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Wall Street's Subprime Debacle: Firsthand Accounts from *Inside the CDO Machine**

Matthew A. Lieber[†] and Steven H. Kasoff[‡]

The primary catalyst that triggered the Global Financial Crisis (GFC) of 2007–09 was the market for subprime mortgage securities in the US. The engine driving the subprime surge, collateralized debt obligations—CDOs—have been much cited but less well understood. Using new securitization and derivative products, along with unprecedented leverage, CDOs enabled dealers and investors to multiply and concentrate subprime risk to the point that it became a systemic threat. This market grew rapidly during the years preceding the crisis, fueled by aggressive (and often fraudulent) mortgage loan underwriting, unrealistic expectations for continued growth in home prices, and highly levered institutions with access to artificially low interest rates.

The observations, perceptions, and actions of participants in the subprime markets remain poorly documented and incompletely understood. Seeking to deepen our understanding, this study has produced seven interview summaries and one article telling the story of a hypothetical CDO deal.

This article is organized in four parts. First, it presents our research questions and methods in relation to the existing knowledge on the topic. Second, it describes what we think are the study's main contributions. Third, it previews the Lessons Learned summaries and interviews from each of the participants. And last, it identifies what we believe are some of the unique values from the project.

1. Research Questions, Existing Knowledge, and Our Methods

The aims of this study are to document and probe the mix of economic assumptions, investment strategies, and incentives at work—and to test the validity of certain well-established narratives. We interviewed a set of individual market participants—financial engineers, marketers, executives, analysts, and investors—who collectively made up “the CDO machine.” In one-to-two-hour-long interviews, we asked them about their experiences at the forefront of CDO markets in relation to the following questions:

- How did the novel capabilities unleashed by the CDO markets interact with the strategic mindsets and operational thinking inside Wall Street dealer firms?

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- What motivated hedge funds and other investors to short subprime securities? And how did their thinking and actions evolve from 2004 to 2008?
- Were the buyers of CDOs naive? What made CDOs so appealing to them?
- Why were the rating agencies incapable of accurately assessing the risk of CDOs?
- What led Wall Street dealers to shift from producing CDOs for sale to taking risk positions in them?

Research involving the subprime collapse has tended to follow one of two tracks. On the one hand, scholars and policy experts investigating the financial crisis have focused on institutional factors such as excessive leverage, regulatory fragmentation, and a vulnerable shadow banking regime.¹

These structural accounts identify the subprime debacle as the trigger of a larger financial crisis that was driven by multiple causes.² Not surprisingly, multistranded explanations replete with impersonal, and often arcane, causes are hard for even the most informed observers to digest and disseminate.

On the other hand, narrative treatments of the subprime CDO markets featuring human-level accounts have reached a wider audience. In these works, journalists and filmmakers tell compelling stories and provide more salient, monocausal explanations.³ Their narrative accounts offer vivid human color and suspense, with a seductive Wall Street villain lurking at any turn. The adaptation of these works to film was natural, appropriate, and broadly influential.⁴

¹ Financial Crisis Inquiry Commission (FCIC), *The Financial Crisis Inquiry Report* (Washington, DC: US Government Printing Office, 2011) [URL: <https://ypfs.som.yale.edu/financial-crisis-inquiry-commission-0>]. See also Gary Gorton and Andrew Metrick, "The Financial Crisis of 2007–2009," in *Routledge Handbook of Major Events in Economic History*, eds. Robert Whaples and Randall Parker (Abingdon: Routledge, 2013) [URL: <http://ssrn.com/abstract=2003388>].

² *FCIC Report 2011*, and Frederic S. Mishkin, "Over the Cliff: From the Subprime to the Global Financial Crisis," *Journal of Economic Perspectives* 25, no. 1 (2011): 49–70.

³ Two important books are Michael Lewis, *The Big Short: Inside the Doomsday Machine* (New York: W.W. Norton, 2011) and Gregory Zuckerman, *The Greatest Trade Ever: The Behind-the-Scenes Story of How John Paulson Defied Wall Street and Made Financial History* (New York: Broadway Business, 2009). Andrew Ross Sorkin's *Too Big to Fail: The Inside Story of How Wall Street and Washington Fought to Save the Financial System* (New York: Penguin Books, 2010) also reports on CDO markets within the urgent crisis dealings of big bank CEOs and Washington leaders.

