

2012

# Credit Risk Transfer Governance: The Good, the Bad, and the Savvy

Houman B. Shadab

Follow this and additional works at: [https://digitalcommons.nyls.edu/fac\\_articles\\_chapters](https://digitalcommons.nyls.edu/fac_articles_chapters)

Part of the [Consumer Protection Law Commons](#), [Contracts Commons](#), [Secured Transactions Commons](#), and the [Securities Law Commons](#)

---

## **Credit Risk Transfer Governance: The Good, the Bad, and the Savvy**

*Houman B. Shadab*

### ABSTRACT

Goldman Sachs and American International Group on the eve of the 2008 financial crisis were bound together through a web of credit risk transfer (CRT) contracts in the form of credit default swaps (CDSs) and synthetic collateralized debt obligations (CDOs). Synthetic CDOs enabled certain hedge funds to profit from the ultimate bursting of the housing bubble due to the funds' savvy in understanding CRT better than their counterparties. This Article constructs a novel theory of CRT that extends the insights of creditor governance theory to CRT transactions. By doing so, this Article establishes a framework for good CRT governance. CRT governance consists of the transaction structures and practices adopted to protect investors (or counterparties) against losses from the underlying credit risk being transferred. Good governance requires governance mechanisms to reduce the informational asymmetries and incentive misalignments of particular CRT transactions—the agency costs of CRT.

In practice, most types of CRT transactions are generally well governed and do not contribute to systemic risk despite being lightly regulated. Accordingly, it is incorrect to view the destabilizing losses from subprime residential mortgage-related CRT in 2008 as an inevitable result of CRT transactions being insufficiently regulated or fundamentally flawed. The financial crisis is best understood as resulting from the uniquely poor governance of certain cash CDOs and super senior tranches of synthetic CDOs. This Article concludes by identify-

---

\* Associate Professor of Law, New York Law School. J.D., 2002, University of Southern California; B.A., 1998, University of California at Berkeley. I would like to thank Faith Stevelman, Tamara Belinfanti, James Grimmelman, Doni Gewirtzman, Stephen J. Ellman, Tai-Heng Cheng, Ronald Filler, Marshall Tracht, Steve Davidoff, Kristin Johnson, Paul Rose, Andrew C.W. Lund, and M. Todd Henderson for their comments, and Nicolas Turner, Leslie Pasqualone, Maxim Kogan, Kevin Vance, and Melinda Rubenstein for their research assistance. All errors and opinions are my own.

ing several implications of CRT governance for financial regulators implementing the Dodd-Frank Wall Street Reform and Consumer Protection Act.

I.	INTRODUCTION.....	1011
II.	CREDIT RISK AND ITS TRANSFER.....	1020
	A. The Nature of Credit Instruments.....	1020
	B. Credit Risk and Counterparty Credit Risk.....	1020
	C. Motivations for CRT.....	1022
	1. Financial and Economic.....	1022
	2. Regulatory Capital Relief.....	1023
	3. Beneficial Accounting Treatment.....	1025
III.	CRT GOVERNANCE.....	1027
	A. Creditor Governance.....	1027
	B. Market Infrastructure.....	1030
	1. Contract Characteristics.....	1030
	2. Secondary CRT Market Infrastructure.....	1031
	C. CRT Governance and Creditor Governance.....	1032
IV.	UNFUNDED CRT: CREDIT DEFAULT SWAPS.....	1033
	A. Parties and Incentives.....	1035
	B. Governance Problems.....	1037
	1. Counterparty Risk.....	1037
	2. Protection Buyers (Credit Risk Sellers).....	1037
	3. Protection Sellers (Credit Risk Buyers).....	1038
	4. Central Counterparties.....	1039
	C. Governance Mechanisms.....	1040
	1. Dealer Practices.....	1040
	2. Netting.....	1041
	3. Collateral.....	1041
	4. CDS Market Infrastructure.....	1042
	5. Central Counterparties.....	1044
	6. Unique Terms.....	1044
	D. Counterparty Governance: Conclusion and Summary Table..	1045
V.	FUNDED CRT: SECURITIZATION.....	1046
	A. Parties and Incentives.....	1049
	B. Governance Problems.....	1052
	1. Cash Flow Sufficiency.....	1053
	2. Informational Asymmetries and Incentive Misalignment..	1053
	3. Flawed Credit Risk Assessment.....	1055
	4. Distressed Asset Servicing.....	1055
	C. Governance Mechanisms.....	1056
	1. Representations and Warranties.....	1056
	2. Disclosure, Screening, and Monitoring.....	1057
	3. Risk Retention.....	1058
	4. Credit Enhancement.....	1059
	5. Tests and Triggers.....	1061
	6. Active Management.....	1063

D. SPV Governance: Conclusion and Summary Table .....	1064
VI. GOOD, BAD, AND SAVVY CRT GOVERNANCE .....	1065
A. The Good .....	1065
1. CDSs Referencing Corporate Bonds .....	1066
2. Collateralized Loan Obligations .....	1067
3. Commercial Mortgage-Backed Securities.....	1069
B. The Bad: Subprime RMBS Risk Transfer .....	1072
1. CDOs of Subprime RMBS .....	1072
2. Unfunded Super Senior Tranches.....	1075
C. The Savvy: Subprime Shorts .....	1077
VII. CONCLUSION .....	1078

## I. INTRODUCTION

*"It is a tangled hairball of risk . . . any savvy investor would have thrown this in the trash bin."*<sup>1</sup>

On the eve of the near collapse of financial markets in 2008, two financial industry titans were locked in a heated battle. Goldman Sachs (Goldman) was demanding that American International Group, Inc. (AIG) post additional collateral pursuant to their credit default swap (CDS) contracts.<sup>2</sup> AIG sold CDSs to Goldman referencing Goldman's synthetic collateralized debt obligations (CDOs) that were backed by the value of residential mortgage-backed securities (RMBSs).<sup>3</sup> AIG had also directly purchased CDOs from Goldman, and Goldman had purchased CDSs referencing AIG's public bonds.<sup>4</sup> Standing in the middle of similar CDOs issued by Goldman was hedge fund manager John Paulson. In 2007, Paulson approached Goldman to sponsor a synthetic CDO that would enable him to bene-

---

<sup>1</sup> Carrick Mollenkamp & Serena Ng, *Wall Street Wizardry Amplified Credit Crisis*, WALL ST. J., Dec. 27, 2007, at A1 (quoting Janet Tavakoli regarding a synthetic collateralized debt obligation).

<sup>2</sup> FIN. CRISIS INQUIRY COMM'N, AIG-GOLDMAN SACHS COLLATERAL CALL TIMELINE & SUPPORTING DOCS 2 (2010), available at [http://fcic-static.law.stanford.edu/cdn\\_media/fcic-testimony/2010-0701-Goldman-AIG-Collateral-Call-timeline.pdf](http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0701-Goldman-AIG-Collateral-Call-timeline.pdf).

<sup>3</sup> Jody Shenn & Bob Ivry, *Abacus Let Goldman Shuffle Mortgage Risk Like Beads*, BLOOMBERG.COM (Apr. 17, 2010, 2:52 PM), <http://www.bloomberg.com/news/2010-04-16/goldman-used-abacus-to-shuffle-debt-risk-like-beads.html>.

<sup>4</sup> See AIG EXTERNAL CDS NOTIONAL BY COUNTERPARTY AS OF 9/15/08 (2008), available at <http://grassley.senate.gov/about/upload/Attachment-1.pdf>.

fit from a decline in the housing market.<sup>5</sup> Paulson had input over which RMBSs would serve as the basis of the CDO. At the same time, Paulson used CDSs to take a short position in the CDO that would earn a profit if housing market collapsed.<sup>6</sup> Paulson's savvy trade eventually earned his fund approximately \$1 billion.<sup>7</sup>

The foregoing complex web of contracts was the result of the parties' attempt to transfer credit risk: CDSs, CDOs, and mortgage-backed securities are all instruments of credit risk transfer (CRT). This Article examines CRT transactions such as those involving Goldman, AIG, and Paulson's hedge fund. It does so by constructing a novel theory of CRT that focuses on governance.<sup>8</sup> CRT governance consists of the transaction structures and practices adopted to protect investors (or counterparties) against losses from the underlying credit risk being transferred. Good CRT governance can protect investors (or counterparties) from losses even if the underlying assets whose credit risk is transferred experience significant losses.<sup>9</sup> Bad CRT governance, by contrast, creates transaction structures that leave parties

---

<sup>5</sup> Complaint at 6, U.S. Sec. & Exch. Comm'n v. Goldman Sachs & Co., No. 10 Civ. 3229 (BJ) (S.D.N.Y. Apr. 16, 2010), available at <http://www.sec.gov/litigation/complaints/2010/comp-pr2010-59.pdf>.

<sup>6</sup> *Id.* at 2.

<sup>7</sup> Dan Wilchins & Karen Brettell, *Factbox: How Goldman's ABACUS Deal Worked*, REUTERS, Apr. 16, 2010, available at <http://www.reuters.com/article/2010/04/16/us-goldmansachs-abacus-factbox-idUSTRE63F5CZ20100416>.

<sup>8</sup> The term "governance" as used in this Article refers to the overt activities or broader market phenomena that control or place limitations upon parties' financial relationships, including purely contract-based forms of governance. See Michael R. Roberts & Amir Sufi, *Financial Contracting: A Survey of Empirical Research and Future Directions*, 1 ANN. REV. FIN. ECON. 1, 2 (2009) ("[F]inancial contracting is one form of corporate governance."). Governance includes risk management, but is a broader concept that also includes efforts to enforce financial rights and efficiently structure transactions.

<sup>9</sup> While good governance is not sufficient to assure that CRT investors or counterparties will receive a positive return on their investment, will properly hedge an existing risk, or that a transaction is the most cost effective, good governance is likely to at least get parties in the right structural "ballpark" to prevent the types of extreme losses that cause systemically destabilizing losses. See Sanjai Bhagat, et al., *The Effect of Corporate Governance on Performance*, in CORPORATE GOVERNANCE: A SYNTHESIS OF THEORY, RESEARCH, AND PRACTICE 97, 118 (H. Kent Baker & Ronald Anderson eds., 2010) (noting empirical studies documenting that "better governance is sometimes related to some measures of [better] performance"). Practitioners have also identified best practices for securitization transactions that are consistent with, and provide more detail to, good CRT governance in the securitization context. See MARKUS KREBSZ, SECURITIZATION AND STRUCTURED FINANCE POST CREDIT CRUNCH: A BEST PRACTICE DEAL LIFECYCLE GUIDE 23–45 (2011).

with highly sensitive exposures to losses in underlying credit assets.<sup>10</sup> Focusing on CRT governance is important because governance quality is a major factor in determining whether the parties will suffer losses or expose the entire economy to risk.

My theory of CRT governance takes as its starting point the distinction between *funded* and *unfunded* CRT transactions.<sup>11</sup> A funded CRT transaction has the same general structure as an ordinary loan: a lump sum payment of principal is made upfront by a lender who, in turn, expects to be paid interest and eventually repaid the principal. Securitization transactions are funded CRT because securitization involves a special purpose vehicle (SPV) borrowing funds from investors in exchange for issuing debt-like securities to them.<sup>12</sup> The SPV pays its investors periodic interest payments from cash flows obtained from a group of loans or other receivables that are owned by the SPV and that constitute the SPV's collateral.<sup>13</sup> Unfunded CRT, by contrast, is similar in structure to insurance. In an unfunded CRT transaction, one party receives periodic interest-like payments. In ex-

---

<sup>10</sup> Both good and bad governance can be efficient, so long as the price of a CRT instrument accurately reflects the protection provided by governance mechanisms in relation to the credit risk being transferred. However, if the price of a CRT instrument fails to reflect the risk of a poorly governed transaction that transfers significant credit risk, the transaction may cause substantial unexpected losses to both parties and even contribute to systemic risk. These principles of CRT governance are reflected in the following observation regarding CRT in the form of residential mortgage-backed securities (RMBS):

When PD [probability of default] is relatively low, it is possible to make high-quality (AAA-rated) CDO tranches with close to zero EL [expected losses] out of RMBS mezzanine tranches, although the CDO tranches often have ULs [unexpected losses] that cannot be ignored. On the other hand, for subprime mortgages or in situations where PD rises to 5%, even a credit enhancement of 50% is not enough to make the senior tranche of the CDO safe in terms of EL. Moreover, the corresponding UL is substantial.

Ashish Dev & Bo Qian, *Guilty or Not?*, RISK.NET (Feb. 1, 2009), <http://www.risk.net/risk-magazine/analysis/1497954/guilty>.

<sup>11</sup> Kiff, Michaud, and Mitchell also note the importance of the funded/unfunded distinction to CRT governance issues. See John Kiff, et al., *An Analytical Review of Credit Risk Transfer Instruments*, 21 BANQUE DE FR. FIN. STABILITY REV. 106, 133, 138, 145 (2003), available at [http://www.banque-france.fr/fileadmin/user\\_upload/banque\\_de\\_france/publications/Revue\\_de\\_la\\_stabilite\\_financiere/etud5\\_0603.pdf](http://www.banque-france.fr/fileadmin/user_upload/banque_de_france/publications/Revue_de_la_stabilite_financiere/etud5_0603.pdf).

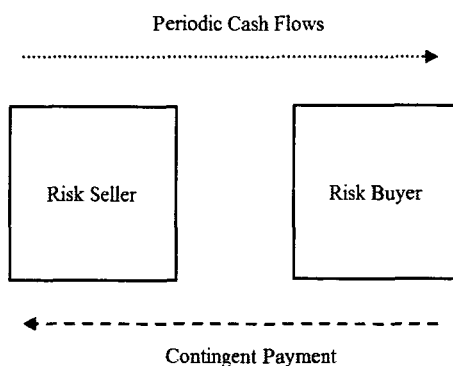
<sup>12</sup> See Steven L. Schwarcz, *The Alchemy of Asset Securitization*, 1 STAN. J.L. BUS. & FIN. 133, 135 (1994).

<sup>13</sup> If the transfer of risk to the SPV takes place by selling loans or bonds to the SPV, then it is a "cash" securitization. If the transfer of risk takes place by the SPV selling CDS protection referencing the loans or bonds, then the securitization is synthetic. The mechanics of cash and synthetic securitization are further detailed *infra* Part V.

change, that party agrees to make a lump sum payment to the party making the periodic payments contingent on some event taking place. A CDS is an unfunded CRT transaction because it involves one party collecting periodic payments based on the risk of a reference debt obligation in exchange for being required to make a lump sum payment if the reference obligation defaults or some other “credit event” takes place.<sup>14</sup> In both funded and unfunded CRT transactions, there is always a credit risk seller and buyer. The credit risk seller is the party that uses the CRT transaction to transfer credit risk and does so by making periodic interest-like payments. The credit risk buyer is the party that takes on credit risk by receiving the periodic payments and making (or, in the case of unfunded CRT, agreeing to make) a principal-like payment. The distinction between funded and unfunded CRT is fundamental to governance because funded and unfunded transactions have different types of agency costs and must adopt different governance mechanisms to reduce them.

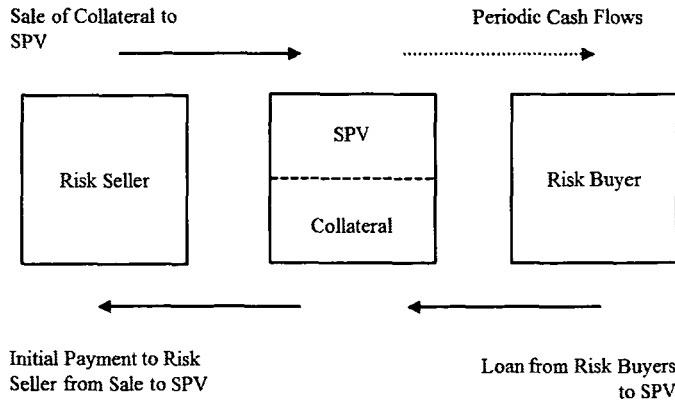
The following two Figures illustrate the relationship between credit risk, cash flows, and unfunded and funded transaction structures.

**Figure 1: CDS (Unfunded Transaction)**



---

<sup>14</sup> The mechanics of CDSs are further detailed *infra* Part IV.

**Figure 2: Securitization (Funded Transaction)**

By developing a theory of CRT governance, this Article contributes to several distinct bodies of literature. First, it broadens the scope of creditor governance research and scholarship.<sup>15</sup> Creditor governance literature typically focuses on traditional credit instruments such as loans and bonds. This Article, however, generalizes and extends its analysis to credit instruments in the form of securitized debt and over-the-counter derivatives (i.e., CDSs). Second, this Article contributes to the literature on CRT. Most analyses of CRT focus on the efficiency or benefits of CRT transactions or their impact on credit creation, risk taking, and systemic risk.<sup>16</sup> This Article

<sup>15</sup> See, e.g., Charles K. Whitehead, *Creditors and Debt Governance*, in RESEARCH HANDBOOK ON THE ECONOMICS OF CORPORATE LAW 68, 68–84 (Claire Hill & Brett McDonnell eds., 2012) [hereinafter Whitehead, *Debt Governance*]; Charles K. Whitehead, *The Evolution of Debt: Covenants, the Credit Market, and Corporate Governance*, 34 J. CORP. L. 641 (2009) [hereinafter Whitehead, *Evolution of Debt*]; Frederick Tung, *Leverage in the Board Room: The Unsung Influence of Private Lenders in Corporate Governance*, 57 UCLA L. REV. 115 (2009); Greg Nini, et al., *Creditor Control Rights, Corporate Governance, and Firm Value* (Dec. 11, 2011) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1344302](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1344302). Corporate governance research typically focuses on the role of equityholders and directors, not creditors. See Lucian Bebchuk & Michael S. Weisbach, *The State of Corporate Governance Research*, 23 REV. FIN. STUDIES 939 (2010).

<sup>16</sup> See, e.g., Franklin Allen & Elena Carletti, *Credit Risk Transfer and Contagion*, 53 J. MONETARY ECON. 89 (2005), available at <http://www.eui.eu/Personal/Carletti/JME06-Allen-Carletti.pdf>; Gabriella Chiesa, *Optimal Credit Risk Transfer, Monitored Finance, and Banks*, 17 J. FIN. INTERMEDIATION 464 (2008); Frank Partnoy & David A. Skeel, Jr., *The Promise and Perils of Credit Derivatives*, 75 U. CIN. L. REV. 1019 (2007); Darrell Duffie, *Innovations in Credit Risk Transfer: Implications for Financial Stability* (Bank for Int'l Settlements, Working Papers No. 255, 2008), available at <http://www.bis.org/publ/work255.htm>; Benedikt Goderis, et al.,



adds to that literature by examining the role of governance mechanisms in reducing risk. Although an article by John Kiff, Francois-Louis Michaud, and Janet Mitchell examines the agency costs of CRT and notes the mechanisms used to reduce them,<sup>17</sup> this Article discusses governance mechanisms far more extensively and also evaluates strengths and weaknesses in the governance of CRT transactions in wake of the financial crisis of 2008. By doing so, this Article establishes a framework for good CRT governance.

This Article also contributes to the ongoing debate surrounding the financial crisis. In particular, this Article's account of CRT governance challenges much of the conventional and scholarly analysis of CRT. Under the more conventional view, the destabilizing losses from subprime residential mortgage-related CRT were an inevitable result of CRT transactions being insufficiently regulated or fundamentally flawed.<sup>18</sup> For example, Professor Lynn Stout argues that the root cause of the financial crisis was a lack of regulation that enabled speculative CDSs trading,<sup>19</sup> and Professor Brian Quinn argues that the financial crisis reflects the failure of private markets to overcome the

---

*Bank Behavior with Access to Credit Risk Transfer Markets* (Bank of Fin., Research Discussion Paper No. 4, 2006), available at <http://www.suomenpankki.fi/en/julkaisut/tutkimukset/keskustelualoitteet/Documents/0704netti.pdf>; Wolf Wagner & Ian W. Marsh, *Credit Risk Transfer and Financial Sector Performance* (Ctr. Econ. Pol'y Research, Discussion Paper No. 4265, 2004), available at <http://ssrn.com/abstract=519101>; Mascia Bedendo & Brunella Bruno, *Credit Risk Transfer Strategies of U.S. Commercial Banks: What Has Changed During the 2007–2009 Crisis?* (July 30, 2010) (unpublished manuscript), available at <http://ssrn.com/abstract=1343627>; Patrick Behr & Samuel Lee, *Credit Risk Transfer, Delegated Monitoring, Real Sector Productivity, and Financial Deepening* (Feb. 21, 2005) (unpublished manuscript), available at <http://ssrn.com/abstract=675642>; Rob Nijskens & Wolf Wagner, *Credit Risk Transfer Activities and Systemic Risk: How Banks Became Less Risky Individually But Posed Greater Risks to the Financial System at the Same Time* (Dec. 23, 2008) (unpublished manuscript), available at <http://ssrn.com/abstract=1319689>.

<sup>17</sup> See Kiff et al., *supra* note 11, at 111–16.

<sup>18</sup> See, e.g., Kurt Eggert, *The Great Collapse: How Securitization Caused the Subprime Meltdown*, 41 CONN. L. REV. 1257, 1262 (2009); Patricia A. McCoy et al., *Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure*, 41 CONN. L. REV. 493, 495–99, 509–32 (2009); Richard E. Mendales, *Collateralized Explosive Devices: Why Securities Regulation Failed to Prevent the CDO Meltdown, and How to Fix It*, 5 U. ILL. L. REV. 1359, 1361–62 (2009); Georgette C. Phillips, *The Jumbled Alphabet Soup of the Collapsed Home Mortgage Market: ABCP, CDO, CDS and RMBS*, 18 U. MIAMI BUS. L. REV. 143, 145 (2010).

<sup>19</sup> Lynn A. Stout, *Derivatives and the Legal Origin of the 2008 Credit Crisis*, 1 HARV. BUS. L. REV. 1 (2011). Professor Stout's seminal contribution to the law and economics of speculation is presented in Lynn A. Stout, *Why the Law Hates Speculators: Regulation and Private Ordering in the Market for OTC Derivatives*, 48 DUKE L.J. 701 (1999).

adverse selection and moral hazard problems inherent in securitization and CDSs.<sup>20</sup>

To the contrary, I find that most types of CRT transactions are generally well governed and do not contribute to systemic risk despite being lightly regulated. This finding has two important implications. The first is that the CRT governance mechanisms adopted by market participants are typically good enough to substantially reduce the inherent adverse selection, moral hazard, and other agency costs of CRT. Indeed, in both the CDS and securitization markets, destabilizing economy-wide losses in 2008 resulted solely from CRT transactions tied to subprime mortgage markets, including the repo and commercial paper markets, which used subprime mortgage-related securities as collateral for short-term financing.<sup>21</sup> These destabilizing CRT transactions were the exception, however, and not the rule. Most types of CRT transactions do not transfer residential mortgage-related credit risk. Second, the fact that most types of CRT transactions are well governed despite being lightly regulated indicates that a lack of regulation is a poor indicator of CRT outcomes—of whether CRT transactions will lead to losses for investors or disrupt the financial system. Similarly, given that none of the destabilizing CDS transactions underlying the financial crisis were speculative,<sup>22</sup> whether a CRT transaction is undertaken for purely speculative or genuine hedging purposes tell us little, if anything, about the governance quality or stability of such transactions.

The destabilizing losses in CRT markets in 2008 are best understood as resulting from the uniquely poor governance of certain CDSs and CDOs. The prices of these instruments failed to reflect

---

<sup>20</sup> Brian J.M. Quinn, *The Failure of Private Ordering and the Financial Crisis of 2008*, 5 N.Y.U. J.L. & BUS. 549, 567–80, 588 (2009).

<sup>21</sup> See Gary Gorton & Andrew Metrick, *Haircuts*, FED. RES. BANK ST. LOUIS REV., Nov./Dec. 2010, at 507, 512–14; Daniel Covitz, et al., *The Evolution of a Financial Crisis: Panic in the Asset-Backed Commercial Paper Market* (Fed. Reserve Bank, Working Paper No. 2009-36, 2009), available at <http://www.federalreserve.gov/pubs/feds/2009/200936/200936pap.pdf>; David Evans, *Unsafe Heavens*, BLOOMBERG.COM (Oct. 2007), [http://www.bloomberg.com/apps/news?pid=nw&pname=mm\\_1007\\_story2.html](http://www.bloomberg.com/apps/news?pid=nw&pname=mm_1007_story2.html).

