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Derivatives and the Legal Origin of the 2008 Credit Crisis

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DERIVATIVES AND THE LEGAL ORIGIN OF THE 2008 CREDIT CRISIS

LYNN A. STOUT*

Experts still debate what caused the credit crisis of 2008. This Article argues that dubious honor belongs, first and foremost, to a little-known statute called the Commodities Futures Modernization Act of 2000 (CFMA). Put simply, the credit crisis was not primarily due to changes in the markets; it was due to changes in the law. In particular, the crisis was the direct and foreseeable (and in fact foreseen by the author and others) consequence of the CFMA's sudden and wholesale removal of centuries-old legal constraints on speculative trading in over-the-counter (OTC) derivatives.

Derivative contracts are probabilistic bets on future events. They can be used to hedge, which reduces risk, but they also provide attractive vehicles for disagreement-based speculation that increases risk. Thus, as an empirical matter, the social welfare consequences of derivatives trading depend on whether the market is dominated by hedging or speculative transactions. The common law recognized the differing welfare consequences of hedging and speculation through a doctrine called "the rule against difference contracts" that treated derivative contracts that did not serve a hedging purpose as unenforceable wagers. Speculators responded by shifting their derivatives trading onto organized exchanges that provided private enforcement through clearinghouses in which exchange members guaranteed contract performance. The clearinghouses effectively cabined and limited the social cost of derivatives risk. In the twentieth century, the Commodity Exchange Act (CEA) largely replaced the common law. Like the common law, the CEA confined speculative derivatives trading to the organized (and now-regulated) exchanges. For many decades, this regulatory system also kept derivatives speculation from posing significant problems for the larger economy.

These traditional legal restraints on OTC speculation were systematically dismantled during the 1980s and 1990s, culminating in 2000 with the enactment of the CFMA. That legislation set the stage for the 2008 crises by legalizing, for the first time in U.S. history, speculative OTC trading in derivatives. The result was an exponential increase in the size of the OTC market, culminating in 2008 with the spectacular failures of several systemically important financial institutions (and the near-failures of several others) due to bad derivatives bets. In the wake of the crisis, Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act). Title VII of the Act is devoted to turning back the regulatory clock by restoring legal limits on speculative derivatives trading outside of a clearinghouse. However, Title VII is subject to a number of possible exemptions that may limit its effectiveness, leading to continuing concern over whether we will see more derivatives-fueled institutional collapses in the future.

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I. INTRODUCTION

In the fall of 2008, the U.S. suffered its most severe financial panic since the Great Depression.¹ Merrill Lynch, Lehman Brothers, and AIG suddenly collapsed; Morgan Stanley and Goldman Sachs were rumored to be teetering on the brink of insolvency.² Interbank credit markets seized up as

¹ FIN. CRISIS INQUIRY COMM'N, THE FINANCIAL CRISIS INQUIRY REPORT xv (2011) [hereinafter FCIC REPORT].

² ANDREW ROSS SORKIN, TOO BIG TO FAIL 3 (2009).

financial institutions refused to lend to each other.³ Only a series of massive government interventions—including but not limited to the Federal Reserve's \$80 billion bailout of AIG and the creation of the \$700 billion Troubled Asset Relief Program—kept the system from imploding.⁴ The Federal Reserve had to provide \$3.3 trillion in short-term credit to banks, money market funds, hedge funds, and distressed corporations to keep them afloat.⁵

What caused the crisis? Many factors may have contributed. Possible culprits include loose monetary policy, weakened lending standards in the mortgage industry, rating agencies' failure to investigate the soundness of the securities they were rating, the loosening of legal restrictions on banks' "proprietary trading" for their own accounts, and the decision by many Wall Street firms to abandon traditional partnership structures and incorporate, thus shifting risk onto the shoulders of public investors.⁶

This Article argues, however, that none of these factors was the most direct and significant cause of the 2008 credit crisis. That dubious honor belongs to a little-known statute that the U.S. Congress passed in 2000 called the Commodities Futures Modernization Act (CFMA).⁷ In other words, the credit crisis was not primarily due to "innovations" in the markets⁸ or the legal system's failure to "keep pace" with finance.⁹ The crisis was caused, first and foremost, by *changes in the law*. In particular, the crisis was the direct, foreseeable, and in fact foreseen (by the author and others)¹⁰

³ INT'L BAR ASS'N TASK FORCE ON FIN. CRISIS, A SURVEY OF CURRENT REGULATORY TRENDS 25 (2010) [hereinafter IBA TASK FORCE].

⁴ RESTORING AMERICAN FINANCIAL STABILITY ACT OF 2010, S. REP. NO. 111-176, at 42 (2010); see generally IBA TASK FORCE, *supra* note 3, at 28–39 (describing interventions).