⁴ The film *The Big Short* (directed by Adam McKay, Paramount Pictures, 2015, 130 minutes) grossed \$133 million worldwide. *Margin Call* (J.C. Chandor, Lionsgate, 2011, 109 minutes) is a critically acclaimed thriller inspired by Lehman Brothers. *Inside Job* (Charles Ferguson, Sony Pictures Classics, 2010, 108 minutes) won the 2010 Academy Award for Best Documentary. The film *Too Big to Fail* (Curtis Hanson, HBO Films, 2011, 98 minutes), based on the Sorkin book, featured William Hurt as Hank Paulson and Paul Giamatti as Ben Bernanke and earned 10 Emmy award nominations.

Analytically, the methods involved in the narrative recountings have a number of issues. Beginning with the raw material, first person accounts of key market actors can be difficult to access and assemble. They are time-consuming (if not impossible) to collect, and they are one-sided by definition. The statements can be unreliable if the human source is motivated to embellish or obfuscate. Moving along, creating a narrative from the anecdotal data—the journalist's art—is another major step. Packaging these narratives into a book with an arc and then dramatizing the book into a gripping film are third and fourth levels of art. For the reporting that they do and the powerful narratives that they create, these books and films have contributed a good deal to public and elite understanding of the financial crisis. And then they stopped, around 2011. No one wanted to read the story anymore.

Not surprisingly, much of the storytelling in the narrative treatments of the crisis (and particularly in the subprime CDO markets) paints an unrealistic, binary picture in which some people were fools and others had perfect knowledge and vision. What misunderstandings the narrative works have created and popularized is an open question. Thus, the key focus in our interviews has been on the omissions in both strands of the literature:

- What important details and events did the writers cut from the books and the films because they were too arcane, too messy, or morally ambiguous?
- What did market actors know, see, experience, or later realize? And how does their intelligence square or not with institutional knowledge from the more academic accounts?

One other factor limiting the popular works is their timing. Concentrated around 2010, the books and films lack the perspective and knowledge available to us and our interviewees in 2021. For example, the popular works tend to lump together the subprime debacle and the GFC, even though it is not obvious why the subprime bust spread as widely as it did.⁵

Why and how did a small amount of subprime mortgages trigger a systemic financial crisis? As we now know,⁶ the permissive stance of regulators, rating agencies, and central banks created the conditions in which the largest, most globally integrated Wall Street dealer firms used derivatives to recklessly amass excessive leverage. Multiple weak spots together made the system vulnerable in a big way. The subprime CDO bust was an intervening event, related to the systemic vulnerability in multiple ways. Yet, the predominant person-based narratives turn the CDO business into a monolithic Wall Street actor and the main cause of the GFC. The linkage between subprime markets and the Global Financial Crisis goes beyond such extant

⁵ Gary Gorton, "The Big Short Shrift," review of *The Big Short* and *The Greatest Trade Ever*, *Journal of Economic Literature* 49, no. 2 (June 2011) [URL: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1768032]. Gorton criticizes the books by Lewis and Zuckerman for the limits of their economic vision and the absence of a larger explanation.

⁶ See Larry Cordell, Greg Feldberg, and Danielle Sass, "The Role of ABS CDOs in the Financial Crisis," *Journal of Structured Finance* 25, no. 2 (Summer 2019): 10–27. [URL: <https://papers.ssrn.com/abstract=3443043>]. See also *FCIC Report* 2011, Mishkin 2011, and Gorton and Metrick 2013.

CDO machine-based popular explanations. “There is no substitute for digging into the workings of the financial machine,” as Adam Tooze writes, for it is “there we will find both the mechanism that tore the world apart and the reason why that disintegration came as such a surprise.”⁷ The findings from the interviews help us understand what went wrong.