<sup>22</sup> See, e.g., *The Role of Derivatives in the Financial Crisis: Hearing Before the Fin. Crisis Inquiry Comm'n*, 111th Cong. 2 (2010) (testimony of David A. Viniar, Chief Fin. Officer, The Goldman Sachs Grp., Inc.) (“[Goldman] entered into offsetting contracts (bought protection) with AIG to manage the resulting [super senior CDO] exposure in our books.”); FIN. CRISIS INQUIRY COMM’N, THE FINANCIAL CRISIS INQUIRY REPORT 143 (2011), available at [http://fcic-static.law.stanford.edu/cdn\\_media/fcic-reports/fcic\\_final\\_report\\_full.pdf](http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_full.pdf) (noting that Goldman Sachs hedged its “long position [tied to mortgage backed securities] by buying credit protection from AIG”); *id.* at 295.

that they were poorly governed yet nonetheless transferring massive credit risk from subprime RMBSs.<sup>23</sup> Investors and counterparties exposed to these second-level CRT transactions failed to appreciate their risk and accordingly did not adopt good governance.<sup>24</sup> Fortunately, as the structure of the first subprime RMBS since the financial crisis indicates, parties have learned and are adopting better governance because they perceive subprime mortgages as being much more risky.<sup>25</sup>

---

<sup>23</sup> Subprime RMBS themselves were mispriced due to market participants incorrectly estimating the likelihood of declines in housing prices, problems unique to residential mortgage finance, and price distortions stemming from poor governance of the CDSs and CDOs that transferred their risk. See VIRAL ACHARAYA ET AL., GUARANTEED TO FAIL: FANNIE MAE, FREDDIE MAC, AND THE DEBACLE OF MORTGAGE FINANCE 38–46 (2011) (arguing that the growth in subprime securitization was caused by too-big-to-fail private firms attempting to compete with government sponsored enterprises); ARNOLD KLING, NOT WHAT THEY HAD IN MIND: A HISTORY OF POLICIES THAT PRODUCED THE FINANCIAL CRISIS OF 2008 13–22 (2009); Adam J. Levitin & Susan M. Wachter, *Explaining the Housing Bubble*, 100 GEO. L.J. 1177, 1228–52 (2012); Christopher Mayer, Housing, Subprime Mortgages, and Securitization: How Did We Go Wrong and What Can We Learn So This Doesn't Happen Again? 1–5, (Feb 27, 2010) (unpublished manuscript), available at [http://www.law.yale.edu/documents/pdf/cbl/Housing\\_Subprime.pdf](http://www.law.yale.edu/documents/pdf/cbl/Housing_Subprime.pdf); Paul Willen, Part 2: A Closer Look at Michael Lewis's "The Big Short," FED. RES. BANK ATLANTA (Aug. 10, 2010), <http://realestateresearch.frbatlanta.org/rer/2010/08/part-2-a-closer-look-at-michael-lewiss-the-big-short.html> (noting that the "actual [housing] price fall that took place was roughly twice as bad as the meltdown" estimated by Lehman Brothers researchers).

<sup>24</sup> The destabilizing CDSs and CDOs were "second-level" CRT, which means that they re-transferred the risk of CRT instruments—of RMBS. See *infra* Part VI.B. It is important to note that subprime RMBS by themselves were not so poorly governed that the losses suffered by RMBS investors would have caused the financial crisis. Indeed, through the end of 2010 the overwhelming majority of the highest-rated subprime RMBSs experienced no cash flow problems and will likely never default with substantial losses. FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 228 ("[A]t the end of 2010 most of the triple-A tranches of mortgage-backed securities have avoided actual losses in cash flow through and may avoid significant realized losses going forward . . . Overall, for 2005 to 2007 vintage tranches of mortgage-backed securities originally rated triple-A . . . only about 10% of Alt-A and 4% of subprime securities had been 'materially impaired.'"); Gary Gorton & Guillermo Ordonez, Collateral Crises 1 (Jan. 13, 2012) (unpublished manuscript), available at <http://ssrn.com/abstract=1984715> ("[An estimate that] calculates the realized principal losses on the \$1.9 trillion of AAA/Aaa-rated subprime bonds issued between 2004 and 2007 to be 17 basis points [i.e., 1/100th of a percent] as of February 2011. The subprime shock was not large. . ."); Fitch Takes Various Actions on 1,246 U.S. Subprime RMBS Deals, BUS. WIRE (March 22, 2011), <http://www.businesswire.com/news/home/20110322007059/en/Fitch-Takes-Actions-1246-U.S.-Subprime-RMBS> ("Fitch projects a cumulative principal recovery of over 90% for all senior classes [of subprime RMBS] issued between 2005 and 2008.").

<sup>25</sup> See Houman B. Shadab, *Springleaf and RMBS 2.0*, LAWBITRAGE (Sept. 6, 2011, 2:25 P.M.), <http://lawbitrage.typepad.com/blog/2011/09/springleaf-and-rmbs>

Unlike other explanations of the financial crisis, my analysis explains why the CDS market remained generally stable through the financial crisis despite the large and unexpected payouts by CDS sellers and the failure of Lehman Brothers, a major derivatives dealer.<sup>26</sup> It likewise explains why securitizations that transferred non-subprime mortgage-related risk were not a primary cause of the crisis. For example, securitization transactions that transferred the risk of corporate loans (collateralized loan obligations) and commercial real estate (commercial mortgage-backed securities) performed relatively well through and in the aftermath of the financial crisis, and led the revitalization of securitization markets in 2011.<sup>27</sup> Explanations of the financial crisis that broadly generalize based on the losses from subprime mortgage-related CRT, or view light regulation as playing a primary role, fail to account for the general stability of CRT markets and, accordingly, offer a fundamentally flawed perspective.

This Article proceeds as follows. Part II lays the foundation of CRT governance by identifying the fundamental features of credit and counterparty risk and reviewing the primary motivations for transferring credit risk. Part III generalizes and applies creditor governance theory to CRT transactions. In Part IV, this Article examines CRT governance in the context of CDS transactions, and Part V examines CRT governance in the context of securitization transactions. Part VI then applies my theory of CRT governance to several types of transactions whose governance I categorize as good, bad, or savvy. This Article concludes by identifying important implications of CRT governance for financial regulators implementing the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.<sup>28</sup> An important implication of my theory of CRT governance is that additional regulation may increase the risk of CRT transactions.

---

20.html. The same observation applies to post-crisis commercial mortgage-backed securities. *Id.*

<sup>26</sup> For more detail on the Lehman Brother's bankruptcy, see BANK OF INT'L SETTLEMENTS, *BIS QUARTERLY REVIEW*, DECEMBER 2008, at 6–7 Box 1 (2008); Karen Brettell, *Lehman CDS Counterparties Begin Resetting Trades*, REUTERS, Sept. 15, 2008, available at <http://www.reuters.com/article/2008/09/15/us-lehman-derivatives-idUSN1529868020080915>; Press Release, The Depository Trust & Clearing Corporation, DTCC Successfully Closes out Lehman Brothers Bankruptcy (Oct. 30, 2008) [hereinafter DTCC Press Release], available at [http://www.dtcc.com/news/press/releases/2008/dtcc\\_closes\\_lehman\\_cds.php](http://www.dtcc.com/news/press/releases/2008/dtcc_closes_lehman_cds.php).

<sup>27</sup> See *infra* Part VI.A.2–3. Securitizations that transferred the risk of consumer loans also never experienced any more distress than would be expected in a long and deep recession. See CAPITAL ADVISORS GROUP, *ASSET-BACKED SECURITIES: TIME TO REEVALUATE THEIR PLACE IN CORPORATE ACCOUNTS?* 6–7 (2011).

<sup>28</sup> Pub. L. No. 111-203, § 1073, 124 Stat. 1376, 2060–67 (2010) (codified in scattered sections of the U.S. Code).

## II. CREDIT RISK AND ITS TRANSFER

A. *The Nature of Credit Instruments*

A credit instrument is a type of financial contract under which a debtor borrows funds from, and must repay, a creditor.<sup>29</sup> The amount, timing, and other circumstances under which the repayment must be made vary among different types of credit instruments. Commercial loans and corporate bonds are two common types of credit instruments. Credit instruments originate credit risk, and that risk (and the corresponding right to repayment) can also be *transferred* from credit risk sellers to credit risk buyers through a wide variety of CRT transactions such as loan guarantees, sales, and syndication. The focus of this Article is on CRT transactions and instruments in the form of securitization transactions and CDSs.

B. *Credit Risk and Counterparty Credit Risk*

Credit risk is the risk that a creditor will not be repaid in whole, in part, or on time.<sup>30</sup> Generally, the higher the credit risk of an instrument, the higher is its interest rate.<sup>31</sup> When a debtor defaults, the creditor is typically still able to recover some amount of the principal.<sup>32</sup> Credit risk is comprised of component risks such as credit-spread risk and prepayment risk and is related to risks, such as liquidity risk and interest rate risk.<sup>33</sup> Prepayment risk is a problem particular to securitization that may deprive investors of expected cash flows if the underlying borrowers refinance in response to decreased interest rates.<sup>34</sup>

Credit risk has unique properties that differentiate it from market risk and other types of financial risk. First, the typical credit risk payoff distribution is asymmetric and often reflects a binary “default” or “no default” outcome, which leads to losses from credit risk having

---

<sup>29</sup> WEST'S ENCYCLOPEDIA OF AMERICAN LAW (2d ed. 2008) (defining debtor as “[o]ne who owes a debt or the performance of an obligation to another, who is called the creditor”).

<sup>30</sup> See PETER CHRISTOFFERSEN, ELEMENTS OF FINANCIAL RISK MANAGEMENT 7 (2nd ed. 2011).

<sup>31</sup> N. GREGORY MANKIW, PRINCIPLES OF ECONOMICS 557 (6th ed. 2011).

<sup>32</sup> MOORAD CHOUDHRY, STRUCTURED CREDIT PRODUCTS: CREDIT DERIVATIVES AND SYNTHETIC SECURITIZATION 29–32, 235 (2d ed. 2010).

<sup>33</sup> FRANK J. FABOZZI, FIXED INCOME SECURITIES 17–20 (2d ed. 2002).

<sup>34</sup> VINOD KOTHARI, SECURITIZATION—THE FINANCIAL INSTRUMENT OF THE FUTURE 235–37 (2006).

the potential to be large relative to other risks.<sup>35</sup> In addition, changes in credit risk and the correlation between different credit risks are generally difficult to measure, observe, and hence predict.<sup>36</sup> Credit losses depend upon relatively infrequent data about defaults, the value of collateral, contractual support mechanisms such as third party guarantees, and uncertainties relating to legal enforcement of creditors' rights.<sup>37</sup> Credit risk relationships are also often intended to last several years, which results in credit instruments being relatively illiquid and requires credit risk models to attempt to predict cash flows over a long period of time.<sup>38</sup>

Credit risk may also exist between both parties to a transaction (i.e., bilaterally). This risk is known as counterparty credit risk (or simply "counterparty risk"), and it arises when both sides of a credit transaction are exposed to the failure of the other to pay.<sup>39</sup> Unfunded credit transactions such as CDSs create counterparty risk because either party may default on its obligation to pay the other throughout the life of the transaction.<sup>40</sup> By contrast, in a funded credit transaction only creditors run the risk of not being repaid because debtors have already received the payment of principal from creditors. Credit risk in funded transactions is unilateral.

---

<sup>35</sup> STEVE L. ALLEN, *FINANCIAL RISK MANAGEMENT: A PRACTITIONER'S GUIDE TO MANAGING MARKET AND CREDIT RISK* 16 (2003); CHARLES GOODHART ET AL., *FINANCIAL REGULATION: WHY, HOW, AND WHERE NOW?* 87 (1998).

<sup>36</sup> GOODHART ET AL., *supra* note 35, at 88.

<sup>37</sup> *Id.*; Kurt S. Wilhelm, *Risk Management of Credit Derivatives*, in *PROFESSIONAL'S HANDBOOK OF FINANCIAL RISK MANAGEMENT* 307, 338–39 (Lev Brodsky & Marc Lore, eds. 2000).

<sup>38</sup> GOODHART ET AL., *supra* note 35, at 88.

<sup>39</sup> RICHARD ZHOU, *COUNTERPARTY RISK SUBJECT TO ATE 1* (2011), *available at* [http://mysite.verizon.net/zhou257/ATE\\_CVA\\_I.pdf](http://mysite.verizon.net/zhou257/ATE_CVA_I.pdf) ("Counterparty credit risk refers to the risk that a counterparty to a bilateral financial derivative contract may fail to fulfill its contractual obligation causing financial loss to the non-defaulting party.").

<sup>40</sup> More broadly, counterparty risk is a characteristic feature of over-the-counter derivatives transactions. JON GREGORY, *COUNTERPARTY CREDIT RISK: THE NEW CHALLENGE FOR GLOBAL FINANCIAL MARKETS* 17 (2010); Michael Pykhtin & Steven H. Zhu, *A Guide to Modeling Counterparty Credit Risk* GARP RISK REV., July–Aug. 2007, at 16, 16; see Eduardo Canabarro & Darrell Duffie, *Measuring and Marking Counterparty Risk*, in *ASSET/LIABILITY MANAGEMENT OF FINANCIAL INSTITUTIONS* 122, 122 (Leo M. Tilman ed., 2003); Robert R. Bliss & Robert S. Steigerwald, *Derivatives Clearing and Settlement: A Comparison of Central Counterparties and Alternative Structures*, 30 J. ECON. PERSPECTIVES 22, 23 (2006).

### C. *Motivations for CRT*

Market participants may be motivated to buy or sell credit risk for a variety of reasons. The motive behind CRT transactions is relevant to governance because how parties govern a transaction may depend on whether its motivation is short-term or long-term oriented. Parties that enter CRT transactions motivated by short-term goals are likely less interested in CRT governance because good governance is a long-term, costly commitment and losses from bad governance may take place after a participant has exited or hedged the transaction, or otherwise achieved its primary short-term purpose. The motivation for a CRT transaction therefore may indicate whether it is well governed.

#### 1. Financial and Economic

There are four primary financial or economic reasons why parties may seek to transfer credit risk. First, risk management may motivate an institution to engage in CRT. For example, a credit risk seller may no longer believe that exposure to the credit is economically desirable. A bank may transfer the credit risk associated with a loan because the bank believes that the borrower is no longer as creditworthy as previously assessed or to avoid an overconcentration of a particular type credit risk.<sup>41</sup>

Second, CRT may assist an institution in raising funds. For example, selling assets through securitization may provide cheaper capital to a firm to the extent investors are more willing to invest in the firm or an SPV due to the ability of securitization to produce more desirable securities, reduce monitoring costs, or discipline managers.<sup>42</sup>

Third, CRT may provide an institution with economic capital relief. Economic capital is the amount of capital that a firm's internal management determines is necessary to provide a cushion against

---

<sup>41</sup> CHOUDHRY, *supra* note 32, at 409–13; VINOD KOTHARI, CREDIT DERIVATIVES AND STRUCTURED CREDIT TRADING 26, 27 (2009). Transferring the interest rate risk associated with loans such as mortgages may also be a primary motivator in selling credit assets. KOTHARI, *supra* note 34, at 101.

<sup>42</sup> See CHOUDHRY, *supra* note 32, at 410; Claire A. Hill, *Securitization: A Low-Cost Sweetener for Lemons*, 74 WASH. U. L. Q. 1061, 1086–94 (1996); Edward M. Iacobucci & Ralph A. Winter, *Asset Securitization and Asymmetric Information*, 34 J. LEGAL STUD. 161, 171–93 (2005); Schwarcz, *supra* note 12, at 136, 143; Maciej F. Cuchra & Tim Jenkinson, *Security Design in the Real World: Why Are Securitization Issues Tranched?* 3–5 (July 2005) (unpublished manuscript), available at <http://ssrn.com/abstract=676730>.

unexpected losses.<sup>43</sup> The general relationship between credit risk and economic capital is that the greater the credit risk of a particular asset, the more economic capital must be held against the asset. By reducing or eliminating the credit risk of a particular asset, CRT permits a firm to decrease its economic capital and hence frees that capital to be used for other purposes.<sup>44</sup>

Fourth, CRT may be conducted as part of a long- or short-term trading or investment strategy. A basic arbitrage trading strategy stems from taking advantage of the relatively higher returns of longer-term credit assets compared to shorter-term ones. For example, arbitrage CDOs are able to pay out less to investors than they take in from collateral cash flows due to the basic economic principle of diversification.<sup>45</sup> Typical short-term trading strategies include basis trades that seek to profit from differences in spreads between cash instruments and the synthetic instruments that reference them, correlation trades that use CDSs to take advantage of mispriced correlations between securitization tranches, and delta hedging, which entails securitization investors using CDSs to tailor their risk exposures.<sup>46</sup>

## 2. Regulatory Capital Relief

Banks and other financial institutions may engage in CRT to obtain the short-term benefit of reducing the level of capital that they are required to hold by applicable capital regulations.<sup>47</sup> Banks are subject to capital regulation by national regulators implementing the

---

<sup>43</sup> JOHN B. CAOUILLE ET AL., *MANAGING CREDIT RISK: THE GREAT CHALLENGE FOR GLOBAL FINANCIAL MARKETS* 349 (2008); KOTHARI, *supra* note 41, at 239.

<sup>44</sup> CHOUDHRY, *supra* note 32, at 410–11 (noting that securitization may lower economic capital); KOTHARI, *supra* note 41, at 25 (noting that credit derivatives may lower economic capital).

<sup>45</sup> KOTHARI, *supra* note 41, at 186–87. CDOs are primarily entered into not for regulatory capital relief or removing liabilities from balance sheets but for arbitrage purposes. See *Global CDO Issuance*, SEC. INDUSTRY & FIN. MARKETS ASS'N, <http://www.sifma.org/uploadedFiles/Research/Statistics/StatisticsFiles/SF-Global-CDO-SIFMA.xls> (last updated Apr. 12, 2012) (select the “Purpose” tab in the Excel spreadsheet).

<sup>46</sup> CHOUDHRY, *supra* note 32, at 222–24; BRIAN P. LANCASTER ET AL., *STRUCTURED PRODUCTS AND RELATED CREDIT DERIVATIVES: A COMPREHENSIVE GUIDE FOR INVESTORS* 249–51 (2008); ATISH KAKODKAR, MERRILL LYNCH, *CORRELATION TRADING: A NEW ASSET CLASS EMERGES* 9–11 (2003), available at <http://stat.fsu.edu/~mncube/FinancialMathEbooks/Correlation%20Trading.pdf>.

<sup>47</sup> Other financial institutions subject to capital regulation include securities broker-dealers, insurance companies, government sponsored enterprises, such as Fannie Mae and Freddie Mac, and any financial institution deemed systematically significant by the U.S. Financial Stability Oversight Council. See MARK JICKLING & EDWARD V. MURPHY, CONG. RESEARCH SERV., R40249, *WHO REGULATES WHOM? AN OVERVIEW OF U.S. FINANCIAL SUPERVISION* 12–14 (2010).



Basel capital accord,<sup>48</sup> and pursuant to the Dodd-Frank Act, U.S. banking regulators are implementing revised capital regulation standards.<sup>49</sup> The purpose of capital regulation is to promote the solvency and stability of financial institutions.<sup>50</sup> Capital regulation implementing Basel is generally “risk-based,” which means that banks with riskier assets must hold more capital.<sup>51</sup> By transferring the risk of its credit assets, CRT permits a bank to decrease its capital requirements, obtain regulatory capital relief, and potentially be more profitable. This is true regardless of whether credit risk is transferred with CDSs or through securitization.<sup>52</sup>

On December 16, 2010, the Basel Committee on Banking Supervision released the most recent version of the Basel capital accord (known as “Basel III”) that will be implemented incrementally through 2019.<sup>53</sup> Compared to earlier versions of Basel, Basel III narrows the definition of capital, increases capital requirements, and imposes new requirements in regard to leverage, liquidity, countercyclicality, and counterparty risk.<sup>54</sup> Basel III generally reduces the ability of banks to reduce regulatory capital through securitizations or through CDSs that are not cleared through a central counterparty.<sup>55</sup> Accordingly, engaging in CRT for short-term-oriented capital relief will likely be less of a motivation than prior to the financial crisis.

---

<sup>48</sup> CAOUETTE ET AL., *supra* note 43, at 362.

<sup>49</sup> *Governor Daniel K. Tarullo, Dodd-Frank Implementation*, BOARD GOVERNORS FED. RES. SYS. (Dec. 6, 2011), <http://www.federalreserve.gov/newsevents/testimony/tarullo20111206a.htm>.

<sup>50</sup> See Basel Comm. on Banking Supervision, *International Convergence of Capital Measurement and Capital Standards, A Revised Framework, Comprehensive Version 2* (2006), *available at* <http://www.bis.org/publ/bcbs128.htm>.

<sup>51</sup> Michael B. Gordy & Erik A. Heitfield, *Risk-Based Regulatory Capital and Basel II* 358, *in* THE OXFORD HANDBOOK OF BANKING 357, 358 (Allen N. Berger et al. eds., 2010).

<sup>52</sup> See CHOUDHRY, *supra* note 32, at 410–11 (noting that securitization may lower regulatory capital); KOTHARI, *supra* note 34, at 24–25 (noting that credit derivatives may lower regulatory capital).

<sup>53</sup> Basel Comm. on Banking Supervision, *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems* 69, Annex 4 (2011), *available at* <http://www.bis.org/publ/bcbs189.pdf>.

<sup>54</sup> See Basel Comm. on Banking Supervision, *supra* note 53; *see also* Latham & Watkins, *Client Alert No. 1138, Basel III: A New Environment for International Banks*, LATHAM & WATKINS (Feb. 3, 2011), [www.lw.com/thoughtLeadership/eu-updates-basel-iii](http://www.lw.com/thoughtLeadership/eu-updates-basel-iii).

<sup>55</sup> See Basel Comm. on Banking Supervision, *supra* note 53, at 3–4; *see also* STANDARD & POOR’S, *TOUGHER CAPITAL REQUIREMENTS UNDER BASEL III COULD RAISE THE COSTS OF SECURITIZATION* (2010).

### 3. Beneficial Accounting Treatment

Accounting rules may also make CRT more attractive. However, an accounting improvement may neither reflect an actual economic improvement nor identify the full risks to which a firm is exposed; it may even mask a firm's financial deterioration. Accordingly, CRT undertaken solely or primarily for the purpose of improving a credit risk seller's accounting health may be motivated by short-term considerations that come at the expense of longer-term and higher quality governance.

Because securitization involves the sale of credit assets to an SPV, securitization results in accounting benefits to the seller, including acquiring cash assets and being able to avoid any future losses associated with the securitized assets by removing them from the seller's balance sheet.<sup>56</sup> A fundamental accounting issue is the extent to which the SPV's assets or liabilities must be consolidated with, and hence reflected on, the balance sheet of the originator, issuer, servicer, or other party involved in the securitization. This is because in a securitization transaction, the originator, issuer, servicer, or other party often retains some type of control, risk, or other interest in the credit assets transferred to the SPV, and as a result may be required to consolidate.<sup>57</sup>

Accounting standards in effect for financial statements filed prior to 2010 did not make it exceptionally difficult for securitizations to achieve off-balance-sheet treatment and hence not have their associated assets and liabilities be consolidated.<sup>58</sup> For fiscal years beginning after November 15, 2009, revised accounting standards implemented a qualitative test (based on control of, and economic exposure to, the SPV), making it substantially more difficult to achieve off-balance-sheet treatment for most securitization transactions.<sup>59</sup> As a result, a significant amount of securitized assets were consolidated with finan-

---

<sup>56</sup> See KOTHARI, *supra* note 34, at 767–68, 790.

<sup>57</sup> *Id.* at 768.

<sup>58</sup> See *id.* at 772–75, 783–90.

