidity in systemic crises.
Default Insurance on $10 Million Investment Grade Corporate Debt Portfolio
Annual Premiums on 5-Year Coverage

Feb. 25, 2008
$157,000

Feb. 19, 2007
$31,000

Source: CDX.NA.IG.5yr Tranche Pricing, Morgan Stanley
Default Insurance on $10 Million Investment Grade Corporate Debt Portfolio
Annual Premium on 5-Year Coverage

Source: CDX.NA.IG.5yr Tranche Pricing, Morgan Stanley
Table 1: **CDX NA IG 5-year Series 7 tranche premia, Feb. 19, 2007.**
(Source: Morgan Stanley.)

<table>
<thead>
<tr>
<th>Tranche</th>
<th>Up-front fee (%)</th>
<th>Running spread (b.p.)</th>
<th>Premium Allocation</th>
<th>“hedge” (Δ)</th>
<th>Base corr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3%</td>
<td>19.25</td>
<td>500</td>
<td>84.9%</td>
<td>23.8</td>
<td>14%</td>
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<tr>
<td>3-7%</td>
<td>0</td>
<td>64</td>
<td>8.2%</td>
<td>4.6</td>
<td>27%</td>
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<tr>
<td>7-10%</td>
<td>0</td>
<td>12</td>
<td>1.2%</td>
<td>1.1</td>
<td>35%</td>
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<tr>
<td>10-15%</td>
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<td>5</td>
<td>0.9%</td>
<td>0.5</td>
<td>46%</td>
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<td>15-30%</td>
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<td>1.8%</td>
<td>0.2</td>
<td>71%</td>
</tr>
<tr>
<td>30-100%</td>
<td>0</td>
<td>1</td>
<td>3.1%</td>
<td>0.1</td>
<td>na</td>
</tr>
<tr>
<td>CDX</td>
<td>0</td>
<td>31.0</td>
<td>100.0%</td>
<td>1.0</td>
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Table 2: **CDX NA IG 5-year Series 9 tranche premia, Feb. 25, 2008.**
(Source: Morgan Stanley.)

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<thead>
<tr>
<th>Tranche</th>
<th>Up-front fee (%)</th>
<th>Running spread (b.p.)</th>
<th>Premium Allocation</th>
<th>“hedge” (Δ)</th>
<th>Base corr.</th>
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<td>0-3%</td>
<td>54.5</td>
<td>500</td>
<td>30.2%</td>
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<td>47%</td>
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<tr>
<td>3-7%</td>
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<td>528</td>
<td>12.9%</td>
<td>2.5</td>
<td>71%</td>
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<tr>
<td>7-10%</td>
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<td>310</td>
<td>6.0%</td>
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<td>10-15%</td>
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<td>18.5%</td>
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<td>109%</td>
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<td>30-100%</td>
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<td>68</td>
<td>24.8%</td>
<td>0.7</td>
<td>na</td>
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<tr>
<td>CDX</td>
<td>0</td>
<td>157.0</td>
<td>100%</td>
<td>1.0</td>
<td>na</td>
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<table>
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<th>Collateral type</th>
<th>Issuance in 2006</th>
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<tr>
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<td>Outstanding (end-2006)</td>
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<tr>
<td>Asset-backed securities</td>
<td>10.68</td>
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<tr>
<td>Investment-grade bonds</td>
<td>10.20</td>
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<td>High-yield bonds</td>
<td>0.78</td>
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<tr>
<td>Leveraged loans</td>
<td>0.52</td>
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Optimal issuer effort $X(q)$ vs. Retention Fraction $q$
Premium to Par (Basis Points) vs Retention fraction $q$