2. A Deeper Understanding

This study contributes in three ways toward a richer, more accurate understanding of the mindsets and incentives at work in the subprime CDO machine. First, by interviewing financial industry professionals who were leading players in the market at the time, it offers a valuable window into the mindset of market participants. With their firsthand knowledge of the CDO machine, market participants bring a perspective and intelligence that are distinct from those of regulators, analysts, or scholars. The legal and reputational concerns that they have as financial industry leaders, however, often make it difficult if not impossible to access their views in detail as this study has done. By collecting input from seven actors across the industry, the study offers a sampling of market thinking and a more balanced picture than reports focusing on one person or institution. The interviewees represent a cross section of the industry. They include voices from the structuring units, institutional sales, executive ranks, the buy side, a rating agency, and hedge funds; represented are investors taking both short and long positions.

Second, the collection summarizes the most important lessons learned from each of its interviewees and highlights distinctive perspectives of each. The insights from the human source narratives have been enriched from hindsight. The intervening years have allowed the interviewees to reflect on the period and to incorporate the latest knowledge of the financial crisis, including, for example, the relationship between the subprime boom and the GFC.

Third, in the “Anatomy of a Trade: The Making of a Subprime CDO” article, the collection presents an integrated snapshot—in fictionalized form—of the CDO machine and how it worked. The reader will recognize the patterns identified in the summaries. The *Anatomy of a Trade* article integrates the different perspectives in the form of one hypothetical deal, sketching for the reader how the various pieces and agents involved in this one trade fit together.

Considering the interviews as a unit, a number of common themes emerge. First, there was enormous complexity and uncertainty about the direction of the market, even as it began to unravel in 2007. Second, in their own way, each participant spotted warning signs well before the crisis hit. Simultaneously, it made sense for each—industry norms and market forces exerted pressure on them—to continue to support the production of CDOs in greater volumes and further on the timeline than they otherwise might have. Third, the application of financial models developed for conventional credit instruments to housing-backed

⁷ Adam Tooze, *Crashed: How a Decade of Financial Crises Changed the World* (London: Penguin Books, 2018), 22.

securities was mistaken, but this mistake was murky at the time (and it remains so). The rating agencies, under new financial pressure, played a key role as gatekeeper sanctioning subprime CDO investments. Fourth, an overwhelming force that all actors testify to is the remarkable demand for higher-yield credit at the time. Meanwhile, fifth, the regulatory regime enabled large institutions to leverage positions on highly rated CDOs without limit. Sixth, the regulatory authorities allowed institutions to invent and operate a subprime market without reliable guardrails. Seventh, excessive leverage at banks was becoming a systemic flaw. Large financial institutions made many large mistakes, though they varied in their capability to correct, absorb, and recover from them. Eighth, large mistakes became massive and systemically destructive only within those institutions that had thrown off the controls and removed risk management tasks and responsibilities from their operational units.

By sharing with us their recollections and their keenest lessons learned over the ensuing decade, our interviewees provide accounts that help us put together the pieces of the systemic debacle. These market participants explain in detail a number of ways that the CDO market failed to function. Crucial to their testimonials, however, is the dilemma of localized market intelligence and tunnel vision. While each participant recognized certain warning signs during 2007–08, at the time, none of them could entirely see the broader picture of dysfunction. Each was wrapped up in a subsection of the CDO market, a midlevel operator or a rising executive, unable or unwilling to see the big picture. Describing a kind of financial “fog of war,” their accounts reveal human and institutional elements of uncertainty, career hierarchies, and personal interactions within the CDO market that influenced their actions.

3. Highlights from the Individual Interviewees

The following summaries and the full interviews give voice to a variety of individual experiences and takeaways, which we summarize here.

Kicking off the interview series, our coauthor Steve Kasoff provides background on the credit derivatives business. From his experience in the 1990s with Wall Street dealers, he traces the development of CDOs in their first instance to distressed debt from commercial real estate failures. Hedge funds recognized an investment opportunity, Kasoff explains, giving wind to the sector. CDOs made up of pools of debt from various industries gone wrong enabled them to extract value from undervalued assets.