<sup>59</sup> CAROL A. HITSELBERG & JASON H.P. KRAVITT, MAYER BROWN, BIG CHANGES TO SECURITIZATION ACCOUNTING (2009), available at <http://www.mayerbrown.com/publications/Big-Changes-to-Securitization-Accounting-06-22-2009/>; JOHN KOHLER, 12TH STREET CAPITAL, FASB 166 AND 167 IMPLICATIONS FOR SECURITIZATION (2009), available at [http://www.senseoncents.com/wpcontent/uploads/2009/11/FASB\\_166\\_\\_167.pdf](http://www.senseoncents.com/wpcontent/uploads/2009/11/FASB_166__167.pdf); see also MARTY ROSENBLATT ET AL., DELOITTE, SECURITIZATION ACCOUNTING: THE INS AND OUTS (AND SOME DO'S AND DON'TS) OF FAS 166, 167, AND COUNTING . . . 4–28 (2010).

cial institutions' balance sheets.<sup>60</sup> Requiring securitization transactions to be consolidated on a credit risk seller's balance sheet may make securitizations less attractive to banks and other risk sellers because, among other consequences, accounting consolidation may increase the risk seller's balance sheet liabilities or require it to hold additional capital.<sup>61</sup>

CDSs are on-balance-sheet instruments that must be marked to market at their fair value with any corresponding increase in counterparty risk recorded as an unrealized loss on the income statement.<sup>62</sup> In addition, accounting rules applicable to financial statements issued after 2008 require substantial qualitative and quantitative disclosures from buyers of credit risk with CDSs (i.e., CDS protection sellers).<sup>63</sup> Nonetheless, transferring credit risk with a CDS may have a salutary effect from an accounting perspective and hence may be undertaken for short-term benefits. First, transferring credit risk with a CDS may permit a credit-risk seller to book immediate, upfront gains through a "negative basis trade." Under such a trade, if the payment the credit-risk seller makes to the credit-risk buyer is lower than the payment the risk seller receives from being exposed to the referenced credit asset, then the risk seller can book the difference as an upfront profit.<sup>64</sup> In addition, using a CDS to transfer credit risk can help a firm reduce volatility in its income

---

<sup>60</sup> BD. OF GOVERNORS OF THE FED. RESERVE SYS., REPORT TO CONGRESS ON RISK RETENTION 68–70 (2010), available at <http://federalreserve.gov/boarddocs/rptcongress/securitization/riskretention.pdf>.

<sup>61</sup> *Id.* at 72–73; Letter from Mortgage Bankers Ass'n to Bd. of Governors of the Fed. Reserve Sys. 3 (Oct. 7, 2010), available at <http://www.mbaa.org/files/Advocacy/2010/MBALettertoFederalReserveonRiskRetentionStudy.pdf>.

<sup>62</sup> KOTHARI, *supra* note 41, at 399, 402–07.

<sup>63</sup> See generally ROTHSTEIN KASS, SFAS 161 (ASC 815-10-50), DISCLOSURES ABOUT DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES: IMPLEMENTATION GUIDANCE FOR THE ALTERNATIVE INVESTMENT COMMUNITY (2009) (describing the enhanced disclosures required for derivatives under SFAS 161).

<sup>64</sup> See J.P. MORGAN, SINGLE NAME CDS OF ABS 3–5 (2005), available at [http://www.securitization.net/pdf/JPMorgan/abcds\\_7Mar05.pdf](http://www.securitization.net/pdf/JPMorgan/abcds_7Mar05.pdf) (explaining negative basis trades in both cash and synthetic securitization structures); JANET TAVAKOLI, STRUCTURED FINANCE AND COLLATERALIZED DEBT OBLIGATIONS: NEW DEVELOPMENTS IN CASH AND SYNTHETIC SECURITIZATION 348–49 (2008); Nicoletta Kotsianas, *CDS Negative Basis Trading Jitters Hit Market*, CREDIT INV. NEWS, Feb. 18, 2008, at 10; Philip Alexander, *Securitization Strategy Rethink*, BANKER (Dec. 1, 2008), <http://www.thebanker.com/Markets/Derivatives-Structured-Products/Securitisiation-strategy-rethink?ct=true>; Craig Stein & David Aron, *Negative Basis Trade Basics*, DERIVATIVES WEEK (Nov. 17, 2006), [http://www.derivativesweek.com/Article/1252065/Negative\\_Basis\\_Trade\\_Basics\\_.html](http://www.derivativesweek.com/Article/1252065/Negative_Basis_Trade_Basics_.html).

statements. If a CDS is used to hedge another credit asset, then the mark-to-market gains and losses for each instrument offset each other in the income statement and reduce income volatility under an accounting principle known as “hedge accounting.”<sup>65</sup>

### III. CRT GOVERNANCE

As a species of corporate governance theory, creditor governance theory seeks to understand the problems that creditors have in receiving an appropriate return on their investment and the governance mechanisms creditors employ to mitigate such problems. The principles of creditor governance help identify which governance mechanisms reduce agency costs based upon the characteristics of particular credit transactions. Because CRT governance is a type of creditor governance, identifying the principles of creditor governance can provide a framework for good CRT governance.

#### A. Creditor Governance

Credit risk is a primary economic concern of creditors.<sup>66</sup> Credit risk is also a governance concern because of the presence of asymmetric information and potentially misaligned incentives in the creditor-debtor relationship.<sup>67</sup> Asymmetric information and misaligned incentives create agency costs, which are the costs that principals and agents incur because their interests may diverge.<sup>68</sup> Agency costs between creditors and debtors generally take the form of adverse selection, moral hazard, and other forms of opportunism and shirking by debtors.<sup>69</sup> Particular agency costs include debtors increasing their overall risk after obtaining credit or taking on additional debt obligations that reduce their ability to repay existing creditors.<sup>70</sup> To reduce

---

<sup>65</sup> See Accounting for Derivatives Instruments and Hedging Activities, Statement of Financial Accounting Standards No. 133 (Fin. Accounting Standards Bd. 1998); KOTHARI, *supra* note 41, at 399–406.

<sup>66</sup> Creditors are also typically concerned about the market value of their investment in secondary markets.

<sup>67</sup> See Whitehead, *Debt Governance*, *supra* note 15, at 68.

<sup>68</sup> See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, 3 J. FIN. ECON. 305, 308–10 (1976).

<sup>69</sup> Adverse selection takes place when informational asymmetries increase the propensity of low quality borrowers to obtain credit because lenders are unable to distinguish between low and high quality borrowers. Kiff et al., *supra* note 11, at 110. Moral hazard occurs when a lender's lack of knowledge over a borrower's credit risk permits the borrower to engage in opportunistic behavior that benefits itself at the expense of the lender after the borrower obtains credit. *Id.*

<sup>70</sup> See Clifford W. Smith, Jr. & Jerold B. Warner, *On Financial Contracting*, 7 J. FIN. ECON. 117, 118–19 (1979).

or eliminate these agency costs of debt, creditors adopt creditor governance mechanisms.

There are five general creditor governance mechanisms. The most basic creditor governance mechanism is demanding a certain rate of interest to discipline a debtor and compensate creditors for the risks associated with the agency costs of debt. Attempting to mitigate agency costs through interest rates is typically not sufficient, however, due to informational asymmetries that prevent optimal credit pricing. Accordingly, creditors may adopt four additional governance mechanisms: monitoring, covenants, collateralization, and CRT. Monitoring activities by creditors, including screening potential debtors before credit is extended, are ubiquitous.<sup>71</sup> Creditors also routinely employ contractual constraints by enforcing and negotiating debt covenants.<sup>72</sup> Debt covenants may place significant constraints on debtors, including restricting their ability to take on additional debt, use cash flows, and make investment decisions.<sup>73</sup> Covenants may also place performance requirements on debtors, thereby serving as an early warning signal to creditors.<sup>74</sup> A covenant breach permits creditors to accelerate the full amount of the loan; however, in practice, creditors to corporate debtors typically renegotiate covenants when they are breached.<sup>75</sup> Securing a loan with collateral helps reduce potential losses to creditors<sup>76</sup> and can also serve as a valuable signaling or screening device.<sup>77</sup> CRT is a creditor governance mechanism because using CRT to trade credit risk in secondary markets leads to credit risk price discovery that may discipline debtors and help creditors in their monitoring activities.<sup>78</sup>

---

<sup>71</sup> XAVIER FREIXAS & JEAN-CHARLES ROCHET, *THE MICROECONOMICS OF BANKING* 29 (2d. ed. 2008); Tung, *supra* note 15, at 125–27, 139.

<sup>72</sup> See generally Greg Nini et al., *Creditor Control Rights, Corporate Governance, and Firm Value*, 92 J. FIN. ECON. 400 (2009) (examining the role of creditors in corporate governance).

<sup>73</sup> Tung, *supra* note 15, at 136–38.

<sup>74</sup> George G. Triantis & Ronald J. Daniels, *The Role of Debt in Interactive Corporate Governance*, 83 CALIF. L. REV. 1073, 1093–94 (1995).

<sup>75</sup> Nini et al., *supra* note 15, at 2.

<sup>76</sup> Tung, *supra* note 15, at 145 n.132

<sup>77</sup> See Gabriel Jiménez et al., *Determinants of Collateral* 32 (EFA 2004 Maastricht Meetings, Working Paper No. 1455, 2004), available at <http://ssrn.com/abstract=565343>.

<sup>78</sup> Whitehead, *Evolution of Debt*, *supra* note 15, at 129–30. Secondary market pricing of credit risk includes not only the price of credit instruments in secondary markets but also the price of CDSs that reference such instruments.

The characteristics of a transaction determine which creditor governance mechanisms are best suited to reduce its agency costs.<sup>79</sup> Important characteristics of credit transactions include the debtor's risk, the cost of obtaining information about the debtor, and the ease with which the transaction's credit risk can be transferred. The following principles identify how creditor governance mechanisms generally interact with transaction characteristics to reduce agency costs:

- Interest rates are higher the greater the risk of the debtor.<sup>80</sup>
- Monitoring is less active the higher the monitoring costs or the lower the risk of the debtor.<sup>81</sup>
- Covenants are more stringent the higher the monitoring costs or the risk of the debtor.<sup>82</sup>
- More collateral is used the higher the monitoring costs or the risk of the debtor.<sup>83</sup>
- CRT is more likely to be used the more robust the instrument's market and trading infrastructure.

Two additional principles also explain the use of particular creditor governance mechanisms. First, creditor governance mechanisms may be substitutes. Accordingly, any given mechanism may be employed less to the extent other substitute mechanisms are used. For example, creditors may engage in less monitoring or have less stringent covenants when CRT is cheaper (e.g., the easier it is to exit a loan through a loan sale). Second, less governance may take place to the extent external factors reduce the benefits of governance. These external factors include reliance on third parties (such as credit rat-

---

<sup>79</sup> See Oliver E. Williamson, Univ. of Cal., Berkely Transaction Cost Economics: The Natural Progression, Nobel Prize Lecture 465 (Dec. 8, 2009), available at [http://www.nobelprize.org/nobel\\_prizes/economics/laureates/2009/williamson\\_lecture.pdf](http://www.nobelprize.org/nobel_prizes/economics/laureates/2009/williamson_lecture.pdf) ("[T]ransactions, which differ in their attributes, are aligned with governance structures . . . so as to effect a (mainly) transaction cost economizing outcome.").

<sup>80</sup> Indeed, the very existence of debt and its requirement to make fixed, periodic interest payments may serve as a check on managerial opportunism. Milton Harris & Artur Raviv, *Capital Structure and the Informational Role of Debt*, 45 J. FIN. 321, 321-24 (1990).

<sup>81</sup> See Whitehead, *Debt Governance*, *supra* note 15, at 69.

<sup>82</sup> *Id.* For example, private bank loans have more stringent covenants than public bonds in part because less information is generally available about non-public borrowers.

<sup>83</sup> Tensie Steijvers & Wim Voordeckers, Collateral and Credit Rationing: A Review of Recent Empirical Studies as a Guide for Future Research, 23 J. ECON. SURVS. 924, 927 (2009).

ing agencies) to assess credit risk,<sup>84</sup> explicit or implicit governmental guarantees to creditors,<sup>85</sup> a macroeconomic oversupply of credit,<sup>86</sup> a creditor's privileged status under bankruptcy law,<sup>87</sup> or a creditor's short-term orientation.

### B. Market Infrastructure

CRT market infrastructure is comprised of the general characteristics of CRT instruments and the instruments' secondary market characteristics. Market infrastructure has an important impact on overall financial market quality as measured by criteria such as liquidity, efficiency, price discovery, and stability.<sup>88</sup> Market infrastructure mechanisms also play a role in CRT governance because they can help or hinder other governance mechanisms or may serve as a substitute for such mechanisms. Market infrastructure influences the scope of control that parties have over transactions and the sensitivity of particular CRT instruments to credit risk losses.

#### 1. Contract Characteristics

Three important characteristics of CRT contracts include the degree to which the contracts are standardized, complex, and transparent as to the underlying credit instruments whose credit risk is transferred. The standardization of CRT contracts can range from highly customized bespoke transactions to relatively standardized contracts. Customized CRT instruments have the benefit of being able to transfer the precise credit risk the seller wants to transfer while giving the risk buyer customized risk exposure. Customized

---

<sup>84</sup> See *infra* note 344 and accompanying text.

<sup>85</sup> See Robert L. Hetzel, *Too Big to Fail: Origins, Consequences, and Outlook*, FED. RES. BANK RICHMOND ECON. REV., Nov.—Dec. 1991, at 11. (“Too big to fail . . . limits incentives for creditors to monitor the riskiness of bank asset portfolios.”); see also Diana Hancock & Wayne Passmore, *An Analysis of Government Guarantees and the Functioning of Asset-Backed Securities Markets 2* (Fed. Reserve Bd., Working Paper No. 2010-46, 2010) (“[Securitization] investors are more likely to rely on implicit government guarantees . . . rather than to conduct a painstaking quantitative analysis of the underlying collateral.”).

<sup>86</sup> Tung, *supra* note 15, at 161. For example, the global credit glut from 2003 to 2007 led to competition among lenders that reduced reliance on stringent covenants in the form of covenant-light loans (those with little or no covenants). See Viral V. Acharya et al., *Private Equity: Boom and Bust?*, 19 J. APPL. CORP. FIN. 44, 44–46 (2007).

<sup>87</sup> See Mark J. Roe, *The Derivatives Market's Payment Priorities as Financial Crisis Accelerator*, 63 STAN. L. REV. 539, 560–64 (2011); Richard Squire, *Shareholder Opportunism in a World of Risky Debt*, 123 HARV. L. REV. 1151, 1200–01 (2010).

<sup>88</sup> LARRY HARRIS, TRADING AND EXCHANGES: MARKET MICROSTRUCTURE FOR PRACTITIONERS 4 (2002).

CRT contracts, however, by nature, lack the standardization necessary to be traded on an exchange or cleared by a central counterparty.<sup>89</sup>

In terms of complexity, CRT instruments range from relatively straightforward loan assignment agreements that effect a loan sale directly from the credit risk seller to the credit risk buyer to a grouping of lengthy securitization documents that establish and/or define for several parties, among other things, an intermediary SPV firm that purchases assets from a credit risk buyer, the terms of the management of the SPV, and the liabilities that transfer the credit risk to the buyers. Finally, CRT instruments have a wide range of disclosure and reporting practices regarding the underlying credit instruments whose risk is being transferred.

## 2. Secondary CRT Market Infrastructure

The important aspects of secondary CRT market trading infrastructure are market liquidity, price and volume transparency, and post-trade clearing and settlement. CRT instruments exist on a spectrum of liquidity, which is the ability of instruments to be traded without suffering significant price discounts.<sup>90</sup> Some instruments may be highly illiquid either due to contractual provisions limiting their transfer to third parties or because their terms are so unique and complex that they are difficult to value. Less complicated and opaque CRT instruments may be relatively liquid and perhaps even more liquid than bonds. A benefit of standardized CRT instruments is their relatively high liquidity.<sup>91</sup>

The transparency of CRT instrument prices and volume can come in various forms when they are traded in secondary markets. There is pre-trade transparency, which entails reporting information about prospective trading interests such as bid/ask prices, and post-trade transparency, which entails reporting information about price and trading volume after the trading occurs. This information can be

---

<sup>89</sup> See G.D. Koppenhaver, *Derivative Instruments: Forwards, Futures, Options, Swaps, and Structured Products*, in FINANCIAL DERIVATIVES: PRICING AND RISK MANAGEMENT 3, 18 (Robert W. Kolb & James Overdahl eds., 3d ed. 2003); INT'L SWAPS & DERIVATIVES ASS'N, TREASURY'S PROPOSAL MANDATING CLEARING OF "STANDARDIZED" SWAPS 2-3 (2009).

<sup>90</sup> Liquidity has four dimensions. Hendrik Bessembinder & William Maxwell, *Transparency and the Corporate Bond Market*, 22 J. ECON. PERSP. 217, 225 (2008).

<sup>91</sup> Nonetheless, even the most standardized CRT contracts are generally less standardized than exchange-traded instruments such as stocks or futures instruments, which differ only in price. *Clearing Standardized OTC Derivatives: Hearing Before the Subcomm. on Capital Markets, Institutions, and Government Sponsored Enterprises of the H. Comm. on Fin. Servs.*, 111th Cong. 4 Exhibit 1 (2009) (testimony of Christian A. Johnson, Professor, S.J. Quinney Coll. of Law, The Univ. of Utah).



reported publicly or privately, in real-time or on a delayed basis, and for individual transactions or in the aggregate.

Greater transparency may increase or decrease liquidity. On the one hand, more transparent instruments tend to be more liquid because more information about their pricing makes market participants more interested in the instruments and more confident about their ability to sell the instruments if the need arises.<sup>92</sup> On the other hand, greater transparency may reduce bid/ask spreads, which in turn causes the dealers of the instruments to reduce their trading volume (or exit the market) and hence reduces the market's depth and other aspects of market liquidity.<sup>93</sup>

After a trade is executed, it must be cleared and settled to fully discharge the legal obligations of the trading counterparties.<sup>94</sup> Clearing and settlement can take place bilaterally, between trading counterparties, or through an intermediary clearinghouse, which may be part of an exchange. *Clearing* refers to the myriad of activities and processes designed to ensure that financial contract counterparties perform their obligations from the time a trade is executed until final legal settlement.<sup>95</sup> Clearing includes confirming the parties to and terms of a contract, determining and settling periodic payments, evaluating the collateral, monitoring the creditworthiness of counterparties, determining whether a credit event took place, and whether to exercise closeout rights.<sup>96</sup> OTC derivative transactions, including CDSs, are generally cleared and settled bilaterally, while the utilization of a central counterparty for clearing and settlement is a characteristic of exchanged-traded instruments.<sup>97</sup>

### C. CRT Governance and Creditor Governance

CRT governance should be viewed as a type of creditor governance. First, CRT instruments have the same basic economic structure as credit instruments. CRT instruments give their owners rights to cash flows while exposing them to credit risk—just like loans and

---

<sup>92</sup> See ISDA, *TRANSPARENCY AND OVER-THE-COUNTER DERIVATIVES* 6 (2009).

<sup>93</sup> *Id.* at 7. Increased transparency may also increase market volatility and decrease stability. *Id.* at 7–8.

<sup>94</sup> Bliss & Steigerwald, *supra* note 40, at 22.

<sup>95</sup> See generally ED NOSAL & ROBERT STEIGERWALD, FED. RESERVE BANK OF CHI., *WHAT IS CLEARING AND WHY IS IT IMPORTANT?* (2010), available at [http://www.chicagofed.org/digital\\_assets/publications/chicago\\_fed\\_letter/2010/cfl\\_september2010\\_278.pdf](http://www.chicagofed.org/digital_assets/publications/chicago_fed_letter/2010/cfl_september2010_278.pdf) (providing a detailed discussion of clearing).

<sup>96</sup> Bliss & Steigerwald, *supra* note 40, at 24.

<sup>97</sup> *Id.* at 23.

bonds. Second, CRT relationships suffer from informational asymmetries and incentive misalignments similar to those of credit instruments generally. In the context of CRT, adverse selection may take the form of credit risk sellers selling the risk of relatively low quality assets.<sup>98</sup> In addition, the very ability to transfer credit risk may create moral hazard by causing originators and other credit risk sellers to reduce their monitoring and screening of loans and other credit assets whose risk is ultimately sold to others.<sup>99</sup> Accordingly, informational asymmetries and misaligned incentives give rise to CRT agency costs and hence create governance problems.<sup>100</sup> Third, in response to CRT governance problems, market participants adopt governance mechanisms similar to those for traditional credit instruments, including the rates on interest-like payments charged to credit risk sellers, screening and monitoring, collateralization, and covenants.

Thus, CRT governance should be regarded as a specific type of creditor governance such that the principles of creditor governance apply to CRT instruments as well. The following two Parts of this Article detail the governance problems and mechanisms of unfunded CDS transactions and funded securitizations, respectively. These Parts conclude by identifying good CRT governance regimes for each type of transaction based on the characteristics of the transactions and their respective market infrastructures.

#### IV. UNFUNDED CRT: CREDIT DEFAULT SWAPS

A CDS is a contract in which a credit risk seller (the “protection buyer”) agrees to make an upfront payment along with periodic premium payments<sup>101</sup> to a credit risk buyer (the “protection seller”). In exchange, the credit risk buyer (protection seller) agrees to pay the risk seller if a negative “credit event” in relation to a reference debt obligation or a reference entity takes place.<sup>102</sup> Credit events typically include a default, bankruptcy, or another failure to pay associated

---

<sup>98</sup> Kiff et al., *supra* note 11, at 113.

<sup>99</sup> *See id.* at 110.

<sup>100</sup> Cf. Oliver Hart, *Corporate Governance, Some Theory and Applications*, 105 *ECON. J.* 687 (1995) (arguing that governance issues arise whenever there are agency problems irresolvable by ex-ante contracting).

<sup>101</sup> Under standardized terms, these premium payments are one percent for investment-grade credits and five percent for sub-investment-grade credits.

<sup>102</sup> This description of a “typical” CDS agreement is based upon contract convention changes adopted in 2009. *See* CHOUDHRY, *supra* note 32, at 138–41. One basis point is equal to one hundredth of a percentage so that, for example, seventy-five basis points equal 0.75% of the notional value of the bond.

with the reference obligation or entity.<sup>103</sup> If a credit event occurs, the party making the periodic payments (the risk seller) is entitled to receive a cash payment in an amount equal to the loss incurred due to the credit event, such as the diminished market value of the reference debt obligation.<sup>104</sup> A CDS accordingly transfers credit risk and hence is an instrument of CRT.<sup>105</sup>

CDSs are classified broadly by the type of obligation or entity they reference, and different types of CDSs typically have unique terms associated with that type of CDS. The two most common types of CDSs are single-name CDSs and CDS indices that reference corporate bonds.<sup>106</sup> A single-name CDS references a single bond or a single reference entity. CDS indices typically reference 125 reference entities that have some common theme, such as all being American or European investment-grade companies.<sup>107</sup> CDSs that reference sovereign debt make up nearly twenty percent of the CDS market, while CDSs that reference loans or the debt issued in securitizations (i.e., asset-backed securities) constitute approximately two percent of the market.<sup>108</sup>

CDSs are different from credit insurance and guarantees for several reasons. Unlike CDSs, credit insurance and guarantee contracts each require the protection buyer to own the interest that is being insured or the asset that is being guaranteed.<sup>109</sup> CDSs are also far more standardized and liquid than either credit insurance contracts or guarantees.<sup>110</sup> A CDS is a type of OTC derivatives contract, which is an instrument that is not traded on an organized exchange. OTC derivatives come in a wide variety of forms, and different types transfer different risks, such as interest rate risk or foreign exchange rate risk. Single-name CDSs are regulated under U.S. law by the Securi-

---

<sup>103</sup> See KOTHARI, *supra* note 41, at 85–88.

<sup>104</sup> See CHOUDHRY, *supra* note 32, at 129–31.

<sup>105</sup> A CDS may also be used to transfer the counterparty risk of either party to a CDS transaction by requiring a protection seller to pay an amount equal to any loss that may arise due to the default of the protection buyer's counterparty on a separate derivatives transaction. This transaction is known as a contingent CDS. GREGORY, *supra* note 40, at 258–60; KOTHARI, *supra* note 41, at 122–24.

<sup>106</sup> E. PAUL ROWADY, JR., TABB GROUP, THE GLOBAL RISK TRANSFER MARKET: DEVELOPMENTS IN OTC AND EXCHANGE-TRADED DERIVATIVES 69, 71 (2010).

<sup>107</sup> BRIAN P. LANCASTER ET AL., STRUCTURED PRODUCTS AND RELATED CREDIT DERIVATIVES: A COMPREHENSIVE GUIDE FOR INVESTORS 240–44 (2008); Mengle, *supra* note 128, at 3.

<sup>108</sup> ROWADY, *supra* note 106, at 71.

<sup>109</sup> See KOTHARI, *supra* note 41, at 22.

<sup>110</sup> *Id.*

ties and Exchange Commission (SEC) as security-based swaps, and the major CDS indices are regulated by the Commodity Futures Trading Commission (CFTC).<sup>111</sup>

#### A. *Parties and Incentives*

Every CDS contract involves a protection buyer (the credit risk seller) and a protection seller (the credit risk buyer). CDSs may also be traded on an electronic platform and/or be centrally cleared through a clearinghouse (central counterparty).