⁵ Jon Hilsenrath & Liz Rappaport, *Foreign Firms Received Funds; Data From Fed Shows Lenders Got Emergency Cash*, WALL ST. J., Dec. 2, 2010, at C1.

⁶ See generally FCIC REPORT, *supra* note 1, at xvi–xxvi, 61.

⁷ Commodities Futures Modernization Act of 2000, 7 U.S.C. § 1 (2000).

⁸ See, e.g., S. REP. NO. 111-176, at 43 (quoting testimony of Comptroller of Currency Eugene Ludwig describing derivatives as "something quite new," a development in "financial technology" comparable to the "discovery of fire").

⁹ *Id.* at 40 ("This devastation was made possible by a long-standing failure of our regulatory structure to keep pace with the changing financial system . . .").

¹⁰ In 1994, the Government Accounting Office warned that off-exchange derivatives trading might contribute to systemic risk and trigger a chain of financial firm failures, including bank failures. See U.S. GEN. ACCOUNTING OFFICE, FINANCIAL DERIVATIVES: ACTIONS NEEDED TO PROTECT THE FINANCIAL SYSTEM 7, 10 (1994). Soon after, the author published a series of articles that similarly warned that derivatives markets dominated by speculation would add risk without increasing average returns. See, e.g., Lynn A. Stout, "Bet on the Bank": How Derivatives Trading Under Conditions of Uncertainty Can Increase Risks and Erode Returns in Financial Markets, 21 J. CORP. L. 53 (1995) [hereinafter Stout, *Betting the Bank*]; Lynn A. Stout, *Insurance or Gambling? Derivatives Trading in a World of Risk and Uncertainty*, 14 BROOKINGS REV. 38, 39 (Winter 1996); Lynn A. Stout, *Irrational Expectations*, 3 LEGAL THEORY 227, 236 (1997) [hereinafter Stout, *Irrational Expectations*]; Lynn A. Stout, *Why the Law Hates Speculators: Regulation and Private Ordering in the Market for OTC Derivatives*, 48 DUKE L.J. 701 (1999) [hereinafter Stout, *Speculators*]. Brooksley Born, who was appointed Chair of the Commodity Futures Trading Commission (CFTC) in 1996, was highly concerned about the expanding derivatives market and tried in 1998 to extend the CFTC's regulatory jurisdiction to OTC derivatives. See *infra* text accompanying notes 78–83; see also Rick Schmitt, *Prophet and Loss*, STAN. MAG., Mar.–Apr. 2009, available at <http://www.stanford>

consequence of the CFMA's sudden and wholesale removal of centuries-old legal constraints on speculative trading in over-the-counter (OTC) derivatives.

Even today, the connection between the CFMA and the 2008 credit crisis is not widely understood. The crisis is perceived as an economic phenomenon more than a legal one. Perhaps this is because most of the individuals immediately involved in reacting to the crisis were economists, journalists, and politicians unfamiliar with the details of financial regulation. Yet as this Article demonstrates, it was a dramatic, if underappreciated, change in the fundamental legal infrastructure underlying the derivatives markets—in particular, the sudden removal of centuries-old restraints on derivatives speculation outside an organized exchange—that most directly and proximately caused the 2008 credit crisis. Conversely, restoring restraints on speculative derivatives trading may be essential to preventing similar crises in the future.

Restoring these restraints is a task for lawmakers. Portions of the Dodd-Frank financial reform bill recently passed by Congress in fact seem designed to constrain purely speculative OTC trading in derivatives.¹¹ However, as this Article will show, it is not yet clear whether Dodd-Frank will live up to this important task.

Part II of the Article explains the basic nature of derivative contracts as probabilistic bets on future events. It describes how derivatives bets can be used not only to hedge against risk, but also to provide attractive vehicles for trying to reap speculative trading profits. Where hedging reduces risk, speculative trading creates new risks, without (on average) providing speculators with compensating returns. Thus, the welfare consequences of a derivatives market can depend, as an empirical matter, on whether the market is dominated by risk-reducing hedging or risk-increasing speculative transactions.

Part III provides a brief legal history of derivatives regulation in the United States. The common law explicitly recognized the differing welfare consequences of hedging and speculation and applied a doctrine called “the rule against difference contracts” to discourage derivatives that did not serve a hedging purpose by treating them as unenforceable wagers. Would-be speculators responded to legal unenforceability by shifting their derivatives trading onto organized exchanges that provided private enforcement mechanisms, in particular “clearinghouses” through which exchange members guaranteed contract performance. The clearinghouse strategy effectively cabined and limited the social cost of derivatives speculation risk. In the twentieth century, the common law rule against difference contracts was largely replaced by the federal legislation that became the Commodity Ex-

alumni.org/news/magazine/2009/marapr/features/born.html; *Frontline: The Warning* (PBS television broadcast Oct. 20, 2009), available at <http://www.pbs.org/wgbh/pages/frontline/warning/view>.