In the early 2000s, the inclusion of residential mortgage debt in CDOs and the ensuing demand from large banks and insurers triggered a further round of innovation. The “pay-as-you-go” credit default swap (CDS) enabled more investors, on a global scale, to join the subprime boom using synthetic CDOs. Kasoff explains how the regulatory regime and the role of the rating agencies were crucial to the CDO machine. Notably, regulators did not require insurers to hold capital against CDS exposures. Meanwhile, rating agencies provided the AAA ratings that institutional investors needed, using faulty models and brushing off criticism on their way to record profits from CDO issuances. Shorting subprime CDOs was more fraught, lonely, and costly than many imagine, Kasoff explains. When the downturn did

come, it occurred far more suddenly and massively than anyone in the market had been expecting—including short sellers.

Few parts of the subprime CDO machine gained more infamy from the events of 2007–08 than the rating agencies. Eric Kolchinsky, a former Moody's analyst, explains how a once stodgy, marginal institution transformed into a competitive oligopoly bent on maximizing profits—and why the agencies fell short in their risk assessment. Formerly private partnerships, the rating agencies became publicly held companies dedicated to shareholder value during this time. The surging credit derivative industry presented major challenges to the agencies, which were not accustomed or equipped to analyze complex structured products. In the absence of an optimal methodology, profit incentives spurred agency directors to normalize the use of inapt models and faulty assumptions. A whistleblower in 2009, Kolchinsky reflects on rating agency reform a decade later: while there has been widespread recognition that rating agency shortcomings were central to the subprime boom and bust, post-crisis reforms were relatively minor. In contrast to bank regulation, the rating agency regime continues along the same general lines—and with some of the same vulnerabilities.

The generalized blindness to systemic risk in 2005–07 takes specific form in Sohail Khan's discussion of investment mindsets among dealers and institutional clients. As managing director for fixed-income sales at Citigroup during the period, Khan handled accounts of both large institutional investors and hedge funds. In his interview, Khan identifies what he calls three “fundamental truths”—core assumptions that were absolutely unquestionable in the minds of market participants at the time: (1) housing prices never go down nationally; (2) any losses will be normally distributed; and (3) you can break up debt products. Khan's anecdotes provide more than one breathtaking example of these kinds of blindness, which were shared by producers, rating agencies, and investors. The overriding priority of dealers was to maximize revenue from fees by producing and moving greater CDO volumes. At peak boom, Wall Street firms shifted to holding tranches of CDOs they had produced. But not all of the big dealers were reckless in the same measure—a crucial detail that emerges from Khan's interview. What he calls the “provenance” of the CDO structuring group—where it originated from and sat in relation to the firm's institutional hierarchy—shaped its approach to risk management.

Brian Stoker offers a strong argument for the logic of US credit markets, a damning indictment of top leadership at two Wall Street firms, and criticism of the financial regulatory regime before and after the crisis. As a midlevel banker at Merrill Lynch and Citigroup, Stoker structured CDOs, managed the warehouses, and then helped liquidate the firm's book as the market began to tank in 2007. He explains how regulatory practices facilitated the expansion of CDO issuance. Allowing insurers to allocate zero capital against their swap exposures made the negative basis trade easy. It became advantageous for dealers to buy and hold AAA tranches, Stoker explains, detailing their off-balance-sheet maneuvers to grow their upside exposure. Investors and dealers were not behaving fraudulently, Stoker makes clear, but rather in a self-interested way within the permissive rules and norms of the system. The glaring malpractice he attests to occurred at the senior management level of the largest

banks, who closed their eyes to the growing risk in the interests of short-term profits. Financial crises happen every 10 years, Stoker concludes, yet each one tends to be dismissed as an unforeseen “100-year event.”