The incentive of a CDS protection buyer is to pay as little as possible for the protection by minimizing the upfront payment and to make as few payments as possible to the protection seller before a credit event, if any, occurs, thereby paying the minimum for the protection. When a credit event does occur, all things being equal, the protection buyer seeks the largest payment possible from the protection seller.<sup>112</sup> A protection buyer also wants a protection seller to collateralize the trade with as much high-quality collateral as possible to ensure payment if a credit event occurs. In addition, a protection buyer has an incentive to post as little collateral as possible at the outset of the trade and over its life to avoid the costs of doing so. The basic incentives for the protection seller are opposite to the incentives for the protection buyer. A protection seller wants to receive as much as possible in payments from the protection buyer without making any credit event-triggered payments.

In most CDS transactions, a CDS dealer constitutes at least one of the parties,<sup>113</sup> which means that end-users of CDSs, such as hedge funds and insurance companies, typically do not enter into CDS agreements directly with one another. Dealers are usually on one side of the trade because dealers stand ready to enter into CDS trades with end-users and have the capabilities and operational infrastruc-

---

<sup>111</sup> SEC Adopts Rule Defining Swaps-Related Terms for Regulating Derivatives, SEC. & EXCHANGE COMMISSION (Apr. 18, 2012), <http://www.sec.gov/news/press/2012/2012-67.htm>; *Testimony Before the US Senate Committee on Banking, Housing and Urban Affairs, Washington, DC, CFTC Chairman Gary Gensler*, U.S. COMMODITIES FUTURES TRADING COMMISSION (May 22, 2012), <http://cftc.gov/PressRoom/SpeechesTestimony/opagensler-114>.

<sup>112</sup> In physically settled CDSs, the protection buyer has an incentive to deliver the cheapest deliverable asset that will satisfy the buyer's delivery obligations to the protection seller.

<sup>113</sup> Marco Avellaneda & Rama Cont, *Transparency in the Credit Default Swap Markets* 9 (July 2010) (unpublished manuscript), available at [http://www.isda.org/c\\_and\\_a/pdf/CDSMarketTransparency.pdf](http://www.isda.org/c_and_a/pdf/CDSMarketTransparency.pdf).

ture to help manage risk and make the transaction efficient.<sup>114</sup> In addition, most CDS transactions take place between CDS dealers as part of their risk-management activities.<sup>115</sup> A CDS dealer obtains income from the difference between bid/ask spreads on particular CDSs—from selling instruments at a higher price than purchased.<sup>116</sup> This creates two fundamental incentives for dealers. First, dealers have an incentive to increase their trading volume to increase their profits from order flow.<sup>117</sup> Second, dealers have an incentive to maximize the bid/ask spread on any given CDS contract to increase profits per trade. Generally, bid/ask spreads are higher when contracts are less standardized or there is less price transparency.<sup>118</sup> The profits that dealers earn from bid/ask spread differentials may serve as a capital cushion to reduce risk from counterparty defaults. This implies that a reduction in CDS bid/ask spreads may increase counterparty risk.

CDS trades may utilize the services of a central counterparty clearinghouse (CCP) for several post-trade execution activities, which otherwise may take place bilaterally between the trading counterparties.<sup>119</sup> If used, a CCP becomes the buyer to the seller and the seller to buyer through a novation with each party.<sup>120</sup> A CCP thereby fulfills its fundamental purpose by removing counterparty risk from each of the CDS counterparties and taking it on itself. An instrument must be sufficiently liquid and standardized to be centrally cleared.<sup>121</sup> A significant yet minority of CDSs, such as certain single-names and indices, are suitable for central clearing.<sup>122</sup> CCPs may be operated on a for-profit basis or through mutual structure in which CCP users are also

---

<sup>114</sup> CHRISTOPHER L. CULP, *THE RISK MANAGEMENT PROCESS: BUSINESS STRATEGY AND TACTICS* 510 (2001).

<sup>115</sup> DARRELL DUFFIE, *HOW BIG BANKS FAIL AND WHAT TO DO ABOUT IT* 17 (2010); Matthew Leising, *CME Group, Citadel Said to Lack Credit-Default Swap Customers*, BLOOMBERG.COM (Mar. 19, 2009, 14:00 EDT), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a4LBDF2UtsEE&refer=home> (reporting that according to the Depository Trust & Clearing Corp., “[b]anks trading with other banks accounted for 80 percent of all [CDS] trades in the week ended March 13, [2009]”). When dealers trade between themselves, often the services of a third-party interdealer broker are utilized. ROBERT W. KOLB & JAMES A. OVERDAHL, *FUTURES, OPTIONS, AND SWAPS* 676 (2007).

<sup>116</sup> See ROBERT W. KOLB & JAMES A. OVERDAHL, *FINANCIAL DERIVATIVES* 186 (2003); SALIH N. NEFTCI, *PRINCIPLES OF FINANCIAL ENGINEERING* 488–99 (2008).

<sup>117</sup> HARRIS, *supra* note 88, at 278–79, 282–83.

<sup>118</sup> KOLB & OVERDAHL, *supra* note 116, at 186.

<sup>119</sup> The activities of a CCP are additionally described *infra* Part IV.C.5.

<sup>120</sup> DAVID STOWELL, *AN INTRODUCTION TO INVESTMENT BANKS, HEDGE FUNDS, AND PRIVATE EQUITY: THE NEW PARADIGM* 134 (2010).

<sup>121</sup> See EUR. CENT. BANK, *CREDIT DEFAULT SWAPS AND COUNTERPARTY RISK* 79 (2009).

<sup>122</sup> *Id.*

the owners.<sup>123</sup> As part of their overall risk management practices, CCPs have an incentive to limit membership only to dealers that can afford to meet certain capital and other requirements. A dealer-owned CCP may require non-member dealers and end-users to pay fees to clear trades through dealer-members.<sup>124</sup>

## B. Governance Problems

### 1. Counterparty Risk

A CDS contract creates a counterparty relationship and hence is laden with counterparty risk, regardless of whether the trade is purely bilateral or centrally cleared. Protection buyers and sellers are each vulnerable to the risk of being exposed to a counterparty with highly concentrated CDS positions.<sup>125</sup> Both counterparties are also exposed to operational governance problems that arise from attempting to manage and bear the costs of participating in numerous CDS trades.<sup>126</sup> Governance problems may also arise from a lack of proper documentation or legal uncertainty regarding the enforceability of counterparty payments, including the amount of payment owed or whether a credit event has taken place.<sup>127</sup> All of these governance problems may also exist at the intrafirm level, where the purchase or sale of CDSs by a company's affiliates or its subsidiaries puts the related organization at risk.

### 2. Protection Buyers (Credit Risk Sellers)

For protection buyers, unfunded transactions suffer from a basic incentive misalignment: a protection seller has an incentive to sell too much protection and earn periodic spread payments even though the protection seller may not be able to make a credit-event-triggered payout due to the high correlation between the credit event and the

---

<sup>123</sup> See generally Douglas D. Evanoff et al., *Policymakers, Researchers, and Practitioners Discuss the Role of Central Counterparties*, 30 J. ECON. PERSP. 8 (2006).

<sup>124</sup> Collin Barr, *Justice Warns on Wall Street Trading Cartel*, CNN MONEY (Dec. 29, 2010, 1:27 PM), <http://finance.fortune.cnn.com/2010/12/29/justice-warns-on-wall-street-trading-cartel>.

<sup>125</sup> *Systemic Risk: Regulatory Oversight and Recent Initiatives to Address Risk Posed by Credit Default Swaps: Hearing Before the Subcomm. on Capital Markets, Institutions & Government Sponsored Enterprises of the H. Comm. on Fin. Servs.*, 111th Cong. 14–15 (2009) (statement of Orice M. Williams, Dir., Fin. Mkts. & Cmty. Inv.).

<sup>126</sup> EUR. CENT. BANK, *supra* note 121, at 42; KOTHARI, *supra* note 41, at 349–50.

<sup>127</sup> See JAN JOB DE VRIES ROBBÉ ET AL., *SECURITIZATION LAW AND PRACTICE IN THE FACE OF THE CREDIT CRUNCH* 123–27 (2008).

creditworthiness of the protection seller.<sup>128</sup> AIG's exposure to \$61.4 billion worth of CDSs tied to mortgage-related securities is a notorious example of such a phenomenon.<sup>129</sup> A protection buyer may be doubly at a loss where the reference asset or entity and the protection seller default jointly. These governance issues are exacerbated to the extent that a protection seller has a highly concentrated exposure to the same reference asset or entity but in regard to other buyers.

Protection buyers may also face moral hazard when protection sellers increase their risk profile once they sell credit risk protection.<sup>130</sup> Even if a payout does take place, a protection buyer exposed to the risk of the reference asset may not be fully compensated because there is a mismatch between the specific risk the credit risk buyer is exposed to and the actual risk that the CDS protects against.<sup>131</sup> Another governance problem for protection buyers stems from an accounting issue; if the protection seller's creditworthiness decreases, the buyer may have to write down the value of hedges provided by the CDS to reflect an increased likelihood that the seller will not be able to meet its obligations.<sup>132</sup>

### 3. Protection Sellers (Credit Risk Buyers)

A primary governance problem for a protection seller is the default by the protection buyer that deprives the seller of an expected income stream. In such a case, the protection seller will have to mark down the value of the CDS on its balance sheet and take an income loss.<sup>133</sup> Another governance problem for a protection seller comes from adverse selection, which may arise in the CDS context if protec-

---

<sup>128</sup> This basic incentive misalignment stems from the credit risk seller's own incentive to take on "wrong way" or "double default" risk. See GREGORY, *supra* note 40, at 207; David Mengle, *Credit Derivatives: An Overview*, ECON. REV., 4TH Q. 2007, at 1, 2.

<sup>129</sup> GREGORY, *supra* note 40, at xxiii; AIG, Annual Report (Form 10-K), at 122 (Feb. 28, 2008).

<sup>130</sup> Kiff et al., *supra* note 11, at 115.

<sup>131</sup> This "basis risk" comes in several forms. See ROBBÉ ET AL., *supra* note 127, at 122; TAVAKOLI, *supra* note 64, at 49.

<sup>132</sup> See Erik Holm & Jesse Westbrook, *N.Y. Regulator Pushes Banks to Rescue Bond Insurers (Update3)*, BLOOMBERG.COM (Jan. 24., 2008, 9:11 EST), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aVPIJ2WgCKyw> (reporting that by preventing downgrades of monoline insurance companies MBIA and Ambac "[b]anks would avoid billions more in write-downs on the value of subprime securities they had insured" in part with CDSs); see also Canabarro & Duffie, *supra* note 40, at 128.

<sup>133</sup> MARK ANSON ET AL., CREDIT DERIVATIVES: INSTRUMENTS, APPLICATIONS AND PRICING 281 (2004).

tion sellers cannot determine the true risk of reference assets so that protection is purchased only on relatively higher risk assets. However, adverse selection is much less likely to be an issue in the vast majority of CDS trades for which the reference assets are public company bonds because information about such assets is widely available.

#### 4. Central Counterparties

Using a CCP to clear CDS trades raises several governance problems. A fundamental problem occurs when a CCP is undercapitalized and hence unable to make due on its obligations to protection sellers or protection buyers. A CCP may become undercapitalized due to technical risk-management failures or because it reduces members' capital requirements to attract their business.<sup>134</sup> Regulated CCPs may also fail due to inadequate prudential supervision by regulators or by benefiting from "too big to fail" governmental policies and access to central bank liquidity facilities that implicitly subsidize CCP risk taking.<sup>135</sup>

CCPs may also cause a reduction in counterparty risk-management in the market. A CCP may create moral hazard by removing the direct incentive for CDS counterparties to consider counterparty risk upon entering a trade since that risk is shifted to the clearinghouse.<sup>136</sup> In addition, clearing through a CCP may create an adverse selection problem because dealers likely have better information about customized swaps than CCP risk managers.<sup>137</sup> Having multiple CCPs may also increase counterparty risk by reducing bilateral netting across different OTC classes more than it increases the opportunities for multilateral netting across a single type of deriva-

---

<sup>134</sup> SQUAM LAKE WORKING GRP. ON FIN. REGULATION, CREDIT DEFAULT SWAPS, CLEARINGHOUSES, AND EXCHANGES 3–4 (2009), available at [www.cfr.org/content/.../Squam\\_Lake\\_Working\\_Paper5.pdf](http://www.cfr.org/content/.../Squam_Lake_Working_Paper5.pdf).

<sup>135</sup> Christopher L. Culp, *OTC-Cleared Derivatives: Benefits, Costs, and Implications of the "Dodd-Frank Wall Street Reform and Consumer Protection Act,"* 20 J. APP. FIN. 1, 23–24 (2010); see also Kirsi Ripatti, *Central Counterparty Clearing: Constructing a Framework for Evaluation of Risks and Benefits* 20–24 (Bank of Fin., Research Discussion Paper No. 30, 2004).

<sup>136</sup> Robert Hills et al., *Central Counterparty Clearing Houses and Financial Stability*, 6 FIN. STABILITY REV. 122, 128 (1999).

<sup>137</sup> See Culp, *supra* note 135, at 20; Craig Pirrong, *The Economics of Clearing in Derivatives Markets: Netting, Asymmetric Information, and the Sharing of Default Risks Through a Central Counterparty* 33–38 (Jan. 8, 2009) (unpublished manuscript) (on file with Univ. of Houston Dep't of Fin.).



tive.<sup>138</sup> In addition, the potentially high costs associated with replacing the CDS contract of a defaulted clearing member may lead to only relatively high-risk traders utilizing CCPs, thereby giving rise to CCPs that have a relatively greater risk of insolvency.<sup>139</sup>

### C. Governance Mechanisms

#### 1. Dealer Practices

Basic CDS governance mechanisms arise from the fact that, like all other OTC swap markets, the CDS market is driven by dealers. Although a CDS dealer may earn income from entering into a new CDS trade, a dealer is in the market making business and does not seek to take on the market risk associated with any particular position. Accordingly, dealers seek to have a balanced book, which means that, for every CDS trade a dealer enters, it also enters into an offsetting trade that neutralizes the dealer's risk with respect to any particular movements or credit events.<sup>140</sup> Dealers' market-risk neutrality is a governance device for two reasons. First, it limits the incentive of dealers to take on very risky or highly complex trades for which it may not be able to neutralize the risk of through an offsetting trade. In addition, when a credit event takes place, a dealer will generally not bear any economic losses due to its own offsetting trades. Dealers have concentration limits and thus generally do not let exposure to any single counterparty go above pre-established levels; they seek to diversify their counterparty risks.<sup>141</sup> Dealers also typically screen potential trading counterparties before entering into a trade.<sup>142</sup> The services of an interdealer broker are often used to re-

---

<sup>138</sup> See Darrell Duffie & Haoxiang Zhu, *Does a Central Clearing Counterparty Reduce Counterparty Risk?* (Rock Ctr. for Corp. Governance at Stanford Univ., Working Paper No. 46, 2011).

<sup>139</sup> Cyril Monnet, *Let's Make It Clear: How Central Counterparties Save(d) the Day*, BUS. REV. 1ST Q. 2010, at 1, 6–7.

<sup>140</sup> See *The Role of Financial Derivatives in the Current Financial Crisis: Hearing Before the S. Comm. on Agric., Nutrition & Forestry*, 110th Cong. 95 (2008) (statement of Richard Lindsey, President and CEO, Callcott Group, LLC); DAVID MENGLE, ISDA, *THE IMPORTANCE OF CLOSE-OUT NETTING* 3–4 (2010).

<sup>141</sup> U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-07-716, *CREDIT DERIVATIVES: CONFIRMATION BACKLOGS INCREASED DEALERS' OPERATIONAL RISKS, BUT WERE SUCCESSFULLY ADDRESSED AFTER JOINT REGULATORY ACTION 15* (2007); GREGORY, *supra* note 40, at 29.

<sup>142</sup> See GEOFF CHAPLIN, *CREDIT DERIVATIVES: TRADING, INVESTING, AND RISK MANAGEMENT* 41 (2010).

duce the costs to dealers in finding trading counterparties, including those counterparties with which to enter into offsetting trades.<sup>143</sup>

## 2. Netting

A second counterparty governance mechanism intended to deal with the problem of large gross counterparty exposures is known as netting. Netting is a process whereby counterparties cancel out mutually offsetting CDS positions in order to manage only the net risk between them.<sup>144</sup> Payment netting takes place during the life of a CDS agreement and entails cancelling mutually offsetting daily cash flows, which results in a single payable amount.<sup>145</sup> Close-out netting takes place after a credit event occurs; the defaulting and the non-defaulting parties determine how much is owed between them by reference to the replacement values of their offsetting contracts.<sup>146</sup> Netting reduces the overall amount of CDS contracts and gross risk exposures without changing the underlying economic position of the parties.<sup>147</sup> Netting can take place between two counterparties on a bilateral basis or multilaterally between two or more counterparties with related counterparty exposures.<sup>148</sup> Netting can substantially reduce gross exposures. For example, by the end of 2008 \$30.2 trillion in notional CDS value had been eliminated through multilateral netting by major U.S. commercial bank-dealers.<sup>149</sup>

## 3. Collateral

A third counterparty governance mechanism is using collateral in the form of cash or low-risk securities.<sup>150</sup> When entering into a CDS, a party typically posts an initial amount of collateral (the “independent amount”), and the collateral is then adjusted on a daily or

---

<sup>143</sup> Avellaneda & Cont, *supra* note 113, at 10.

<sup>144</sup> See U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 141, at 23; EUR. CENT. BANK, *supra* note 121, at 42–44; Robert R. Bliss & George G. Kaufman, *Derivatives and Systemic Risk: Netting, Collateral, and Closeout* 8–11 (Fed. Reserve Bank, Working Paper No. 2005-03), available at [http://www.chicagofed.org/digital\\_assets/publications/working\\_papers/2005/wp2005\\_03.pdf](http://www.chicagofed.org/digital_assets/publications/working_papers/2005/wp2005_03.pdf) (describing netting).

<sup>145</sup> MENGLE, *supra* note 140, at 2.

<sup>146</sup> *Id.* at 2–3; see also GREGORY, *supra* note 40, at 46–53.

<sup>147</sup> See MARKIT, *THE CDS BIG BANG: UNDERSTANDING THE CHANGES TO THE GLOBAL CDS CONTRACT AND NORTH AMERICAN CONVENTIONS* 5–6 (2009), available at [http://www.markit.com/cds/announcements/resource/cds\\_big\\_bang.pdf](http://www.markit.com/cds/announcements/resource/cds_big_bang.pdf).

<sup>148</sup> GREGORY, *supra* note 40, at 53; EUR. CENT. BANK, *supra* note 121, at 44.

<sup>149</sup> See OFFICE OF THE COMPTROLLER OF THE CURRENCY, *OCC'S QUARTERLY REPORT ON BANK TRADING AND DERIVATIVES ACTIVITIES FOURTH QUARTER 2008* 4, 14 (2008).

<sup>150</sup> EUR. CENT. BANK, *supra* note 121, at 43.

weekly basis by either party depending on the mark-to-market value of their positions over time.<sup>151</sup> The amount of collateral is not based on a specific CDS position but is rather based on all OTC derivatives transactions between the counterparties that are covered by the industry standard ISDA Master Agreement contract template.<sup>152</sup> Posting and subsequently adjusting collateral is typical for CDS counterparties, although sovereign users of CDS often do not post collateral.<sup>153</sup> Dealers typically do not post an independent amount on trades between each other but do collateralize their trades with variation margin.<sup>154</sup> By contrast, hedge funds are typically required to post significant amounts of collateral.<sup>155</sup>

#### 4. CDS Market Infrastructure

Another type of CDS counterparty governance mechanism is the robust, high-tech, and rapidly developing CDS market infrastructure. An important feature of CDS market infrastructure is that CDSs are relatively liquid types of credit instruments—they are traded far more often than corporate bonds, private bank loans, and securitized debt instruments.<sup>156</sup> CDS market infrastructure includes the substantial contract standardization provided to CDS counterparties by the ISDA Master Agreement and related forms.

CDS trading infrastructure also includes substantial CDS price transparency. Pre-trade CDS pricing is available through interdealer

---

<sup>151</sup> *Id.* at 44–48.

<sup>152</sup> *Id.* at 45.

<sup>153</sup> ISDA MARGIN SURVEY 2011, at 3 (2011), available at <https://www2.isda.org/functional-areas/research/surveys/margin-surveys> (“[Ninety-three] percent of all credit derivatives trades executed were subject to collateral arrangements during 2010.”); Duncan Wood, *One-Way CSAs Pile Up Funding Risk for Banks*, RISK.NET (Feb. 3, 2011), <http://www.risk.net/risk-magazine/feature/1949147/-csas-pile-funding-risk-banks>.

<sup>154</sup> EUR. CENT. BANK, *supra* note 121, at 46; ISDA MARGIN SURVEY 2011, *supra* note 153, at 3 (“[Eighty] percent of all OTC derivatives transaction executed by the large derivatives dealers were subject to collateral agreements.”).

<sup>155</sup> ISDA MARGIN SURVEY 2011, *supra* note 153, at 14.

<sup>156</sup> See Michael S. Gibson, *Understanding the Risk of Synthetic CDOs 4* (Fed. Res. Bd., Working Paper No. 2004-36, 2004), available at <http://ssrn.com/abstract=596442> (“Few corporate bonds trade more than twice a day. Loans trade even less frequently.”); Dion Bongaerts, et al., *Liquidity and Liquidity Risk Premia in the CDS Market 1* (May 28, 2008) (unpublished manuscript), available at [http://www.erim.eur.nl/portal/page/portal/ERIM/Content\\_Area/Documents/liquidityand%20liquidityriskpremiaintheCDSmarket.pdf](http://www.erim.eur.nl/portal/page/portal/ERIM/Content_Area/Documents/liquidityand%20liquidityriskpremiaintheCDSmarket.pdf) (“The CDS market has become much more liquid than the corporate bond market.”).

brokers and by contacting dealers directly.<sup>157</sup> Post-trade CDS prices are generally available to the public for free through Markit<sup>158</sup> and the Depository Trust Clearing Corporation (DTCC)<sup>159</sup> and are widely reported by the media.<sup>160</sup> Subscription-based services for institutional investors also provide post-trade CDS data through Bloomberg data terminals and through private data vendors such as CMA, which offers real-time pricing.<sup>161</sup> Post-trade pricing is also available through CCPs, and electronic trading platforms make both pre- and post-trade pricing available.<sup>162</sup> Public companies typically disclose their CDS exposures in their financial statements.<sup>163</sup> The DTCC also makes comprehensive trade-level data available to regulators on-demand,<sup>164</sup> operates a CDS trade matching, confirmation, and settlement service, and its warehouse facilitates similar or related services by other third parties.<sup>165</sup> Third parties also provide services to help CDS counterparties manage collateral, engage in netting, and reduce other forms of risk, such as gap or basis risk, which arises when a CDS is not perfectly matched with its underlying exposure.<sup>166</sup>

<sup>157</sup> Avellaneda & Cont, *supra* note 113, at 10; Eunice Bet-Mansour, *On Price Transparency of OTC Derivatives*, 11 PROFIT & LOSS MAG. 20, 21 (2010).

<sup>158</sup> *Free CDS Pricing Report*, MARKIT, [http://www.markit.com/cds/most\\_liquid/index.html](http://www.markit.com/cds/most_liquid/index.html) (last visited May 27, 2012).

<sup>159</sup> *Trade Information Warehouse Reports*, DTCC, <http://www.dtcc.com/products/derivserv/data/index.php> (last visited May 27, 2012).

<sup>160</sup> See, e.g., Taejin Park, *Bond Risk Climbs in Asia Ex-Japan, Credit-Default Swaps Show*, BLOOMBERG.COM (Apr. 19, 2012, 9:24 PM), <http://www.bloomberg.com/news/2012-04-20/bond-risk-climbs-in-asia-ex-japan-credit-default-swaps-show.html>.

<sup>161</sup> *Real-Time CDS Price Discovery*, CMA, <http://www.cmavision.com/products-solutions/real-time-cds-price-discovery> (last visited May 16, 2012).

<sup>162</sup> ASS'N FOR FIN. MKTS. IN EUR., MIFID REVIEW—TRANSPARENCY IN CREDIT DEFAULT SWAPS 1 (2010); *The Role of a Swap Execution Facility*, TRADEWEB (Nov. 25, 2011), [http://www.tradeweb.com/about/regulation/pending\\_reform](http://www.tradeweb.com/about/regulation/pending_reform).