¹¹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

change Act (CEA). Like the common law, the CEA had the practical effect of confining speculative derivatives trading to the organized (and now-regulated) exchanges, although it accomplished this not by treating off-exchange contracts as void and unenforceable but through an absolute ban on “off-exchange futures” (OTC derivatives). Whatever its disadvantages, this regulatory system also, for many decades, kept derivatives speculation from posing significant problems for the larger economy.

Part IV describes how these traditional legal restraints on OTC derivatives speculation were systematically dismantled during the 1980s and 1990s, culminating in the 2000 enactment of the CFMA. Although it went largely unrecognized at the time, this revolutionary legislation set the stage for the 2008 credit crises by legalizing, for the first time in U.S. history, unrestricted speculative OTC trading in derivatives.

Part V examines the consequences of this legal revolution. As broad categories of speculative OTC contracts were made legally enforceable, the size of the derivatives market increased exponentially. This dramatic increase in the size of the market was accompanied (as economic theory would predict following an increase in speculation) by equally dramatic increases in systemic risk, culminating in 2008 with the spectacular failures of several systemically important financial institutions and the near-failures of several others due to losses suffered trading derivatives. Accordingly, the events following the CFMA’s passage are consistent with, and support the claim that, the principal effect of the CFMA was to greatly increase purely speculative derivatives trading. This speculative trading, in turn, created new and enormous risks in the economic system, risks that are both necessary and sufficient to explain the scale and scope of the disastrous events that followed.

Part VI surveys the legal response to the 2008 crisis, focusing in particular on Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. In essence, Title VII reverses the CFMA and restores legal constraints on OTC financial derivatives by requiring that non-hedging (speculative) transactions be done either on an exchange or on a CFTC-approved “derivatives clearing organization” that performs the same contract guarantee function as an exchange. However, because Title VII also grants the CFTC a wide range of authority to dilute or eliminate the “clearing” requirement, the possibility of future OTC derivatives crises remains.

Part VII concludes by examining some of the larger lessons to be learned from the crisis.

II. DERIVATIVES AND THEIR USES

A. *The Nature of Derivative Contracts*

Most people’s eyes glaze over at the mention of the word “derivatives.” This is understandable, for those who work in the derivatives industry often

talk about derivatives in ways that seem deliberately calculated to confuse.¹² When not throwing about mysterious acronyms like “CDS” or “CDO,” they describe derivatives vaguely and generically as “assets,” “investments,” “synthetics,” or simply “contracts.” Academics are not much better. Ask a finance theorist to explain derivatives, and she may launch into a technical discussion of the differences between and among puts, calls, options, futures, and options on futures.¹³

Yet the essence of all derivatives is easily captured. Derivatives are contracts, in particular the types of contracts often described by the short word “bets.” (Readers who prefer polysyllabic nouns can call derivatives “wagers.”) This is not a metaphor or a figure of a speech. Derivatives are *literally* bets—agreements between parties that one will pay the other a sum of money that is determined by whether or not a particular event occurs in the future.¹⁴

Financial derivatives, in particular, are bets between parties that one will pay the other a sum determined by what happens in the future to some underlying financial phenomenon, such as an asset price, interest rate, currency exchange ratio, or credit rating. This is exactly why derivatives are called derivatives. The value of a derivative agreement is “derived” from the performance of the underlying financial phenomenon, just as the value of a betting ticket at the racetrack is “derived” from the performance of a horse in a race.

Consider the example of the credit default swaps (CDS) implicated in the 2008 crisis. Neither the “buyer” nor the “seller” of a CDS contract on a particular corporate or mortgage-backed bond needs to actually own the underlying bond in question. The CDS seller simply agrees that, in the event the bond goes into default within some specified period, the seller will pay the buyer the difference between the face value of the bond and its market value after default. In return, the CDS buyer agrees to make a fixed payment to the seller—say, two percent of the bond’s face value.¹⁵ Thus, paying \$2,000 for a CDS contract whose value depends on the performance of a \$100,000 bond is equivalent to paying \$2 to buy a betting ticket whose value depends on the performance of a horse in a race.¹⁶

¹² See MICHAEL LEWIS, *THE BIG SHORT: INSIDE THE DOOMSDAY MACHINE* 218 (2010) (“It’s too much to expect the people who run big Wall Street firms to speak plain English, since so much of their livelihood depends on people believing that what they do cannot be translated into plain English.”).

¹³ See, e.g., RICHARD A. BREALEY & STEWART C. MYERS, *PRINCIPLES OF CORPORATE FINANCE* 398–99 (6th ed. 2000).

¹⁴ See Colleen M. Baker, *Regulating the Invisible: The Case of Over-The-Counter Derivatives*, 85 NOTRE DAME L. REV. 1287, 1299 (2010) (noting that derivatives are “complex financial contracts in which one party pays another party if ‘something’ happens in the future” and that anything that can be quantified and verified can be the basis of a derivative contract).