Dubbed “the grandfather of CDOs,” Chris Ricciardi brings a perspective that encompasses his successive roles as pioneering financial engineer, field general running production armies, and buy-side executive. The essential purpose of a CDO, Ricciardi clarifies, is to create long-term leverage on an illiquid asset. He takes issue with several popular conceptions: short selling did not cause the financial crisis, nor were rating agencies to blame for modeling home values using the inflated prices that they had been appraised at; furthermore, the volume of asset-backed securities (ABS) issuance was too small to have caused the GFC. Rather, Ricciardi highlights the “funding mismatch” within large institutions that took long-term risk while funding it with very short-term liabilities. The concentration of risk in certain large overleveraged investment banks created a systemic vulnerability. In the absence of any regulatory limit on short selling, the massive volume of shorts drove other CDO investors to sell at massive losses. Had the securities been held to maturity, the recovery in housing prices would have undone any major losses. Ricciardi expresses support for a limit on the volume of shorts.

As the boom accelerated, it spawned a cottage industry known as the CDO manager. Overwhelming demand for CDOs spurred dealer firms to outsource the management of the CDOs. Veteran Wall Street insider Jim Finkel takes us through the short rise and fall of the CDO manager niche from his experience. The CDO manager would select the portfolio of assets for a CDO, working closely with the dealer that would market the CDO to investors. The CDO manager then managed those assets over the lifetime of the CDO. The business model was fee based with relatively fixed costs and a strong incentive to increase assets under management.

The prudent investment philosophy that Finkel instilled in his firm soon ran against the pressures of the market. He saw the CDO manager’s role as clearly on the buy side, but many manager firms aligned more with the dealers in their behavior. With global investors crowding into the market on the buy side, Wall Street dealers pushed CDO managers to select dubious investments. Finkel’s Dynamic Credit Partners avoided buying the most toxic assets; he later discovered that some of these were designed for short sellers. The problem of CDOs as an asset class, Finkel concludes, was not the design of the security but rather the velocity and volume of the debt being securitized during the boom. The rating agencies succumbed to a perverse incentive to sign off on senior CDO tranches as being AAA quality. Major dealer firms were riven and out of control, addicted to fee revenue from CDO issuance. US regulators were mistaken, Finkel suggests, in failing to rein in these players.

Stephen King shares a vivid perspective on the subprime CDO market saga from his position as head of an ABS correlation desk at Barclays. Managing a delta-hedged portfolio of credit derivatives required King to constantly evaluate market assumptions in relation to his own assumptions. Hedging to limit risk, constantly updating his model, and stress testing his portfolio before the crisis enabled King and his team to emerge whole—an exception among

CDO market makers. They observed the surge in demand on the part of large banks for AAA risk. The high yields from CDOs enabled the banks to subsidize their corporate credit lending operations, a core business, that were hard-pressed by the low interest rate environment. The herd behavior into CDOs made a mistaken market consensus even more damaging, worsening the collapse that would come.

4. Bringing It All Together; Looking Back and Looking Ahead

Considered together, the testimonials of these market participants provide a perspective distinct from those of the crisis response actors commonly profiled—the lawyers, regulators, and economists leading the government authorities. Interestingly, in comparison to the government actors, the market participants we interviewed are equally nuanced in their assessments of 2007 and 2020 but consistently more negative about the present and future crisis outlook. Regarding the pandemic crisis and the sharp but brief recession it caused, they recognize the crucial success of the federal interventions of 2020. Looking forward, they express concerns about the risks from moral hazard, overborrowing, and the unintended consequences of repeated massive interventions.

Lastly, in addition to the interview summaries, the “Anatomy of a Trade” article presents a parable, a sketch in eight parts of a single fictitious subprime CDO transaction. Informed by expert interviews, documentary research, and the author’s firsthand experience, the anatomy breaks down the different parts of the CDO origination process and shows the ways that they connect. It reveals the sequence of key events in the creation of a typical CDO. Beginning with a hedge fund manager’s proposal, moving to a large Wall Street dealer, then proceeding to a buy-side investor’s discussion, each scene reveals different players interacting with each other. Their give and take reflects the various perspectives documented in the expert interviews within one imaginary deal.

Delving into the details of the subprime CDO trade of 2005–07 is potentially valuable in two regards. First, it helps us better understand the Global Financial Crisis, specifically the ways that the subprime market was connected to structural vulnerabilities that propelled contagion through a global system. Second, beyond the GFC, we suspect that students of financial crises will recognize patterns in the CDO machine that transcend this particular era and relate to other crises—past, present, and future.