<sup>163</sup> EUR. CENT. BANK, *supra* note 121, at 29.

<sup>164</sup> Judy Inosanto, *DTCC Launches Portal to Give Global Regulators Access to CDS Data*, [http://www.dtcc.com/news/newsletters/dtcc/2011/mar/dtcc\\_launches\\_portal.php](http://www.dtcc.com/news/newsletters/dtcc/2011/mar/dtcc_launches_portal.php) (last visited May 31, 2012).

<sup>165</sup> Peter Madigan, *Updated ISDA CDS Novation Process to Boost Efficiency While Minimising Risk*, RISK.NET (Aug. 31, 2010), <http://www.risk.net/risk-magazine/news/1730212/updated-isd-cds-novation-protocol-set-boost-efficiency-minimising-risk>; *Lifecycle Event Processing*, DTCC, [http://www.dtcc.com/products/derivserv/suite/lifecycle\\_event\\_processing.php](http://www.dtcc.com/products/derivserv/suite/lifecycle_event_processing.php) (last visited May 16, 2012); *Central Settlement*, DTCC, [http://www.dtcc.com/products/derivserv/suite/central\\_settlement.php](http://www.dtcc.com/products/derivserv/suite/central_settlement.php) (last visited May 16, 2012).

<sup>166</sup> See Culp, *supra* note 135, at 7–8; Michael Mackenzie, *Demand for Reducing CDS Risk Grows*, FT.COM (Feb. 14, 2011, 5:09 PM),

### 5. Central Counterparties

To reduce problems associated with counterparty risk in general, parties may utilize a CCP as a governance mechanism. A CCP may be a higher quality counterparty than any particular dealer or end-user because of its risk-management practices and aggregation of numerous trades, which allows the CCP to reduce operational risk. A CCP's primary governance mechanisms require each clearing member to post collateral and meet creditworthiness qualifications, establish a reserve fund to cover losses that a defaulting clearing member's collateral does not, and mutualize losses among other clearing members if losses are in excess of the CCP's reserve fund.<sup>167</sup> CCPs may improve operational efficiency by establishing consistent standards for measuring what collateral must be posted or how much a party owes, reducing the number of counterparties that clearing members must monitor and interact with, and reducing the costs involved in managing the fallout from a clearing member's default.<sup>168</sup> CCPs can also increase transparency by centralizing and making pricing and other trade data available. Finally, user-ownership of a CCP may help reduce CCP owners' incentive to decrease the clearinghouse's capitalization for short-term gain and minimize other agency costs.<sup>169</sup>

The Dodd-Frank Act mandates that, upon a determination by the SEC or CFTC, eligible CDSs must be centrally cleared and traded on a regulated swap execution facility or be reported to a trade repository or an appropriate regulator.<sup>170</sup> CDS dealers and other major swap participants are also subject to heightened monitoring and regulation with respect to capital, reporting, business conduct, and other matters.<sup>171</sup> Commercial end-users of CDSs that are used for hedging purposes are not subject to the mandatory clearing and trading requirement.<sup>172</sup>

### 6. Unique Terms

CDSs that reference different types of underlying assets also typically have some unique terms that reflect the unique nature of the

---

<http://www.ft.com/cms/s/0/70dba00e-3601-11e0-9b3b-00144feabdc0.html#axzz1v4vkTlwL>.

<sup>167</sup> Culp, *supra* note 135, at 10; GREGORY, *supra* note 40, at 374–77.

<sup>168</sup> Culp, *supra* note 135, at 15–18; GREGORY, *supra* note 40, at 377–79.

<sup>169</sup> Evanoff et al., *supra* note 123, at 13.

<sup>170</sup> WEIL GOTSHAL, FINANCIAL REGULATORY REFORM: AN OVERVIEW OF THE DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT 11–12 (2010).

<sup>171</sup> *Id.* at 13–14.

<sup>172</sup> *Id.* at 12.

transaction and serve as additional governance mechanisms. CDSs that reference asset-backed securities, including CDOs, define credit events, such as default and failure to pay, differently than corporate CDSs by including a distressed ratings downgrade.<sup>173</sup> CDSs referencing CDOs also typically have the “pay-as-you-go” provision, which requires a protection seller to make a payment to the protection buyer if there is an express or implied write-down or a failure to pay with respect to the reference CDO tranche.<sup>174</sup> The purpose of this template was to overcome difficulties in settling transactions with illiquid reference obligations, such as CDOs.<sup>175</sup> Notably, the effect of adopting a strict pay-as-you-go mechanism is to mimic the credit risk of the underlying CDO—and much of its associated volatility.<sup>176</sup>

*D. Counterparty Governance: Conclusion and Summary Table*

Good governance for unfunded CRT transactions should consist of mechanisms that can reduce the bilateral nature of their agency costs. Having such counterparty governance mechanisms driven by the interests of intermediary derivatives dealers is likely efficient because dealers stand on both sides of transactions and therefore seek to adopt mechanisms that benefit the market as a whole and not just credit risk sellers or credit risk buyers separately. A counterparty governance regime characterized by strong monitoring, collateralization, and a robust market infrastructure is likely sufficient to substantially reduce the agency costs of CDS transactions and thereby result in good governance even without using clearinghouses or trading platforms. The following table summarizes the primary governance problems for unfunded CDS transactions and their corresponding governance mechanisms:

---

<sup>173</sup> KOTHARI, *supra* note 41, at 119; ROBBÉ ET AL., *supra* note 127, at 185–88.

<sup>174</sup> Protection buyers must make the opposite payment if the shortfalls recover. LAURIE S. GOODMAN ET AL., *SUBPRIME MORTGAGE CREDIT DERIVATIVES* 179–81 (2008). An implied write-down takes place when the par value over-collateralization ratio is below 100%. *Id.* at 180.

<sup>175</sup> *Id.* at 139–40.

<sup>176</sup> *Id.* at 140–41.

**Table 1: Unfunded CDS Governance Problems and Counterparty Governance Mechanisms**

Unfunded Governance Problems	Counterparty Governance Mechanisms
Protection Seller Default Protection Buyer Default	Collateralization, Screening, Concentration Limitations, Trading
Dealer Default	Balanced Book Operations, Collateralization, Concentration Limitations, Trading
Unmanageable Gross Exposures	Netting
Other Operational Risks and General Efficiency Concerns	Contract Standardization, Trade Matching, Substantial Pre- and Post-Trade Price Transparency, Gap-Risk Management
CCP Default	Clearing Member Requirements, Margin, Default Fund, Loss Mutualization
Low Recovery Value for Illiquid Reference Assets	Pay-as-You-Go Template

#### V. FUNDED CRT: SECURITIZATION

Securitization is the process through which financial assets are pooled together and structured to create debt securities that derive their payments from the cash flows generated by the pooled assets.<sup>177</sup> A defining feature of the securitization process is that the securitized assets are not directly transferred from the originator to the purchasers as in, for example, a sale of loans. Rather, in a securitization, a separate firm known as an SPV acts as an intermediary and purchases

<sup>177</sup> KOTHARI, *supra* note 34, at 4, 8–9; Schwarcz, *supra* note 12, at 133, 135.

the assets outright or gains exposure to their cash flows synthetically by selling CDS protection referencing the assets.<sup>178</sup> The SPV, in turn, issues securities backed by the assets' actual or synthetically derived cash flows.<sup>179</sup> An SPV may be organized as a trust, LLC, special purpose corporation, or other business form.<sup>180</sup>

An important effect of securitization is that it typically separates any risks that stem from the financial condition of the originator (or other credit risk seller) from the SPV, thereby shielding the SPV's investors from such risks.<sup>181</sup> This separation includes protection of the SPV's assets in case of the originator's bankruptcy, which means that the SPV is "bankruptcy-remote."<sup>182</sup> Securitization effects risk separation in the other direction as well: SPV investors only have recourse to the SPV's assets, and not to the originator's, to satisfy their claims.<sup>183</sup>

A common securitization structure is a pay-through structure, which involves the issuance of debt securities to investors that entitle them to payments of interest and principal at stated intervals.<sup>184</sup> Importantly, the timing of the payments for pay-through debt securities is different than that of the cash flows generated by the SPV's assets. While this allows a pay-through securitization to overcome mismatches in the term structure of assets and liabilities, it requires payments from the SPV's assets to be restructured to ensure timely payment of the SPV's liabilities to investors.<sup>185</sup> In a pay-through structure, the liabilities issued by the SPV typically have a shorter maturity than the SPV's assets. A major exception is the securitization of credit card receivables or leases, which are of much shorter duration than the securities issued by the SPV.<sup>186</sup>

---

<sup>178</sup> KOTHARI, *supra* note 34, at 8.

<sup>179</sup> *Id.* at 15–16, 60, 75.

<sup>180</sup> *Id.* 634–36; LANCASTER ET AL., *supra* note 46, at 177; ROBBÉ ET AL., *supra* note 127, at 16. For an analysis of trusts used for securitization and other purposes, see generally Steven L. Schwarcz, *Commercial Trusts as Business Organizations: An Invitation to Comparatists*, 13 DUKE J. COMP. & INT'L L. 321 (2003).

<sup>181</sup> Schwarcz, *supra* note 12, at 135–36.

<sup>182</sup> STEPHEN L. SCHWARCZ, *STRUCTURED FINANCE: A GUIDE TO THE PRINCIPLES OF ASSET SECURITIZATION 3–1* (3d ed. 2002) (2007).

<sup>183</sup> KOTHARI, *supra* note 34, at 64–65.

<sup>184</sup> *Id.* at 60, 76, 79–83.

<sup>185</sup> *Id.* at 60, 76, 84–86. The cash flows collected from the SPV's assets may be used to pay off investors regularly, to reinvested, or be collected over time to pay off investors in a one-time bullet repayment. See *id.* at 227–28.

<sup>186</sup> KOTHARI, *supra* note 34, at 91–92.



Nearly any type of financial asset can be securitized, from auto loans, credit card receivables, and equipment leases, to commercial loans and bonds, to payments derived from intellectual property rights.<sup>187</sup> The securities created from securitizations are referred to generically as asset-backed securities.<sup>188</sup> Originators involved in securitization can include any firm exposed to credit risk or credit-like risk such as banks, mortgage and non-mortgage finance companies, and issuers of credit cards and student loans.<sup>189</sup>

A CDO is a securitization SPV whose assets consist solely of one or more types of credit instruments, including commercial or mortgage loans, bonds, or distressed debt.<sup>190</sup> CDOs can also structure a re-securitization when they are backed by asset-backed securities and other CDOs. Often, when a CDO SPV purchases securities from an SPV, they purchase the mezzanine (or middle risk) tranches.<sup>191</sup> An important feature of securitization structures, including CDOs, is that the debt securities issued by the SPV are issued in classes known as tranches, which means that each class of securities has a different priority claim to the SPV's cash flows.<sup>192</sup>

Synthetic securitization combines CDSs with securitization. Instead of an SPV purchasing credit assets, as is the case in a cash securitization, an SPV in a synthetic securitization gains a right to credit asset cash flows by selling CDS protection on such assets.<sup>193</sup> The SPV obtains funding by selling debt securities (notes) to investors and uses those proceeds to pay the protection buyer, counterparty to the SPV.<sup>194</sup> Synthetic securitization often takes the form of partially funded synthetic CDOs. In such a structure, investors sell CDS protection directly to the holder of the reference assets and have to make a protection payout only if all of the funded tranches issued by the SPV are wiped out.<sup>195</sup> These unfunded "super senior" tranches greatly reduce the cost of the transaction to the credit risk seller and, along with the

---

<sup>187</sup> *Id.* at 65.

<sup>188</sup> KOTHARI, *supra* note 34, at 60. Unlike bonds and debentures, there is no fixed maturity for ABS. *See id.* at 228.

<sup>189</sup> *Id.* at 69–70.

<sup>190</sup> Laurie S. Goodman et al., *Cash-Collateralized Debt Obligations*, in THE HANDBOOK OF FIXED INCOME SECURITIES 669, 669 (7th ed. 2005).

<sup>191</sup> KOTHARI, *supra* note 34, at 441.

<sup>192</sup> *Id.* at 218, 440.

<sup>193</sup> KOTHARI, *supra* note 41, at 180.

<sup>194</sup> *Id.* at 181.

<sup>195</sup> SVENJA HAGER, PRICING PORTFOLIO CREDIT DERIVATIVES BY MEANS OF EVOLUTIONARY ALGORITHMS 14 (2008); KOTHARI, *supra* note 34, at 529–30.

standardization of CDSs on CDOs, explain the rapid growth in synthetic securitization until the financial crisis.<sup>196</sup>

#### A. *Parties and Incentives*

The issues and challenges surrounding the governance of securitization are complex. This complexity arises primarily due to the lengthy and multi-faceted nature of securitization provisions and the numerous parties involved in a securitization transaction. The most significant parties to a securitization transaction are the originator, arranger, underwriter, servicer, trustee, manager, and credit ratings agency. Depending on the type of the securitization transaction and the particularities of its execution, these parties may play a different or more significant role and may be part of the same firm.

In a securitization transaction, the originator is the party that creates or owns the credit assets whose risk will ultimately be transferred to the SPV's investors. Typically, the originator originates the credit assets by making loans, but the originator may also be securitizing credit assets it purchased.<sup>197</sup> An initial step in the securitization process is to sell the credit assets to an SPV by means of an assignment. The originator typically plays a role in selecting the assets to be transferred and makes this determination based on a wide variety of factors related to the specific goals of the transaction.<sup>198</sup> The originator's incentives include obtaining funds from the assets' sale, reducing credit risk, and attaining capital relief.<sup>199</sup> In addition, the originator may receive fees from the borrower in the form of points and closing costs.<sup>200</sup> Often, the originator is also the "sponsor" because it often initiates the securitization.<sup>201</sup>

---

<sup>196</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 191; *The Synthetic Solution*, RISK.NET (May 1, 2004), <http://www.risk.net/credit/feature/1522731/the-synthetic-solution>.

<sup>197</sup> ROBBÉ ET AL., *supra* note 127, at 11–12.

<sup>198</sup> *Id.*

<sup>199</sup> See discussion *supra* Part II.C. An originator can sell the assets for more than their face value because the purchaser expects to receive interest payments and potential prepayment penalties. Adam B. Ashcraft & Til Schuermann, *The Seven Deadly Frictions of Subprime Mortgage Credit Securitization*, 1 INVESTMENT PROF. 48, 48 (2008).

<sup>200</sup> Ashcraft & Schuermann, *supra* note 199, at 50.

<sup>201</sup> The "sponsor" is the party that organizes and initiates the securitization by transferring the assets to be securitized. In addition to the originator, the sponsor may be the arranger, an affiliate of the originator, or a party purchasing the receivables from the originator and selling them to the SPV. See FATEN SABRY & CHUDOZIE OKONGWU, NERA ECON. CONSULTING, *STUDY OF THE IMPACT OF SECURITIZATION ON CONSUMERS, INVESTORS, FINANCIAL INSTITUTIONS AND THE CAPITAL MARKETS* 17 (2009).

The arranger is the party that purchases the credit assets from the originator and funds them until the securitization is finalized, oversees the creation of the SPV, sells the assets to the SPV, and is the primary structurer of the transaction.<sup>202</sup> The arranger's activities include performing due diligence on the originator and the credit assets as well as implementing structural protections for investors.<sup>203</sup> In addition, the arranger initiates and plays a large role in the process of obtaining credit ratings for the SPV's securities.<sup>204</sup> An arranger may be an independent specialized service provider but is typically a third-party investment bank or the in-house investment banking group of the originator.<sup>205</sup> The arranger also often acts as the underwriter for the SPV's securities, whose function is to price and sell the SPV's securities to investors (or to an asset manager acting on behalf of investors).<sup>206</sup> As an arranger or underwriter, the investment bank earns income from fees charged to investors and any premium paid for the SPV's securities.<sup>207</sup>

The administrative functions of the SPV are performed primarily by the servicer and the party that hires the servicer (the trustee). The duties of a servicer are established by the servicing agreement.<sup>208</sup> They fall into two broad categories.<sup>209</sup> The first is collecting payment from the obligors of the underlying credit assets, transferring such payments to the SPV, and related activities, such as furnishing periodic reports to investors, the trustee, and rating agencies.<sup>210</sup> The second primary duty of a servicer is to deal with defaults, delinquencies, and

---

<sup>202</sup> Proposed Rules for Nationally Recognized Statistical Rating Organizations, Exchange Act Release No. 34-57967, 73 Fed. Reg. 36,212, 36,215 n.25 (proposed June 16, 2008) (to be codified at 17 CFR pts. 240 & 249b); U.S. SEC. & EXCH. COMM'N, SUMMARY REPORT OF ISSUES IDENTIFIED IN THE COMM'N STAFF'S EXAMINATIONS OF SELECT CREDIT RATING AGENCIES 31 (2008), available at <http://sec.gov/news/studies/2008/craexamination070808.pdf>; Ashcraft & Schuermann, *supra* note 199, at 52–53.

<sup>203</sup> See BOND MKT. ASS'N, CDO PRIMER 41 (2004), available at [http://www.public.asu.edu/~chliu1/recapmarkets\\_dese/readings/16\\_CDO\\_Primer\\_BondMarketAssn.pdf](http://www.public.asu.edu/~chliu1/recapmarkets_dese/readings/16_CDO_Primer_BondMarketAssn.pdf).

<sup>204</sup> U.S. SEC. & EXCH. COMM'N, *supra* note 202, at 7.

<sup>205</sup> BOND MKT. ASS'N, *supra* note 203, at 41.

<sup>206</sup> *Id.*; LANCASTER ET AL., *supra* note 46, at 176–77; Ashcraft & Schuermann, *supra* note 199, at 53.

<sup>207</sup> ROBBÉ ET AL., *supra* note 127, at 13; Ashcraft & Schuermann, *supra* note 199, at 52.

<sup>208</sup> KOTHARI, *supra* note 34, at 695. The servicing agreement may be a part of the pooling (transfer) agreement. *Id.*

<sup>209</sup> Adam J. Levitin & Tara Twomey, *Mortgage Servicing*, 28 YALE J. REG. 1, 25–26 (2011).

<sup>210</sup> ROBBÉ ET AL., *supra* note 127, at 43; KOTHARI, *supra* note 34, at 696–701.

related issues, such as foreclosures or loan modification.<sup>211</sup> When default on a credit asset occurs, a servicer has two general options: to foreclose on and liquidate the assets or to engage in loss-mitigation by modifying the terms of the asset (e.g., extend the repayment period or forgive some portion of the principal).<sup>212</sup> A servicer obtains its income through a servicing fee based on a fixed percentage of the unpaid collateral loans, “float” income from interest earned on funds received but not yet distributed to SPV investors, and ancillary fees charged to borrowers upon events, such as late payments or modifications.<sup>213</sup> Distinct master servicers and special servicers may perform the two primary functions of a servicer.

The primary role of the trustee is to act on behalf of the SPV’s investors to ensure that they get paid; its activities are governed by the deed of trust.<sup>214</sup> The basic duties of the trustee include reporting to investors the SPV’s compliance with its payment obligations and covenants and monitoring the servicer.<sup>215</sup> If the servicer is unable to remit payment or perform its duties, the trustee must act as both a financial and a functional backstop.<sup>216</sup> The trust deed also defines the relationship among the secured creditors, including with respect to payment priorities and control rights.<sup>217</sup> The trustee is only required to act upon a resolution of the shareholders as authorized by the SPV’s investors.<sup>218</sup> The trustee is typically an independent third-party and earns its income through a fee for its services.<sup>219</sup>

A collateral (asset) manager may also be involved in managing the securitization. The manager may or may not be an affiliate of the SPV and may work with or be an independent investment adviser.<sup>220</sup> An active SPV manager earns income from fees it charges to investors. These fees typically include a fixed management fee—a fee payable only after investors are paid—and performance-based incentive fees.<sup>221</sup> Fees may be structured as a residual and may not be paid to

---

<sup>211</sup> Levitin & Twomey, *supra* note 209, at 26.

<sup>212</sup> *Id.*

<sup>213</sup> *Id.* at 37–45.

<sup>214</sup> ROBBÉ ET AL., *supra* note 127, at 41–42.

<sup>215</sup> See KOTHARI, *supra* note 34, at 703–06; Levitin & Twomey, *supra* note 209, at 59.

<sup>216</sup> Levitin & Twomey, *supra* note 209, at 59.

<sup>217</sup> ROBBÉ ET AL., *supra* note 127, at 41.

<sup>218</sup> *Id.*

<sup>219</sup> See KOTHARI, *supra* note 34, at 705.

<sup>220</sup> See *id.* at 428; ROBBÉ ET AL., *supra* note 127, at 77.

<sup>221</sup> KOTHARI, *supra* note 34, at 433; BARCLAYS, THE BARCLAYS CAPITAL GUIDE TO CASH FLOW COLLATERALIZED DEBT OBLIGATIONS 5 (2002).

managers until all interest payments are first made to the SPV's debt holders, but a portion of the fees may be senior to all debtholders and thus first paid to the manager.<sup>222</sup>

Government-approved credit rating agencies play an essential role in the securitization process. The ultimate function of a rating agency is to provide an assessment of the creditworthiness of credit instruments. These agencies are regulated by the Securities and Exchange Commission as nationally recognized statistical ratings organizations.<sup>223</sup> The rating agencies' importance derives from the fact that a significant portion of securitization investors are prohibited by regulation and their own internal policies from investing in securities rated below a certain level.<sup>224</sup> Most rating agencies receive their income under an "issuer pays" model, which means that an agency receives its payment from the party seeking the rating (typically the arranger).<sup>225</sup> The short-term incentive of a rating firm is thus to rate as many transactions as possible, while longer-term incentives include preserving the firm's reputation for ratings' accuracy.

#### B. Governance Problems

Governance problems abound in the process of securitization. These problems arise because of complexity, the involvement of numerous parties, misaligned incentives, and asymmetric information. The fundamental governance problem in a securitization transaction arises from an incentive misalignment between credit risk sellers and credit risk buyers. Originators, underwriters, and other risk sellers have a primary, short-term incentive to earn fees, bonus compensation, and other benefits from closing a securitization transaction. By contrast, investors and others exposed to the risk of securitized assets generally have an interest in their long-term performance.<sup>226</sup>

---

<sup>222</sup> See KOTHARI, *supra* note 34, at 433.

<sup>223</sup> *Credit Rating Agencies—NRSROs*, U.S. SEC. & EXCHANGE COMMISSION (May 5, 2011), <http://www.sec.gov/answers/nrsro.htm>.

<sup>224</sup> FIN. CRISIS INQUIRY COMM'N, PRELIMINARY STAFF REPORT, CREDIT RATINGS AND THE FINANCIAL CRISIS 8–9 (2010), available at [http://fcic-static.law.stanford.edu/cdn\\_media/fcic-reports/2010-0602-Credit-Ratings.pdf](http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/2010-0602-Credit-Ratings.pdf); U.S. SEC. & EXCH. COMM'N, REPORT ON THE ROLE AND FUNCTION OF CREDIT RATING AGENCIES IN THE OPERATION OF THE SECURITIES MARKETS 6–8 (2003), available at <http://www.sec.gov/news/studies/credratingreport0103.pdf>. However, the role of rating agencies will likely be significantly diminished due to financial regulators removing references to credit ratings as required by the Dodd-Frank Act.

<sup>225</sup> U.S. SEC. & EXCH. COMM'N, *supra* note 202, at 23.

<sup>226</sup> FIN. STABILITY OVERSIGHT COUNCIL, MACROECONOMIC EFFECTS OF RISK RETENTION REQUIREMENTS 11 (2011).

### 1. Cash Flow Sufficiency

The fundamental economic issue in securitization is ensuring that investors obtain the cash flows necessary to fulfill the obligations owed to them as debtholders. Three types of economic risks may be present when SPVs are used to transfer credit risk. First, investors may fail to receive their expected cash flows because the underlying collateral assets fail to pay, are prepaid (or refinanced), or their market values or creditworthiness drop below a certain value, thereby disrupting the cash flows to investors.<sup>227</sup> Second, any intertemporal mismatch between the payments received by the SPV and those required to be paid out to investors may leave investors short of expected cash flows. Certain securitization structures promise more frequent payments to investors than the payments that are received by the SPV collateral and are thus prone to liquidity risk—the debtholders are owed a cash payment before one is received from the underlying, longer-dated credit instruments.<sup>228</sup> A third type of economic risk arises when an SPV issues ongoing, particularly short-term debt securities, and it experiences a bank-like “run” due to the fact that investors refuse to purchase the securities and thus leave the SPV unable to obtain funding.<sup>229</sup>

### 2. Informational Asymmetries and Incentive Misalignment

Governance problems arise from the informational asymmetries among the various participants in the process of securitization.<sup>230</sup> Parties in earlier stages of the securitization process may have more information about the risks of particular assets or structures than those in later stages. For example, borrowers may be more informed than originators (lenders), and investors may be less informed than originators, underwriters, or SPV managers. Nonetheless, investors and others exposed to the risk of securitized credit assets may overcome informational asymmetries through due diligence, disclosures, and skill in assessing credit quality.

A moral hazard problem may arise if, knowing that loans and other credit assets can be sold through securitization, originators and underwriters decrease their screening or monitoring activities, which can thereby result in lower lending standards and the creation of risk-

---

<sup>227</sup> See KOTHARI, *supra* note 34, at 233–34.

<sup>228</sup> See *id.* at 234.

<sup>229</sup> CHOUDHRY, *supra* note 32, at 535.

<sup>230</sup> Ashcraft & Schuermann, *supra* note 199, at 48 (“An overarching friction which plagues every step in the [securitization] process is asymmetric information . . .”).

ier loans and other credit assets.<sup>231</sup> An adverse selection problem may arise if informational asymmetries lead originators or issuers to transfer relatively lower quality assets in such a way that securitized assets are of generally lower quality than those not securitized.<sup>232</sup>

Informational asymmetries or incentive misalignment may also extend to the specific structure of the securitization, or to the relationships among its participants, and thus may give rise to moral hazard in the form of opportunistic conduct by originators, managers, or underwriters that benefits these parties at the expense of investors. For example, the way an SPV's cash flows are allocated may give rise to moral hazard. If an SPV's manager has a claim to the SPV's profits and the profits are not allocated to investors or used to absorb losses, a manager that owns the (first loss) equity tranche has an incentive to engage in more risk-taking than is optimal for the SPV's senior debt investors.<sup>233</sup> In addition, a conflict of interest may occur if the arranger, the SPV manager, or another party responsible for selecting or managing the SPV's collateral assets is influenced or controlled by the party selling the credit assets or intending to short sell the SPV's collateral or the securities it issues.<sup>234</sup> Importantly, asymmetric information may cause governance problems on an intrafirm basis as well. To the extent that an originator or an underwriter fails to fully transfer the risk associated with such assets to investors or other third parties, different groups within the same firm or the entire firm may be allocated the risks associated with the assets.<sup>235</sup>

---

<sup>231</sup> Ronel Elul, *Securitization and Mortgage Default* 3 (Fed. Reserve Bank of Phila., Working Paper No. 09-21/R, 2011) (noting the widespread argument that since the majority of subprime loans were securitized, "issuers had less incentive to screen those loans . . . and . . . this encouraged a decline in lending standards").

<sup>232</sup> Paul Calem et al., "Cherry Picking" in *Subprime Mortgage Securitizations: Which Subprime Mortgage Loans Were Sold by Depository Institutions Prior to the Crisis of 2007?*, 20 J. HOUSING ECON. 120, 120 (2011); see also Kiff et al., *supra* note 11, at 114–15.

<sup>233</sup> TAVAKOLI, *supra* note 64, at 269–70; see also *id.* at 99–100; KOTHARI, *supra* note 34, at 228–29; MOODY'S INVESTOR SERV., INTRODUCING ASSUMPTION VOLATILITY SCORES AND LOSS SENSITIVITIES FOR STRUCTURED FINANCE SECURITIES 8 (2008). SPV managers may also lack strong incentives to manage the collateral in the best interests of investors if their compensation is structured in ways that are not aligned with investors' interests, such as if the manager's compensation is senior to that of the SPV's investors or is paid primarily in proportion to the amount of assets under management. MICHAEL LEWIS, *THE BIG SHORT: INSIDE THE DOOMSDAY MACHINE* 142–44 (2010).

<sup>234</sup> See LEWIS, *supra* note 233, at 141; YVES SMITH, *ECONNED: HOW UNENLIGHTENED SELF INTEREST UNDERMINED DEMOCRACY AND CORRUPTED CAPITALISM* app. II, at 316–19 (2010).

<sup>235</sup> TAVAKOLI, *supra* note 64, at xiv, 5–6.

### 3. Flawed Credit Risk Assessment

A particular governance problem may arise from investors' reliance on a process for evaluating credit risk that is fundamentally flawed. For example, from 2002 to 2006, investors relied on credit rating agencies that utilized flawed mathematical models in determining securitization credit ratings, did not perform their own due diligence on data regarding the credit assets underlying the securities they were rating, and practiced less robust post-rating surveillance on securities than their initial process for rating.<sup>236</sup> In addition, the fact that most rating agencies were compensated by the arrangers or other parties seeking the rating may have compromised the integrity of the rating process; the agency had an incentive to give a rating favorable to the arranger to obtain its business.<sup>237</sup> Flaws in rating agencies' credit risk assessments may become less problematic after the financial crisis due to regulatory reforms,<sup>238</sup> the agencies' own improvements, and to the extent investors rely less on ratings in determining the creditworthiness of securities.

### 4. Distressed Asset Servicing

Another potential governance problem in the securitization context occurs when loans or other credit assets become delinquent or default and the servicers lack the incentive (or ability) to modify or foreclose on them in a way that maximizes value for the SPV's investors. Servicers may foreclose on too many loans instead of modifying them because, among other reasons, the expenses that a servicer must bear in foreclosing on a loan are more likely to be reimbursed (on a timely basis) than those born in modification.<sup>239</sup> Servicers' specific fee and reimbursement structures may also give them incentives to inefficiently delay foreclosing on delinquent loans<sup>240</sup> and favor modifications that reduce interest payments instead of principal.<sup>241</sup>

---

<sup>236</sup> See U.S. SEC. & EXCH. COMM'N, *supra* note 202, at 17–18, 21–22.

<sup>237</sup> *Id.* at 23–27.

<sup>238</sup> WEIL GOTSHAL, *supra* note 170, at 18–19.

<sup>239</sup> *Problems in Mortgage Servicing from Modification to Foreclosure: Written Testimony Before the U.S. S. Comm. on Banking, Housing & Urban Affairs*, 111th Cong. 19–28 (2010) [hereinafter Thompson Testimony] (statement of Diane E. Thompson, Nat'l Consumer Law Ctr.); Levitin & Twomey, *supra* note 209, at 46–47. Collective action problems among SPV investors may also fail to discipline servicers.

<sup>240</sup> Thompson Testimony, *supra* note 239, at 21–22, 26–28; Levitin & Twomey, *supra* note 209, at 71–77.

<sup>241</sup> Levitin & Twomey, *supra* note 209, at 79–81.



To the extent that special servicers are used,<sup>242</sup> those with a first-loss (subordinated) position may have an incentive to unduly delay foreclosures at the expense of senior SPV investors when a significant portion of loans are delinquent.<sup>243</sup>

### C. Governance Mechanisms

Numerous SPV governance mechanisms have as their goal reducing risk to preserve the periodic payments owed to SPV investors by overcoming agency costs. Some governance mechanisms are best understood as trying to prevent conflicts of interest between credit risk sellers and buyers. These mechanisms include representations and warranties; disclosure, screening, and monitoring; and risk-retention. Other mechanisms are primarily economic in character and fall into one of three categories: structural credit enhancements and liquidity facilities, triggers and tests sensitive to changes in the SPV's performance or exposure to risk, and the ability of SPV managers to manage the assets or liabilities of the SPV to ensure non-disrupted cash flows. Importantly, although CDSs reference various types of asset-backed securities and hence increase price transparency for such securities indirectly, the market infrastructure for SPV securities overall is relatively weak in the sense that there is little to no secondary market for securitized credit assets.<sup>244</sup>

#### 1. Representations and Warranties

A fundamental behavioral governance device comes in the form of written representations ("reps") and warranties contained in the pooling and servicing agreements governing securitization transactions. Reps and warranties are made by the originator or other seller

---

<sup>242</sup> There are conflicting incentives and evidence regarding whether separating the primary functions of a servicer to be performed by a master and a special servicer is efficient. See Levitin & Twomey, *supra* note 209, at 79–81; Yingjin Hila Gan & Christopher Mayer, *Agency Conflicts, Asset Substitution, and Securitization* 9–12, 20 (Nat'l Bureau Econ. Research, Working Paper No. w12359, 2006), available at <http://ssrn.com/abstract=917564> (finding that special servicers not holding a first-loss position may have an incentive for inefficient transfers to special servicing); Brent W. Abrose et al., *Servicers and Mortgage-Backed Securities Default: Theory and Evidence 2* (Dec. 10, 2010) (unpublished manuscript), available at <http://ssrn.com/abstract=1789695> (finding foreclosures of defaulted loans less likely where master and special servicing are combined).

<sup>243</sup> Gan & Mayer, *supra* note 242, at 21–22, 28.

<sup>244</sup> Nonetheless, the market infrastructure for securitized assets seems to be significantly improving through increasing standardization of securitization assets, increased transparency, liquidity with mandatory reporting of asset-backed securities to the TRACE system for secondary market trading, and private venues such as SecondMarket, Inc. to trade such securities.

of the securitized assets. They are made to provide investors with basic assurances in regards to the quality of the originator and the assets being transferred.<sup>245</sup> Reps and warranties are an important governance device because the remedy for breach is not only money damages but also the originator's obligation to repurchase upon demand any assets as to which the reps and warranties are false.<sup>246</sup>

Reps and warranties about the originator typically state that the originator has the legal power to sell the assets free of any claims by other parties and that any written information provided by the originator to the underwriter, the rating agency, investors, or others in relation to the securitization contains no material inaccuracies or omissions.<sup>247</sup> Reps and warranties about the assets typically state that the assets create legally enforceable rights to cash flows and that they were originated in compliance with all applicable laws and underwriting standards.<sup>248</sup> Different asset classes, such as residential and commercial mortgages, will typically have reps and warranties unique to their class.<sup>249</sup> In December 2009, the American Securitization Forum released model reps and warranties for residential mortgage-backed securities.<sup>250</sup>

## 2. Disclosure, Screening, and Monitoring

Screening and monitoring by different parties may take place at each step in the securitization process. However, the extent of such activities varies greatly by party, transaction structure, and type of collateral. Originators may screen and monitor borrowers until the loan is sold to the arranger. Arrangers may screen the securitized credit assets by performing due diligence.<sup>251</sup> In addition, servicers that manage troubled assets may be monitored by master servicers, trustees, investors, or credit rating agencies.<sup>252</sup>

---

<sup>245</sup> KOTHARI, *supra* note 34, at 680.

<sup>246</sup> *Id.* at 690–92. In 2010, subprime RMBS investors began to bring lawsuits alleging mortgage securitization originators' breach of reps and warranties. *RMBS Holders in Court Battle Over Breaches of Reps and Warranties*, RISK.NET.(Jan. 10, 2011), <http://www.risk.net/credit/feature/1936939/rmbs-holders-court-battle-breaches-reps-warranties>.

<sup>247</sup> KOTHARI, *supra* note 34, at 680–82.

<sup>248</sup> *Id.* at 682–83.

<sup>249</sup> *Id.* at 682–90.

<sup>250</sup> Press Release, American Securitization Forum, ASF Project RESTART Releases Model RMBS Reps and Warranties (Dec. 15, 2009).

<sup>251</sup> See Ashcraft & Schuermann, *supra* note 199, at 52.

<sup>252</sup> *Id.* at 54–55; Levitin & Twomey, *supra* note 209, at 58–63, 67–68.

Screening and monitoring are only effective to the extent parties have information to screen and monitor. Disclosure relates to the type of information disclosed, the parties to whom it is disclosed, the timing of the disclosure (whether it is solely upon commencement of the transaction or also periodically), the formatting of the disclosure (narrative, quantitative, or electronically-readable), and the extent to which it is standardized and comparable to similar or related disclosures.

There is a large body of information relating to a securitization transaction that potentially may be disclosed, either as part of the nature of the transaction, upon request, or as mandated by regulation. For example, information about the SPV's assets as a whole is typically disclosed, and such "pool-level" information may address the underwriting of assets that deviate from the disclosed origination standards, the remedies available to investors if contractual provisions are breached, and the ability of the servicer to modify fees or impact cash flows.<sup>253</sup> Information about the actual assets collateralizing the SPV (i.e., "loan-level" information) may also be disclosed, including information about the assets' repayment and other economic terms, their origination, servicing, and underwriting, and information about the underlying debtors.<sup>254</sup> Originators or sponsors must disclose any repurchase requests made by SPV investors due breach of the originator's reps and warranties.<sup>255</sup> Additional rules that mandate securitization disclosures pursuant to the SEC's amendments to Regulation AB, including loan-level disclosures, were re-proposed on July 26, 2011 and have yet to be finalized.<sup>256</sup>

### 3. Risk Retention

Securitization may result in the complete transfer of credit risk from the originator, issuer (or another party that held the risk) to the SPV's investors. However, originators and other risk sellers may re-

---

<sup>253</sup> See *Asset-Backed Securities*, 75 Fed. Reg. 23,328, 23,376–77 (proposed May 3, 2010) (to be codified at 17 C.F.R. pts. 200, 229–30, 232, 239–40, 243, 249).

<sup>254</sup> See *id.* at 23,255–76.

<sup>255</sup> See *Disclosure for Asset-Backed Securities Required by Section 943 of the Dodd-Frank Wall Street Reform and Consumer Protection Act*, Exchange Act No. 34-63,741, 76 Fed. Reg. 4489 (Jan. 26, 2011); see also *Issuer Review of Assets in Offerings of Asset-Backed Securities*, 76 Fed. Reg. 4231 (Jan. 25, 2011) (requiring issuers of publicly registered asset-backed securities to review and make disclosure regarding the underlying assets).

<sup>256</sup> *Asset-Backed Securities*, U.S. SEC. & EXCHANGE COMMISSION, <http://sec.gov/spotlight/dodd-frank/assetbackedsecurities.shtml> (last modified Dec. 30, 2011).

tain some of the credit risk being transferred. Retaining credit risk may incentivize originators to more carefully monitor and screen the credit assets that they originate and securitize. An originator or issuer may retain credit risk by owning only the first-loss equity tranche of the SPV's securities, a "vertical slice" of the securities (i.e., a fixed portion of each tranche), or a portion of a representative sample. Servicers may also retain credit risk by holding a first-loss position in the SPV's securities backed by the credit assets that the servicers service; and in this way the servicer has a greater incentive to maximize the value of the underlying assets in default.<sup>257</sup> On March 31, 2011, U.S. financial regulators acting pursuant to the Dodd-Frank Act proposed risk-retention rules that require securitization issuers and sponsors to retain five percent of the credit risk that is being transferred, with exceptions for securitizations of qualified residential mortgages and other high-quality credit assets.<sup>258</sup>

#### 4. Credit Enhancement

The nature and extent of credit enhancement is an fundamental aspect of any securitization transaction because credit enhancement determines the securitization's overall economic value and its pricing structure.<sup>259</sup> "Credit enhancement" is a mechanism that seeks to protect investors from the credit risks inherent in the collateral by absorbing or redirecting losses should they occur. Greater credit enhancement means that a structure is less leveraged—it has more protection against losses.<sup>260</sup> In general, credit enhancement increases the cost to the originator but also lowers the coupon on the SPV's securities (i.e., lowers the cost of funding).<sup>261</sup>

There are three types of credit enhancements: originator-provided enhancements, structural enhancements, and those provided by third parties. The three most significant originator-provided credit enhancements are excess spread, over-collateralization, and cash. Excess spread is simply the SPV's profit: the difference in income received by the SPV and its expenses.<sup>262</sup> It is the most common

---

<sup>257</sup> Gan & Mayer, *supra* 242, at 26–27.

<sup>258</sup> U.S. SEC. & EXCH. COMM'N, PROPOSED RULE, CREDIT RISK RETENTION (2011), available at <http://sec.gov/rules/proposed/2011/34-64148.pdf>. Risk retention may result in accounting consolidation. BD. OF GOVERNORS OF THE FED., *supra* note 60, at 70–72.

<sup>259</sup> KOTHARI, *supra* note 34, at 196, 210.

<sup>260</sup> *Id.* at 210.

<sup>261</sup> *Id.* at 196, 210–11.

<sup>262</sup> *Id.* at 211, 213.

form of credit enhancement applicable to all collateral classes for which interest and principal payments can be segregated.<sup>263</sup> Excess spread is retained by the SPV, but depending on the transaction structure, it may also be paid to the originator up front, over a period of time, at the end of the transaction, or when the SPV builds up a reserve of a specified amount.<sup>264</sup> Over-collateralization is the extent to which the originator sells the assets to the SPV at a lower price than their principal value, with the remaining value held by the SPV as a security interest.<sup>265</sup> In addition, over-collateralization provisions may be accompanied by an early amortization trigger. If the SPV's collateral experiences losses, the trigger redirects payments to investors that would otherwise be reinvested.<sup>266</sup>

Structural credit enhancement emanates from the payment priority of the classes of securities issued by the SPV. In a typical securitization, various classes of securities are issued along a "waterfall" of payment priorities with the senior class of securities the first to receive a periodic payment from the collateral's cash flows, the second class to receive a payment after the first is paid, and thus down to the last class, which is the first-loss, equity-like residual tranche.<sup>267</sup> SPVs generally issue three broad classes of securities from a payment-priority point of view: the senior securities, the middle-tier mezzanine securities, and the junior (or subordinated) securities.<sup>268</sup> Senior securities typically comprise by far the largest class of securities issued by securitization SPVs, accounting for approximately ninety percent of the issue.<sup>269</sup>

Third parties not affiliated with the originator may also provide credit enhancement. Too much credit enhancement by a third party exposes the securitization to the credit risk of the third party, which could negatively impact the asset-backed securities if the third party is downgraded or otherwise decreases in creditworthiness.<sup>270</sup> Letters of credit from banks may also provide third-party credit support.<sup>271</sup> The

---

<sup>263</sup> *Id.* at 213.

<sup>264</sup> *Id.*

<sup>265</sup> KOTHARI, *supra* note 34, at 216.

<sup>266</sup> *Id.* at 46, 239, 480–81.

<sup>267</sup> *Id.* at 218. However, different pay-down methods may be used to allocate cash flows between tranches, including a pro rata pay-down method and paying the senior classes more quickly. *Id.* at 227.

<sup>268</sup> *Id.* at 218.

<sup>269</sup> *Id.* at 197.

<sup>270</sup> KOTHARI, *supra* note 34, at 212.

<sup>271</sup> *Id.* at 220.

originator or a related party may also provide an explicit or implicit guarantee.<sup>272</sup>

Liquidity enhancements are similar to credit enhancements. A liquidity enhancement is a structural mechanism that provides temporary cash to help ensure that investors continue to receive timely repayment.<sup>273</sup> Liquidity enhancements come in several forms, including intentionally building up cash reserves and advances from the servicer that are repaid from the collections.<sup>274</sup> A second type of liquidity enhancement is external liquidity support from third parties, which can range from below fifteen percent to complete, 100% support.<sup>275</sup>

### 5. Tests and Triggers

Disciplining an SPV as a result of negative information gained about its ability to pay investors takes the form of various contractually agreed protection triggers and compliance tests that permit credit risk buyers to take remedial action to ensure that the SPV meets its obligations to them. The debt covenants of the SPV's securities, which protect the credit risk buyers from the credit risks of the underlying collateral, contain such protection triggers and compliance tests.<sup>276</sup>

Protection triggers may require that if cumulative losses rise to a pre-specified level, the excess spread available to the SPV be held in cash reserve or payment priorities be increased to debtholders with the highest priority.<sup>277</sup> These triggers are similar to traditional debt covenants that require acceleration or a dividend freeze in loan or bond agreements.<sup>278</sup>

Compliance tests may be based on an SPV's asset quality or the sufficiency of its cash flows. Asset-quality tests may require the collateral to retain a minimum average credit rating or rate of recovery if a default were to occur, prohibit concentration in certain obligors or industries from going above a certain maximum, and require a minimum average interest rate to be paid from the collateral.<sup>279</sup> Cash-

---

<sup>272</sup> *Id.* at 211, 213; Kiff et al., *supra* note 11, at 114.

<sup>273</sup> KOTHARI, *supra* note 34, at 225.

<sup>274</sup> *Id.* at 225–26.

<sup>275</sup> *Id.* at 226.

<sup>276</sup> *Id.* at 200.

<sup>277</sup> *Id.*

<sup>278</sup> *Id.*

<sup>279</sup> KOTHARI, *supra* note 34, at 436–37; Tammy Cadsby, *Leaking Like a SIV?*, 10 CMBS WORLD 36, 36 (2008) (“[A] traditional SIV is structured to include ‘early warn-

flow coverage tests mandate that certain cash flow ratios be maintained for the life of the SPV.<sup>280</sup> Similarly, over-collateralization tests typically require that either the par value or the market value of the SPV's collateral be approximately one-to-one to the value of the SPV's debt per class of holders.<sup>281</sup> The interest-coverage test requires the interest received from the SPV's collateral to be a certain multiple of the interest paid to the SPV's debtholders.<sup>282</sup> Similar tests based on the market value of the SPV's collateral exist in market-value CDOs.<sup>283</sup>

A failure of the SPV to meet its asset-quality or cash-flow coverage tests permits debtholders to exercise control rights in various ways depending on the type of securitization transaction and the particularities of its structuring. Failure to meet such tests may require the SPV manager or trustee to divert cash flows from junior to senior tranches to ensure that senior tranches are paid.<sup>284</sup> In addition, failure to meet the tests may cause an event of default. In such a case, the SPV's senior or "controlling class" of debtholders typically have the right to accelerate and declare as immediately payable all principal and interest payments.<sup>285</sup> An event of default also gives the same creditors the right to exert control by liquidating the SPV's collateral and having the proceeds paid out to all SPV investors according to tranche priority.<sup>286</sup> However, creditors may not exercise their right to liquidate the SPV, in part because of their expectation that the SPV

---

ing' signs of . . . capital deterioration through the use of market value capital tests . . .").

<sup>280</sup> KOTHARI, *supra* note 34, at 437.

<sup>281</sup> *See id.* at 436–38.

<sup>282</sup> *Id.*

<sup>283</sup> *Market Value CDO Definition*, CREDITFLUX.COM, <http://www.creditflux.com/Glossary/Market-value-CDO> (last visited May 15, 2012).

<sup>284</sup> Madlyn G. Primoff & David M. Eskew, *SIVs, CDOs and Structured Products in Distress: Cross-Border and Other Issues for Lenders and Investors*, in AMERICAS RESTRUCTURING AND INSOLVENCY GUIDE 2008/2009 134, 136 (“[T]he failure of a collateral quality test with respect to a particular tranche of debt may trigger a diversion of the CDO's cash flow . . .”); Jeffrey Stern, *Imputed Losses Becoming Real in the Current Wave of ABS CDO Events of Default*, 6 REAL EST. FIN. 1, 1 (2008).

<sup>285</sup> Scott E. Eckas & Kevin J. Biron, *Actions Heat Up Over CDO Transactions*, N.Y. L.J., July 20, 2009, at 6.

<sup>286</sup> *Id.* Failure to meet coverage tests and events of default has resulted in substantial “tranche warfare” litigation between various classes of SPV creditors. *See generally* Eric Adams, *CDOs in the Financial Crisis*, 15 J. STRUCTURED FIN. 11 (2010) (describing issues faced by troubled CDOs); Cagin Pabuccu, *Securitization Litigation: Classification of Theories of Liability*, 16 J. STRUCTURED FIN. 65 (2010) (classifying liability theories in post-financial crisis subprime securitization actions); Steven L. Schwarcz, *Fiduciaries with Conflicting Obligations*, 94 MINN. L. REV. 1867 (2010) (establishing a theory of the issues faced by trustees and other fiduciary dealing with conflicting beneficiaries situations such as CDO defaults).

will eventually come back into compliance with its tests, because they do not want the SPV to engage in a fire sale of assets, or because of the difficulty of obtaining the requisite votes.<sup>287</sup> An actively managed SPV may, after failing to meet its coverage tests, be placed into a limited operating mode where additional debt cannot be issued and where cash flows must be invested in highly liquid assets until the manager is able to recuperate losses and meet coverage tests.<sup>288</sup>

## 6. Active Management

Securitization structures are distinguishable by the extent to which a party passively or actively manages the SPV's assets or reissues and restructures its liabilities subsequent to the initial sale of the SPV's debt securities. Passive management of an SPV according to predetermined criteria includes activities such as replenishing a portfolio when assets are depleted through repayment or amortization, substituting one asset (or reference obligation) for another, and completing a change of portfolio of short-term assets such as credit card receivables. Active management of SPV assets is typically performed by a specialized collateral manager. It is a governance mechanism because it helps ensure that SPV investors receive their payments in the face of changing collateral performance or broader economic conditions. As described by Robbé, active management of the SPV assets

Involve[s] a third party monitoring the ongoing performance of the transaction and actively . . . optimizing the mix of the portfolio to take advantage of market conditions and limiting the impact of any downturns in the performance of the portfolio.<sup>289</sup>

Active management of SPV collateral by a CDO manager, for example, authorizes and requires the manager to make purchase, sale, and risk management decisions with respect to the collateral or, in a synthetic transaction, with respect to credit protection.<sup>290</sup>

In addition, active management can extend to managing the liabilities of an SPV.<sup>291</sup> Importantly, however, active managers pose a governance problem if they are not independent—that is, if they

---

<sup>287</sup> See Eckas & Biron, *supra* note 285; *Three-Quarters of CLOs Could Hit Event of Default*, Says Wachovia, CREDITFLUX (Mar. 6, 2009), <http://www.creditflux.com/Issuers/2009-03-06/Threequarters-of-CLOs-could-hit-event-of-default-says-Wachovia>.

<sup>288</sup> KOTHARI, *supra* note 34, at 468–69.

<sup>289</sup> ROBBÉ ET AL., *supra* note 127, at 76.

<sup>290</sup> *Id.* at 76–77. For an account of CDO manager best practices and potential deficiencies, see TAVAKOLI, *supra* note 64, at 291–95.

<sup>291</sup> Geoff Fuller & Elizabeth Collett, *Structured Investment Vehicles—The Dullest Business on the Planet?*, 3 CAP. MKTS. L.J. 376, 377 (2008).



are captured by and serve the interests of originators or other risk sellers instead of the interests of investors.<sup>292</sup>

*D. SPV Governance: Conclusion and Summary Table*

Good governance for funded CRT transactions requires governance mechanisms to take into account the basic characteristics of the SPV firms created through securitization transactions. As debtors, SPVs have a relatively low creditworthiness due to their leveraged structure and limited operational goals, which reduces the ability of an SPV to recover losses if they do begin to occur.<sup>293</sup> SPVs and the securities they issue are typically private, and sometimes backed by other bundled asset-backed securities, so that the cost of monitoring SPV debtors is high. Given the high informational asymmetries in securitization transactions and the potential for substantial losses, undertaking costly monitoring may nonetheless be efficient. In addition, the market infrastructure for SPV securities is relatively weak—secondary market trading is rare and price transparency is difficult to obtain, which means that CRT should not be relied upon as an SPV governance mechanism. Securitization transactions also suffer from numerous incentive misalignments among the various parties involved. Accordingly, an SPV governance regime characterized by strong monitoring and significant ex ante bargaining for structural protections and covenants is likely sufficient to substantially reduce the agency costs of securitizations and result in good governance even with a weak market infrastructure and without risk retention by the issuer or manager. The following table summarizes the primary governance problems for funded securitization transactions and their corresponding governance mechanisms:

---

<sup>292</sup> See *supra* note 234 and accompanying text and *infra* notes 313–14 and accompanying text.

<sup>293</sup> Oliver Renault, *Cash and Synthetic CDOs*, in *THE HANDBOOK OF STRUCTURED FINANCE* 373, 377 (Arnaud de Servigny & Norbert Jobst eds., 2007).

**Table 2: Funded Securitization Governance Problems and SPV Governance Mechanisms**

Funded Securitization Governance Problems	SPV Governance Mechanisms	
<p>SPV Cash Flow Shortages</p> <p>Misaligned Incentives</p>	<p><u>Credit Enhancements:</u></p> <p>Over-Collateralization</p> <p>Tranching</p> <p>Cash Reserves</p> <p>Excess Spread</p>	<p>Collateral Diversification</p> <p>Liquidity Enhancement</p> <p>Protection Triggers</p> <p>Compliance Tests</p> <p>Active Management</p>
<p>Fraud</p>	<p>Representations and Warranties</p>	
<p>Credit Risk Seller Informational Advantages</p>	<p>Disclosure, Screening, Monitoring, Risk Retention</p>	

## VI. GOOD, BAD, AND SAVVY CRT GOVERNANCE

### A. *The Good*

This subsection analyzes the performance of well-governed CRT transactions, such as corporate CDSs, collateralized loan obligations, and commercial mortgage-backed securities. Although these CRT transactions benefitted from governmental assistance programs in response to the 2008 financial crisis,<sup>294</sup> and some resulted in substantial

---

<sup>294</sup> Credit markets as a whole benefitted from the U.S. federal government's Troubled Asset Relief Program and broader economy-wide assistance. The CMBS market in particular benefitted from the qualification of investment-grade CMBS tranches as collateral for government loans pursuant to the Term Asset-Backed Securities Loan Facility that lasted from June 2009 to March 2010, and to a lesser extent to the Public-Private Investment Program. *An Overall Assessment of TARP and Financial Stability: Hearing Before the Cong. Oversight Panel*, 112th Cong. 93 (2011) (statement

losses to investors or counterparties, their outperformance of subprime residential-mortgage CRT was also due to their superior governance mechanisms.

### 1. CDSs Referencing Corporate Bonds

Nearly three-quarters of CDSs reference corporate bonds and, prior to the financial crisis, totaled approximately \$30 trillion in notional value.<sup>295</sup> Throughout the financial crisis, the corporate CDS market remained substantially stable despite the large and relatively unexpected payouts required by CDS protection sellers. These payouts resulted from a record number and size of corporate bankruptcies, including the bankruptcy of Lehman Brothers (Lehman)—the largest corporate bankruptcy in U.S. history.<sup>296</sup> CDS protection sellers were generally able to meet their obligations because of good CRT governance. Dealers had made offsetting trades and market participants utilized and managed risk with collateral. This is why, for example, only 7.2% (\$5.2 billion) of the notional value of the CDSs written on Lehman was actually required to be paid out.<sup>297</sup> In addition, widespread defaults by corporate CDS protection sellers did not occur, the contractual expectations of CDS protection buyers were generally met, and Lehman was orderly replaced as a counterparty by other dealers when it collapsed.<sup>298</sup> As correctly noted about the CDS market in a March 2009 report by senior financial regulators in the United States, France, the United Kingdom, Germany, and other nations, the fact that the unprecedented credit events in the second half of 2008 “were managed in an orderly fashion, with no major opera-

---

of William R. Nelson, Deputy Dir., Div. of Monetary Affairs); U.S. TREASURY DEP'T, LEGACY SECURITIES PPIP, PROGRAM UPDATE, QUARTER ENDED MARCH 31, 2011 (2011); Aline van Duyn & Nicole Bullock, *Talf Retires as Saviour of Securitisation*, FT.COM (June 30, 2010, 8:42 PM), <http://www.ft.com/intl/cms/s/0/324e2304-847a-11df-9cbb-00144feabdc0.html#axzz1pRG85IBw>.

<sup>295</sup> See ROWADY, *supra* note 106, at 71 (finding that seventy-two percent of CDSs reference corporate debt); *OTC Derivatives Market Activity in the First Half of 2008*, BIS (May 19, 2009), <http://www.bis.org/press/p090519.htm> (estimating that the total notional value of all CDSs as of the second half of 2008 was \$41.9 trillion).

<sup>296</sup> Peter Madigan, *Lehman Brothers Bankruptcy to be Largest in History*, RISK.NET (Sept. 16, 2008), <http://www.risk.net/risk-magazine/news/1504939/lehman-brothers-bankruptcy-largest-history>; Laura Mandaro, *CDS Auctions Reach Record High in February*, MARKETWATCH (Feb. 27, 2009), [http://articles.marketwatch.com/2009-02-27/news/30704279\\_1\\_markit-credit-default-swaps-credite](http://articles.marketwatch.com/2009-02-27/news/30704279_1_markit-credit-default-swaps-credite); *2009 US Corporate Bankruptcies Hit Third-Largest Total*, FRANCE24.COM (Jan. 2010, 19:14), [http://www.france24.com/en/20100107-2009-us-corporate-bankruptcies-hit-third-largest-total?quicktabs\\_1=1](http://www.france24.com/en/20100107-2009-us-corporate-bankruptcies-hit-third-largest-total?quicktabs_1=1).

<sup>297</sup> See DDTTC Press Release, *supra* note 26.

<sup>298</sup> Brettell, *supra* note 26.

tional disruptions or liquidity problems” demonstrated the fundamental soundness of corporate CDS transactions.<sup>299</sup> Importantly, good CRT governance was achieved in a bilateral CDS market that did not use CCPs or trading platforms.

## 2. Collateralized Loan Obligations

Collateralized loan obligations (CLOs) are a type of CDO whose collateral is exclusively made up of private bank loans to corporations. The loans that collateralize a CLO are relatively risky loans that are rated below investment grade, known as leveraged loans.<sup>300</sup> An important feature of leveraged loans is that they are syndicated. Syndicated loans are made by a group of banks with one bank typically serving as the lead in the syndicate. CLOs often buy leveraged loans from private equity firms that use such loans to restructure a company or to gain control of it through a leveraged buyout.<sup>301</sup> CLOs have standard SPV governance mechanisms including tranching, over-collateralization, and interest-coverage tests.<sup>302</sup>

Prior to the financial crisis, CLOs accounted for approximately thirty percent of CDOs, and by the end of 2010, CLOs held approximately half of all U.S. sub-investment grade loans.<sup>303</sup> During and after the financial crisis, CLOs were often downgraded, breached their compliance tests due to drops in their collateral’s value and, accordingly, temporarily stopped making payments to junior investors.<sup>304</sup> However, CLO managers subsequently regained compliance with governance mechanisms by bringing CLO SPVs back into compliance

---

<sup>299</sup> SENIOR SUPERVISORS GROUP, OBSERVATIONS ON MANAGEMENT OF RECENT CREDIT DEFAULT SWAP CREDIT EVENTS 2 (2009), available at <http://www.sec.gov/news/press/2009/report030909.pdf>.

<sup>300</sup> LANCASTER ET AL., *supra* note 46, at 200–01.

<sup>301</sup> *Id.* at 202–03.

<sup>302</sup> Richard W. Stewart, *Collateralized Loan Obligations: A Primer*, in THE HANDBOOK OF LOAN SYNDICATIONS AND TRADING 646, 649–52 (Allison Taylor & Alicia Sansone eds., 2007); LOAN SYNDICATIONS TRADING ASS’N, THE IMPACT OF RISK RETENTION ON CLOS AND OTHER MEANS OF ALIGNING INCENTIVES 2 (2010), available at [www.lsta.org/WorkArea/downloadasset.aspx?id=11904](http://www.lsta.org/WorkArea/downloadasset.aspx?id=11904).

<sup>303</sup> LANCASTER ET AL., *supra* note 46, at 200; Efraim Benmelech, et al., *Securitization Without Adverse Selection: The Case of CLOs 4* (Dec. 3, 2010) (unpublished manuscript), available at [http://www.economics.harvard.edu/faculty/benmelech/files/Draft\\_20101203\\_FIN\\_AL.pdf](http://www.economics.harvard.edu/faculty/benmelech/files/Draft_20101203_FIN_AL.pdf).

<sup>304</sup> Benmelech et al., *supra* note 303, at 6; Joy Wiltermuth, *CLO Equity Seen Making Good on Promises*, SECURITIZATION INTELLIGENCE (Jan. 28, 2011), <http://www.securitizationintelligence.com/Article/2757982/CLO-Equity-Seen-Making-Good-On-Promises.html>.

with their over-collateralization tests.<sup>305</sup> In addition, CLOs were widely upgraded in 2010, over \$12 billion in new CLO issuance took place in 2011, and issuance in 2012 was even greater.<sup>306</sup> Despite a dramatic increase in leveraged loan defaults from 2008 through most of 2010, there were minimal defaults in CLO tranches and virtually none for investment-grade tranches.<sup>307</sup>

These generally positive outcomes that took place despite the financial crisis and the economic recession are explainable at least in significant part by the use of governance mechanisms unique to CLOs that allowed them to overcome the governance problems of securitization. As a preliminary matter, it should be noted that empirical studies indicate that the risk of the loans making up CLO collateral is generally well priced<sup>308</sup> and that the collateral making up a CLO does not suffer from significant agency costs at the loan level.<sup>309</sup>

<sup>305</sup> BD. OF GOVERNORS OF THE FED., *supra* note 60, at 63; *CLO Cushions Keep Rising, ASSET-BACKED ALERT*, July 2, 2010, at 4; Deborah Festa, *New Challenges Facing CLO Managers*, DEAL MAG. (Nov. 9, 2010, 1:50 PM) <http://www.thedeal.com/magazine/ID/037321/community/new-challenges-facing-clo-managers.php>.

<sup>306</sup> BD. OF GOVERNORS OF THE FED., *supra* note 60, at 63; *Running Hot: 2012 CLO Market Rolls On*, LEVERAGEDLOAN.COM, (May 31, 2012, 10:06 AM), [http://www.leveragedloan.com/running-hot-2012-clo-market-by-the-numbers/#.T8fX\\_bsjHOp.twitter](http://www.leveragedloan.com/running-hot-2012-clo-market-by-the-numbers/#.T8fX_bsjHOp.twitter).

<sup>307</sup> FED. BD. OF GOVERNORS OF THE FED., *supra* note 60, at 62; Benmelech et al., *supra* note 303, at 6; Memorandum from Katherine Hsu, Senior Special Counsel, U.S. Sec. & Exch. Comm'n to File No. DF Title IX—Asset-Backed Securities, Re: Meeting with Morgan Stanley 4 (Oct. 14, 2010) [hereinafter Katherine Hsu Memorandum], *available at* <http://www.sec.gov/comments/df-title-ix/asset-backed-securities/assetbackedsecurities-9.pdf>.

<sup>308</sup> *See, e.g.*, Kara Alper & Blaise Gadanecz, *The Effect of Information Asymmetries Among Lenders on Syndicated Loan Spreads* 4 (Aug. 23, 2009) (unpublished manuscript), *available at* <http://ssrn.com/abstract=1460182> (“[W]hen participant banks [in a syndicate] have an information inferiority in the syndicate they require a higher spreads for the increasing risk arising from information asymmetries.”); Vitaly Bord & João A. C. Santos, *Did the Rise of CLOs Lead to Riskier Lending?* (May, 11 2011) (unpublished manuscript), *available at* <http://ssrn.com/abstract=1838383> (concluding that banks charge “higher interest rates on the [riskier] loans they sell to CLOs than on their unsecuritized loans”); Regina W. Moerman, *The Impact of Information Asymmetry on Debt Pricing and Maturity* (Nov. 11, 2009) (unpublished manuscript), *available at* <http://ssrn.com/abstract=1152863>.

<sup>309</sup> Several loan syndication characteristics and activities reduce agency costs between syndicate members, including the use of covenants, the use reciprocal arrangements, repeated interactions, and the syndicate size and concentration. *See* Sang Whi Lee & Donald J. Mullineaux, *Monitoring, Financial Distress, and the Structure of Commercial Lending Syndicates* (Fin. Mgmt, Working Paper Vol. 33, No. 3, 2004); Jian Cai, *Competition or Collaboration? The Reciprocity Effect in Loan Syndication* (Apr. 21, 2010) (unpublished manuscript), *available at* <http://ssrn.com/abstract=1362454>; Nishant Dass et al., *Syndicated Loans: The Role of Covenants in Mitigating Lender Disagreements* (Feb. 15, 2011) (unpublished manuscript), *available at*

To reduce agency costs between credit risk sellers and CLO investors, the lead bank typically retains a portion of the loan to expose it to the same risk as the risk of CLO investors. Using a sample of securitized leveraged loans originated between 1997 and 2007, Benmelech, Dlugosz, and Ivashina found no evidence consistent with the existence of adverse selection in the CLO market.<sup>310</sup> CLO managers are also compensated in part by a subordinated fee and a performance-based fee structure that likely helps align their incentives with the incentives of the CLO's investors.<sup>311</sup> CLOs are also actively managed, which enables managers to trade loan assets to reduce losses.<sup>312</sup> In addition, CLO managers are independent of the banks originating the CLO collateral,<sup>313</sup> and therefore are not subject to the influence of originators, which could cause managers to benefit originators at the expense of investors. CLO investors also receive loan-level disclosures,<sup>314</sup> but CLO managers typically retain very little, if any, credit risk in the securitization.<sup>315</sup>

### 3. Commercial Mortgage-Backed Securities

Commercial mortgage-backed securities (CMBSs) are debt securities collateralized by mortgages obtained to purchase commercial real estate, including office space and shopping malls.<sup>316</sup> Compared to RMBSs, CMBSs have relatively lower prepayment risk, a smaller number of loans per SPV, and a higher number of tranches and de-

---

<http://ssrn.com/abstract=1786141>; Kamphol Panyagometh & Gordon S. Roberts, Loan Syndicate Structure: Evidence from Ex Post Data (Jan. 14, 2008) (unpublished manuscript), available at <http://ssrn.com/abstract=1083707>.

<sup>310</sup> Benmelech et al., *supra* note 303, at 25. Indeed, the authors find evidence that securitized leveraged loans performed better than their non-securitized counterparts. *Id.*

<sup>311</sup> BD. OF GOVERNORS OF THE FED., *supra* note 60, at 46–47; LOAN SYNDICATIONS TRADING ASS'N, *supra* note 302, at 6–9; Comment Letter from Bram Smith, Exec. Dir., Loan Syndications Trading Ass'n, to Office of the Comptroller of the Currency et al., 6–7 (Aug. 1, 2011), available at <http://www.sec.gov/comments/s7-14-11/s71411-223.pdf>.

<sup>312</sup> LOAN SYNDICATIONS TRADING ASS'N, *supra* note 302, at 2.

<sup>313</sup> *See id.* (“[T]he [CLO] asset manager tells the structuring bank which loans to buy. The asset manager is the driving force, not the structuring bank, and the asset manager continues to have discretion over asset purchase and disposition in the portfolio after closing.”); Memorandum from Jay Knight, Special Counsel, U.S. Sec. & Exch. Comm'n, to File No. S7-14-11 (June 13, 2011), available at <http://www.sec.gov/comments/s7-14-11/s71411-65.pdf> (stating that CLO managers are “separate from the bank that sells the assets”).

<sup>314</sup> LOAN SYNDICATIONS TRADING ASS'N, *supra* note 302, at 2.

<sup>315</sup> *Id.* at 3–4

<sup>316</sup> KOTHARI, *supra* note 34, at 363–64.

gree of subordination. CMBSs have common credit enhancements and also unique ones, such as over-collateralization at the loan level.<sup>317</sup>

After the collapse in residential mortgage real estate value, it was widely expected that the commercial real estate market would be the “next shoe to drop” in 2008 or 2009. Commercial real-estate values, however, never experienced the level of decline that occurred in residential markets.<sup>318</sup> Unlike RMBS, there has not been a significant devaluation of the highest rated CMBS tranches.<sup>319</sup> Despite a rapid increase in defaults and delinquencies in loans collateralizing CMBSs,<sup>320</sup> losses for investment-grade CMBS tranches issued prior to the financial crisis are unlikely to exceed fifteen percent.<sup>321</sup> Although CMBS issuance came to a near standstill in 2009 following the financial crisis, CMBS issuance is estimated to have surged to approximately to \$45 billion in 2011, which is up from a 2009 low of \$3.4 billion (but still far from a peak of \$234 billion in 2007).<sup>322</sup>

CMBSs have several SPV governance mechanisms that help explain why CMBS performed well on an absolute basis and relative to subprime mortgage-related CRT transactions.<sup>323</sup> First, as a matter of commercial practice, the most subordinated (junior or “B piece”)

<sup>317</sup> *Id.* at 373–74; BD. OF GOVERNORS OF THE FED., *supra* note 60, at 44.

<sup>318</sup> *Commercial Property Has Bounced Back, but Only in the Best Locations*, ECONOMIST (Mar. 3, 2011), <http://www.economist.com/node/18250397>; Heidi N. Moore, *The Accidental CMBS Recovery*, FORTUNE.COM (July 13, 2010), [http://money.cnn.com/2010/07/13/news/economy/CMBS\\_accidental\\_recovery.fortune/index.htm](http://money.cnn.com/2010/07/13/news/economy/CMBS_accidental_recovery.fortune/index.htm).

<sup>319</sup> Robert Brown, *Financial Reform and the Subsidization of Sophisticated Investors' Ignorance in Securitization Markets*, 7 N.Y.U. J.L. & BUS. 105, 116 (2010); BD. OF GOVERNORS OF THE FED., *supra* note 60, at 53–55.

<sup>320</sup> See BRITT JOHNSON ET AL., FITCH RATINGS, U.S. CMBS 2010 LOAN DEFAULT STUDY 1 (2011), *available at* [http://www.hotelnewsnow.com/media/File/PDFs/Reports/20110526\\_CMBSdefault.pdf](http://www.hotelnewsnow.com/media/File/PDFs/Reports/20110526_CMBSdefault.pdf); Cong. Oversight Panel, *Commercial Real Estate Losses and the Risk to Financial Stability* 67–68 (2010).

<sup>321</sup> Katherine Hsu Memorandum, *supra* note 307, 4.

<sup>322</sup> Mark Heschmeyer, *2011 Brings a Resurgent CMBS Market, More CRE Liquidity*, COSTAR.COM (Feb. 23, 2011), <http://www.costar.com/News/Article/2011-Brings-a-Resurgent-CMBS-Market-More-CRE-Liquidity/126682>; Sarah Mulholland, *General Growth Taps UBS, Morgan Stanley as CMBS Sales Surge*, BLOOMBERG.COM (Mar. 3, 2011, 12:25 PM), <http://www.bloomberg.com/news/2011-03-03/general-growth-taps-ubs-morgan-stanley-to-refinance-u-s-mall-properties.html>.

<sup>323</sup> See Richard Stanton & Nancy Wallace, *CMBS Subordination, Ratings Inflation, and the Crisis of 2007–2009*, at 2 (June 8, 2010) (unpublished manuscript), *available at* [http://www.law.berkeley.edu/files/bclbe/Wallace\\_cmbx\\_paper.pdf](http://www.law.berkeley.edu/files/bclbe/Wallace_cmbx_paper.pdf) (“[T]he CMBS market did not perform noticeably worse during the crisis of 2007–2009 than it had done numerous times in recent history . . .”).

tranche is typically purchased by specialist firms that have the expertise and information necessary to adequately monitor the CMBS SPV and also to appropriately service troubled loans.<sup>324</sup> CMBSs are also governed in a way that minimizes prepayment risk. Commercial real-estate loans typically have prepayment prohibitions and penalties that not only protect CMBS investors from prepayment risk but, more importantly, incentivize borrowers to take out loans for commercial properties that are less likely to default in the first place.<sup>325</sup> CMBS investors are also generally prohibited from having access (recourse) to the borrower's assets in case that a foreclosure sale does not result in sufficient proceeds to cover the loan. Accordingly, CMBSs must be paid out solely of the income (rent) derived from the commercial real estate loan,<sup>326</sup> which in turn means that lenders must ensure that the property itself will generate sufficient income to cover the loan.<sup>327</sup> Thus, commercial real estate loans are free from the problems inherent in attempting to determine and rely on a borrower's general creditworthiness, including lowering underwriting standards.<sup>328</sup> In addition, the fact that fewer loans collateralize a CMBS SPV compared to an RMBS SPV (due to the much larger size of the former) means that performing due diligence on underlying loans is relatively less costly and that potential governance problems from informational asymmetries are reduced.<sup>329</sup> Finally, unlike RMBS securitizations, CMBSs have a special servicer that has greater flexibility to work out troubled loans and that can be fired by investors whose cash flows are at risk.<sup>330</sup>

Two weak links in CMBS governance prior to the financial crisis were decreased monitoring from B-piece buyers when such tranches were purchased by CDOs<sup>331</sup> and less credit enhancement in the form

---

<sup>324</sup> BD. OF GOVERNORS OF THE FED., *supra* note 60, at 44; see also David P. Jacob & Frank J. Fabozzi, *The Impact of Structuring on CMBS Class Performance*, 29 J. PORTFOLIO MGMT. 76, 77 (2003).

<sup>325</sup> Brown, *supra* note 319, at 126–27.

<sup>326</sup> KOTHARI, *supra* note 34, at 365.

<sup>327</sup> *Id.*; Brown, *supra* note 319, at 131.

<sup>328</sup> Brown, *supra* note 319, at 131.

<sup>329</sup> An important structural change expected to take hold in CMBSs involves fewer tranches in a deal with a maximum of three or four. *CMBS Comeback Slow but Steady*, ICSC (Jan. 5, 2011), [http://www.icsc.org/apps/news\\_item.php?id=2712](http://www.icsc.org/apps/news_item.php?id=2712).

<sup>330</sup> Brown, *supra* note 319, at 141–42.

<sup>331</sup> CONG. OVERSIGHT PANEL, *supra* note 320, at 22–23; Levitin & Wachter, *supra* note 23, at 61–67; Chris Macke, *Mortgage Backed Securities: Snake Oil or Scapegoats?*, FORBES.COM (June 28, 2011, 11:30 AM), <http://www.forbes.com/sites/greatspeculations/2011/06/28/mortgage-backed-securities-snake-oil-or-scapegoats>.



of decreased subordination of CMBS tranches through 2007.<sup>332</sup> In addition, originators and issuers of CMBS typically do not retain any credit risk transferred to investors.

*B. The Bad: Subprime RMBS Risk Transfer*

The financial crisis had its roots in two types of CRT transactions: cash CDOs whose collateral consisted primarily of subprime RMBS and the unfunded tranches of synthetic CDOs referencing subprime RMBS. Each of these transaction types caused billions of dollars of losses to financial institutions due to the lack of sufficient governance over what turned out to be severely underpriced RMBS risk. The poorly governed transactions also ultimately caused the bank-like runs on financial institutions and off-balance sheet vehicles that used such instruments to collateralize their short-term funding.<sup>333</sup>

1. CDOs of Subprime RMBS

CDOs can be collateralized by any type of credit asset. CDOs that purchase other securitized credit assets are referred to as ABS CDOs, or structured finance CDOs.<sup>334</sup> CDOs that purchase and hence are collateralized by investment grade tranches of RMBSs are known as high-grade ABS CDOs, CDOs that purchase mezzanine tranches of RMBS are known as mezzanine ABS CDOs, and CDOs that purchase the securities issued by ABS CDOs are known as CDO-squareds.<sup>335</sup> ABS CDO issuance grew dramatically in the years preceding the housing and financial crisis and peaked in 2006 at \$217 billion.<sup>336</sup> While the market was growing, ABS CDOs also became increasingly collateralized by residential mortgage-backed securities, and by 2005, the overwhelming majority of mezzanine RMBS tranches were purchased by CDOs.<sup>337</sup> Indeed, structured finance CDOs and CDO-squareds were created primarily to purchase mezzanine tranches of RMBS and CDOs because there were no other buyers.<sup>338</sup> The issuance of ABS CDOs grew rapidly until 2007 but came to a halt with the onset of the housing crisis. Subsequently, the overwhelming majority of invest-

---

<sup>332</sup> Stanton & Wallace, *supra* note 323, at 3.

<sup>333</sup> See text accompanying *supra* note 21.

<sup>334</sup> INT'L MONETARY FUND, GLOBAL FINANCIAL STABILITY REPORT: CONTAINING SYSTEMIC RISKS AND RESTORING FINANCIAL SOUNDNESS 59 (2008).

<sup>335</sup> *Id.*

<sup>336</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 9, 13.

<sup>337</sup> *Id.* at 130.

<sup>338</sup> INT'L MONETARY FUND, *supra* note 334, at 59; FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 132.

ment-grade ABS CDOs were downgraded to junk levels,<sup>339</sup> and as of February 2009, global write downs of ABS CDOs totaled over \$218 billion, with approximately half of such securities defaulting.<sup>340</sup> These losses were incurred not just by ABS CDO investors (the credit risk buyers), but also by the financial institutions that created them (the risk sellers). As of October 2008, ABS CDO write downs for Citigroup, AIG, and Merrill Lynch totaled approximately \$34 billion, \$33 billion, and \$26 billion, respectively.<sup>341</sup> Estimated lifetime losses for investment grade tranches of mezzanine and high grade ABS CDOs are between seventy-five to ninety percent and sixty to seventy percent, respectively.<sup>342</sup>

Losses from ABS CDOs collateralized in large part by subprime RMBS were the result of numerous governance deficiencies. Active management of ABS CDOs by managers failed to achieve any semblance of diversification: they ultimately came to be heavily collateralized by the riskiest type of mortgage related credit assets.<sup>343</sup> ABS CDO investors placed too much reliance on flawed credit risk assessments by ratings agencies.<sup>344</sup> ABS CDO investors also failed to properly screen or monitor the underlying mortgage-related assets due to not examining loan-level disclosures and the high cost of monitoring the subprime RMBS collateral.<sup>345</sup> Transparency was generally hindered

---

<sup>339</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 224, at 32.

<sup>340</sup> Efraim Benmelech & Jennifer Dlugosz, *The Credit Rating Crisis* 15–16 (Nat'l Bureau of Econ. Research, Working Paper No. 15045, 2009); Paul J. Davies, *Half of All CDOs of ABS Failed*, FIN. TIMES, Feb. 11, 2009, at 25.

<sup>341</sup> Benmelech & Dlugosz, *supra* note 340, at 38 tbl.9.

<sup>342</sup> Katherine Hsu Memorandum, *supra* note 307, at 4.

<sup>343</sup> Benmelech & Dlugosz, *supra* note 340, at 2.

<sup>344</sup> Misperceptions of credit risk were based upon underestimation of various factors such as correlations between collateral and tranche defaults and the sensitivity of CDOs to cash flows from their underlying credit assets. See Joshua Coval et al., *The Economics of Structured Finance*, 23 J. ECON. PERSP. 3, 15, 23 (2009); Kilian Plank, *Structured Credit Risk and the Crisis* 2–3 (Dec. 5, 2010) (unpublished manuscript), available at [http://campus-for-finance.com/filebrowser/files/Papers/TTC\\_of\\_CDOs\\_2010\\_12\\_05\\_v1.pdf](http://campus-for-finance.com/filebrowser/files/Papers/TTC_of_CDOs_2010_12_05_v1.pdf).

<sup>345</sup> Even credit rating agencies rating subprime RMBS relied only on pool-level data and not on loan-level data. U.S. SEC. & EXCH. COMM'N, *supra* note 202, at 35 (“[R]ating agencies . . . did not appear to use loan-level data as part of the surveillance process.”). Importantly, however, loan-level disclosures could be obtained through third parties. Larry Cordell et al., *Collateral Damage: Sizing and Assessing the Subprime CDO Crisis* 22 (Fed. Res. Bank Phil. Working Paper No. 11-30/R, 2012), available at <http://www.philadelphiafed.org/research-and-data/publications/working-papers/2011/wp11-30.pdf>. In addition, direct holders of mezzanine subprime ABS CDO tranches would likely have greater incentives to monitor subprime RMBS than mezzanine ABS CDO managers, which may have shorter term investment horizon. FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 133.

by structural complexity from the inclusion of numerous credit assets, increased tranching, resecuritizations,<sup>346</sup> and heterogeneity in contract structures.<sup>347</sup> Servicers of RMBSs lacked incentives to modify troubled mortgages and instead likely over-foreclosed on assets in ways that was detrimental to CDO investors. Weaknesses in market infrastructure also led to lack of secondary market trading and price discovery, which enabled managers of ABS CDOs who were captured by originators or underwriters to create artificial demand for mezzanine RMBS tranches and other CDOs that constituted the ABS CDO collateral.<sup>348</sup> CDOs were also structured with less and insufficient credit enhancements, such as decreased levels of subordination,<sup>349</sup> and over time CDO managers retained less risk in the form of equity investments.<sup>350</sup> In addition, reps and warranties of underlying RMBSs were not adequately tailored and their breaches were underenforced.<sup>351</sup> Finally, buyers of ABS CDOs credit risk had a short-term interest in the instruments due to bank capital regulations, which afforded immediate capital relief to banks holding the instruments,<sup>352</sup> and to negative basis trades, which permitted the immediate recognition of profits.

---

<sup>346</sup> Manuel Adelino, *Do Investors Rely Only on Ratings?* 42 (Nov. 24, 2009) (unpublished manuscript), available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.156.989&rep=rep1&type=pdf>.

<sup>347</sup> Levitin & Wachter, *supra* note 23, at 50, 57.

<sup>348</sup> Jake Bernstein & Jesse Eisinger, *Banks' Self-Dealing Super-Charged Financial Crisis*, PROPUBLICA.COM (Aug. 26, 2010, 10:09 PM), <http://www.propublica.org/article/banks-self-dealing-super-charged-financial-crisis>; see also FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 133–34.

<sup>349</sup> See Cordell et al. *supra* note 345, at 7–8; Anna Katherine Barnett-Hart, *The Story of the CDO Market Meltdown: An Empirical Analysis* 15 (Mar. 19, 2009) (unpublished manuscript), available at <http://www.hks.harvard.edu/m-rcbg/students/dunlop/2009-CDOmeltdown.pdf>.

<sup>350</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 190.

<sup>351</sup> See Press Release, American Securitization Forum, *ASF Releases Model Representations and Warranties to Bolster Risk Retention and Transparency in Mortgage Securitizations* (Dec. 15, 2009), available at <http://www.americansecuritization.com/index.aspx?id=3811> (“Many market participants, including institutional investors, believe that the representations and warranties in previous transactions and their related repurchase provisions have not effectively aligned incentives of originators and investors to produce the highest quality loans.”).

<sup>352</sup> Matthew Richardson, *Causes of the Financial Crisis of 2007—2008*, in RESTORING FINANCIAL STABILITY 57, 59 (2009).

## 2. Unfunded Super Senior Tranches

Super senior tranches of synthetic CDOs that referenced subprime RMBS caused catastrophic losses at financial institutions exposed to the instruments in 2007 and 2008. A super senior tranche is the safest, last-loss class of instrument issued pursuant to a synthetic CDO.<sup>353</sup> Until the financial crisis, the super senior tranche of synthetic CDOs typically accounted for approximately eighty percent of synthetic CDO tranches.<sup>354</sup> Importantly, the super-senior tranches were unfunded. This means that, just like with a CDS, holders of super-senior tranches received premium payments but were only required to make a protection payment if the CDO's losses exceeded the notional value of the funded notes.<sup>355</sup> These tranches are referred to as "super senior" because the CDO's funded subordinated tranches, including those with the highest investment grade rating, would have to first be completely wiped out before the super senior tranches are required to make a payment.

Certain financial institutions were massively exposed to super senior risk through either one of two channels. First, banks engaged in synthetic securitization often retained super senior tranches. They retained the risk because they earned fees from the tranche,<sup>356</sup> misvalued the tranche, obtained regulatory capital relief, or were unable to sell their risk to other parties.<sup>357</sup> For example, out of Citigroup's \$55 billion balance sheet exposure to subprime loans at the end of 2007, seventy-eight percent was in the form of unfunded super senior CDO tranches.<sup>358</sup> Merrill Lynch, for its part, had retained \$28.9 billion in super senior tranches as of May 2007.<sup>359</sup> Lehman Brothers, Bear Stearns, and Morgan Stanley likewise built up significant direct exposures to subprime-backed super seniors.<sup>360</sup> Se-

---

<sup>353</sup> See ELAIN BUCKBERG ET AL., NERA, SUBPRIME AND SYNTHETIC CDOs: STRUCTURE, RISK, AND VALUATION 15–17 (2010), available at [http://www.nera.com/nera-files/PUB\\_CDOs\\_Structure\\_Risk\\_Valuation\\_0610.pdf](http://www.nera.com/nera-files/PUB_CDOs_Structure_Risk_Valuation_0610.pdf).

<sup>354</sup> See *id.* at 17.

<sup>355</sup> *Id.*

<sup>356</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 197.

<sup>357</sup> *Id.* at 196, 257.

<sup>358</sup> GILLIAN TETT, FOOL'S GOLD: HOW THE BOLD DREAM OF A SMALL TRIBE AT J.P. MORGAN WAS CORRUPTED BY WALL STREET GREED AND UNLEASHED A CATASTROPHE 205 (2009); Citigroup, 2007 Annual Report (Form10-K) at 90 (Feb. 22, 2008) ("[Citigroup's] continuing involvement in synthetic CDOs generally includes . . . owning a portion of the capital structure of the CDO, in the form of both unfunded derivative positions [which are] primarily super senior exposures.").

<sup>359</sup> TETT, *supra* note 358, at 254.

<sup>360</sup> *Id.* at 202–04.

cond, super senior risk was often transferred to highly rated protection sellers, almost exclusively to AIG or monoline bond insurers.<sup>361</sup> By the end of 2007, the notional value of CDS protection that AIG sold on banks' super senior swaps was \$78 billion.<sup>362</sup> Around the same time, bond insurers collectively sold \$125 billion worth of CDS protection on super seniors.<sup>363</sup>

When subprime RMBSs began to lose their value, banking institutions that retained long positions in super senior CDOs had to take massive write downs.<sup>364</sup> In addition, as holders of super senior tranches, the banks had to pay short investors, such as hedge funds, or other divisions in their own firm, if the CDO had burned through the capital supplied by funded investors and could not cover all the losses.<sup>365</sup> For example, UBS super senior exposures constituted about seventy-five percent of its CDO trading desk's losses (and fifty percent of the bank's total losses) by year-end 2007.<sup>366</sup> AIG was also required to post \$19.7 billion of collateral by August 2008 due to being a super senior swap counterparty as the value and quality of mortgage-related assets decreased along with the mortgage market downturn.<sup>367</sup> In addition, because certain bond insurers were unable to meet their obligations as sellers of CDS protection on super seniors, firms that bought CDS protection from the insurers on their super seniors were left exposed. Merrill Lynch, for example, had to set aside \$13 billion and took a net credit valuation loss of \$10.4 billion.<sup>368</sup>

The fundamental problem with super senior CDO tranches is that even though they are unfunded CRT instruments like CDSs, parties that held super seniors directly (or indirectly by selling CDS protection) did not adopt counterparty governance mechanisms. First, neither the super senior tranches nor the CDSs were mediated by dealers. Accordingly, none of the dealer-initiated governance mechanisms such as vetting and running a balanced book were adopted.

---

<sup>361</sup> This is because those firms' high credit ratings and treatment under applicable regulatory capital rules allows the firms purchasing super senior swaps to maximize the value of the synthetic CDO and often to execute negative basis trades.

<sup>362</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 577 n.82.

<sup>363</sup> *Bond Insurer Downgrades Could Lead to Bank Downgrades*, RESEARCH RECAP (Feb. 5, 2008), <http://www.alacrastore.com/blog//index.php/2008/02/05/bond-insurer-downgrades-could-lead-to-bank-downgrades>.

<sup>364</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 257, 264–65.

<sup>365</sup> *Id.* at 142, 197.

<sup>366</sup> SHAREHOLDER REPORT ON UBS'S WRITE-DOWNS 14–15 (2008), *available at* [www.ubs.com/1/ShowMedia/.../agm?...080418ShareholderReport.pdf](http://www.ubs.com/1/ShowMedia/.../agm?...080418ShareholderReport.pdf).

<sup>367</sup> Am. Int'l Grp., Inc., Annual Report (Form 10-K), at 40 (Mar. 2, 2009).

<sup>368</sup> Merrill Lynch, Annual Report (Form 10-K), at 18, 23, 34 (Feb. 24, 2009).

This left the financial system with significant one-way risk from super seniors. Second, even when AIG or certain bond insurers sold CDS protection on super seniors, none of them posted collateral and hence had no mechanism to give parties an indication of the value of their positions or prevent them from taking on more risk. Indeed, despite losing their AAA rating in 2005 and being aware of the growing risks in the housing markets, AIG continued to sell CDSs, ignored dealer quotes for related CDSs indexes, and did virtually nothing to hedge the firm's exposures until it was too late.<sup>369</sup> Had swaps dealers been taking one side of the super senior risk and had collateral been posted, it is unlikely that super senior exposures would have ever grown so large. In addition, regulatory capital relief and the ability to execute negative basis trades gave financial institutions short-term incentives to create synthetic CDOs and hence their super senior tranches.

### C. *The Savvy: Subprime Shorts*

In contrast to the bad CRT transactions that leave both parties worse off are the savvy transactions where either the credit risk seller or the risk buyer benefits from the transaction at the expense of the other. Of course, CDSs and other derivatives are by definition a zero-sum game where the risk seller's loss must be the risk buyer's gain. What distinguishes savvy transactions in the CRT context is that, even though both parties have access to the same information regarding the underlying credit risk being transferred, the savvy party better understands the underlying credit risks, how those risks should be priced into a CRT structure, and how to structure and position itself in a CRT transaction to benefit from its superior understanding.

Savvy transactions are exemplified by hedge funds that used synthetic CDO structures to take a short position in the residential housing market prior to the financial crisis. Due to increasing deterioration in the ABX.HE index in 2006 and 2007, which served as a bellwether for the impending real estate crash,<sup>370</sup> and the perception among some market participants that the value of securities backed by residential mortgages were overvalued, certain firms began to use synthetic CDOs to reduce their existing exposures and even profit from a housing market collapse.<sup>371</sup>

---

<sup>369</sup> FIN. CRISIS INQUIRY COMM'N, *supra* note 22, at 141–42; *id.* at 266 (noting that AIG refused to hedge its exposures); *id.* at 271.

<sup>370</sup> *Id.* at 190–91.

<sup>371</sup> *Id.* at 193–95.

One such firm was the hedge fund managed by John Paulson, which used Goldman to act as the underwriter in the Abacus 2007-AC1 synthetic CDO (Abacus).<sup>372</sup> The Abacus transaction reflected Paulson's superior assessment of subprime mortgage risk and how that risk should be priced into a CRT transaction with a certain level of governance. Using CDSs, Paulson transferred to less savvy investors the credit risk of 90 Baa2-rated mid-prime and subprime RMBS through a synthetic CDO. The result was that Paulson held short positions with respect to the super senior tranches and the CDO's funded notes.<sup>373</sup> Abacus was also purposely structured with relatively bad governance to benefit Paulson. Abacus contained no over-collateralization or interest coverage cash flow diversion triggers,<sup>374</sup> which benefitted Paulson because such governance mechanisms would have protected the CDO's long investors as losses to the subprime reference assets occurred.<sup>375</sup>

## VII. CONCLUSION

The analysis of CRT governance in this Article suggests that unfunded CRT transactions can be well governed by counterparty governance mechanisms consisting of bilateral monitoring, collateralization, and a robust market infrastructure. Likewise, good governance for funded CRT transactions such as CDOs can be achieved through SPV governance mechanisms consisting of strong monitoring, substantial ex ante specification of creditors' rights, and active SPV management. A review of actual practices in the CDS and securitization markets indicates that market participants typically *do* adopt governance mechanisms sufficient for the transactions to substantially over-

---

<sup>372</sup> Shenn & Ivry, *supra* note 3.

<sup>373</sup> Submission on Behalf of Goldman, Sachs & Co. at 11, 14, *In re* Abacus CDO, No. HO-10911, (S.E.C. 2009); GOLDMAN SACHS, ABACUS 2007-AC1: \$2 BILLION SYNTHETIC CDO REFERENCING A STATIC RMBS PORTFOLIO SELECTED BY ACA MGMT., LCC, 14 (2007), *available at* <http://www.math.nyu.edu/faculty/avellane/ABACUS.pdf>; DARRELL DUFFIE, THE ABACUS 2007 AC-1 DEAL STRUCTURE AND INVESTMENT INCENTIVES (2010), *available at* [http://www.law.stanford.edu/display/images/dynamic/events\\_media/ABACUS%202007%20AC1%20Deal%20Structure%20and%20Investment%20Incentives\\_Darrell%20Duffie.pdf](http://www.law.stanford.edu/display/images/dynamic/events_media/ABACUS%202007%20AC1%20Deal%20Structure%20and%20Investment%20Incentives_Darrell%20Duffie.pdf); David Harper, *Goldman's Abacus Illustrated*, BIONICTURTLE.COM (Apr. 23, 2010), [http://www.bionicturtle.com/how-to/article/goldmans\\_abacus\\_structure\\_illustrated](http://www.bionicturtle.com/how-to/article/goldmans_abacus_structure_illustrated); Steve Waldman, *Deconstructing Abacus, Interfluidity*, INTERFLUIDITY.COM (Apr. 25, 2010), <http://www.interfluidity.com/v2/814.html>.

<sup>374</sup> GOLDMAN SACHS, *supra* note 373, at 15.

<sup>375</sup> GREGORY ZUCKERMAN, THE GREATEST TRADE EVER: THE BEHIND-THE-SCENES STORY OF HOW JOHN PAULSON DEFIED WALL STREET AND MADE FINANCIAL HISTORY 180 (2010).

come their agency costs. The only recent exceptions were certain cash and synthetic CDO transactions that transferred the credit risk of subprime RMBSs. These systemically destabilizing transactions were poorly governed. To the extent policy reforms are necessary, they should accordingly narrowly target the uniquely bad governance of subprime residential mortgage-related CRT, but not the CDS or securitization markets more broadly.

The Dodd-Frank Act and related regulatory, accounting, and other policy initiatives bring greater regulation and oversight to most CDS and securitization transactions. The primary goals of such initiatives include bringing greater transparency and more effective risk management to CRT by, for example, requiring CDSs to be cleared and settled through a clearinghouse, securitization disclosures to be greater and more standardized, and securitization risk sellers to have “skin in the game” through mandatory risk retention.<sup>376</sup> In implementing the Dodd-Frank Act, regulators should keep in mind four implications of CRT governance.

First, different CRT instruments can be substitutes for each other. Thus, to the extent that policymakers increase the cost of one type of CRT instrument relative to another, parties may substitute in a way that undermines regulatory goals. For example, CDSs can be a substitute CRT mechanism for CDOs and, accordingly, regulation that increases the cost of securitization may increase the size and scope of the CDS market (and would likely do so mainly for the type of CDSs that cannot be centrally cleared or exchange traded because CDSs that reference credit assets that would otherwise make up CDO collateral are relatively nonstandardized).

Second, because different governance mechanisms may be substitutes for each other, to the extent that market participants resolve underlying governance problems, additional governance mandates may be redundant and unnecessarily costly. For example, it is possible that the American Securitization Forum’s Project RESTART, which seeks to improve transparency and product standardization in the securitization markets,<sup>377</sup> reduces informational asymmetries so much that mandatory risk-retention requirements are unnecessary to align incentives. Already improved governance mechanisms in both

---

<sup>376</sup> See WEIL GOTSHAL, *supra* note 170, at 11–14, 17–18.

<sup>377</sup> ASF Releases *Final Project RESTART Model RMBS Repurchase Principles*, AM. SECURITIZATION F. (Aug. 30, 2011), <http://www.americansecuritization.com/story.aspx?id=3461> (noting that the purpose of “Project RESTART [is] to increase transparency and standardization in RMBS transactions”).



commercial and residential securitization call into question the need for government mandates.<sup>378</sup> In addition, a potentially significant benefit from the Dodd-Frank Act is its requirement that regulators eliminate statutory references to credit ratings and adopt alternative measures of creditworthiness for debt securities.<sup>379</sup> To the extent that this results in market participants relying on more effective measures of credit risk, it will likely reduce the need for mandating other governance devices that seek to reduce informational asymmetries in CRT transactions.

Third, there are likely important tradeoffs between regulatory goals, such as transparency, liquidity, and standardization, that may cause attempting to further one goal to come at the expense of others. For example, attempting to promote contract standardization by penalizing non-clearable, customized CDSs with onerous capital requirements may decrease the willingness of parties to use CDSs to reduce risk and thereby may reduce the liquidity of their reference instruments.<sup>380</sup> Likewise, at some point, increasing the transparency of CRT instruments may come at the expense of reducing their liquidity.<sup>381</sup> The danger of reducing liquidity should be of particular concern to policymakers since a lack of liquidity was arguably a more significant problem in CRT markets during the financial crisis than the lack of transparency.

Finally, because credit risk cannot be eliminated once created, but can only be reallocated, regulators should be sure that mandates do not inadvertently concentrate risk. For example, CDS clearinghouses by definition concentrate counterparty risk and are likely to become a new class of “too big to fail” entities. In addition, credit risk-retention mandates may prevent flawed securitization transactions from taking place, but they may also unduly concentrate credit risk in systemically important institutions (as opposed to allowing credit risk to be fully transferred to investors). Accordingly, whatever benefits may accrue from CDS clearing and securitization risk-retention mandates, policymakers should weigh them against their potential of increasing systemic risk.

---

<sup>378</sup> See Shadab, *supra* note 25.

<sup>379</sup> Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 939, 124 Stat. 1376 (2010).

<sup>380</sup> Debt instrument generally become more liquid when CDSs reference them.

<sup>381</sup> See *supra* notes 92–93 and accompanying text.