¹⁵ See LEWIS, *supra* note 12, at 29 (describing CDS transactions).

¹⁶ See Frank Partnoy & David A. Skeel, Jr., *The Promise and Perils of Credit Derivatives*, 75 U. CIN. L. REV. 1019, 1021 (2007) (“a credit default swap is a private contract in which private parties bet on a debt issuer’s bankruptcy”).

B. Hedging versus Speculation

This inescapable logic can make those who defend derivatives trading uncomfortable, as calling derivatives “bets” seems to carry negative connotations. Yet bets and wagers can serve a valuable and important economic purpose, because bets can be used to hedge against preexisting risks. In other words, bets are useful for insurance.

Insurance markets are fundamentally wagering markets. When you purchase a homeowner’s fire insurance policy, you are placing a bet with the insurance company that your house will burn down. If the house burns, you lose the house, but win the wager. Wagering through insurance is useful, because the ability to purchase insurance on (bet in favor of) a possible future loss can offset or “hedge” the loss itself, should it occur. In the language of finance, buying insurance reduces *risk* (variation in wealth).¹⁷ Because most people are risk-averse, reducing risk makes the buyer feel subjectively better off, despite having paid the cost of the insurance.¹⁸ And in return for accepting the risk—which it may be able to diversify away or bear more cheaply than the policyholder can—the insurance company earns premiums. Thus, the use of wagers for insurance is a classic example of the sort of mutually beneficial market transaction praised in Adam Smith’s parable of the market’s “invisible hand.”

But as every gambler knows, bets can be used for purposes other than insurance. In particular, bets can be used to *speculate*—meaning, for purposes of present discussion, to try to earn a profit from predicting future events better than others can, including future asset prices, interest rates, or credit ratings.¹⁹ In fact, bets are ideal vehicles for speculating on market phenomena. Speculating in the physical or “spot” markets for houses, gold, or interest rates requires a speculator to actually buy and hold houses, gold, or debt. This can be expensive and difficult and requires the speculator to commit significant capital. In contrast, speculating through derivatives is much cheaper and easier.

Consider, for example, how much cheaper and easier it is to speculate on the fate of the housing market by buying a “synthetic CDO”—a derivative bet on what percentage of a pool of homeowners will default on their mortgages—than by buying actual houses.²⁰ The speculator who buys houses

¹⁷ See generally BREALEY & MYERS, *supra* note 13, at 153–220 (discussing risk).

¹⁸ See DAVID A. BARNES & LYNN A. STOUT, CASES AND MATERIALS ON LAW AND ECONOMICS 144–45 (1992) (discussing risk and its welfare implications).

¹⁹ See U.S. GEN. ACCOUNTING OFFICE, REPORT TO CONG. COMMS., THE COMMODITY EXCHANGE ACT: LEGAL AND REGULATORY ISSUES REMAIN 8, 33 (1997) [hereinafter 1997 GAO REPORT] (noting that derivatives can be used to hedge and to speculate, and defining speculation as “investing with the intent of profiting from price changes”).

²⁰ See FCIC REPORT, *supra* note 1, at 143 (“Firms like Goldman found synthetic CDOs cheaper and easier to create than traditional [mortgage-backed bonds] . . . Because there were no mortgage assets to collect and finance, creating synthetic CDOs took a fraction of the time.”).

in the spot market must pay property taxes, fix leaking roofs, and make sure lawns are mowed. In contrast, derivatives betting can be virtually costless, at least until the bet comes due. In an interest rate swap, for example, one party bets that interest rates will rise by agreeing to make fixed payments tied to today's interest rate, while the other bets that interest rates will fall by agreeing to make payments tied to future interest rates. Because the parties to the swap are merely exchanging bets as consideration, unless and until interest rates actually change, betting does not cost either party anything.²¹ Thus, the existence of a market for interest rate swaps makes speculating on interest rates more attractive by making speculation easy and cheap.

C. *How Hedging and Speculation Affect Risk and Social Welfare*

Because derivative contracts can be used both to hedge and to speculate, the welfare consequences of derivatives trading are uncertain.²² As we have seen, derivative betting for insurance can leave both the insurance buyer and the insurance seller better off. In contrast, betting for speculation is not a mutually beneficial exchange of the sort praised by Adam Smith. To the contrary, speculative betting reduces risk-averse speculators' welfare by *exposing them to new risks without any compensating increase in returns*.²³

A simple example can demonstrate this point. Assume, as economic theory typically does, that bullish Betty and bearish Bob are both risk-averse.²⁴ Neither owns any GE corporate bonds, and so neither is exposed to any risk from changes in GE's creditworthiness. However, Betty predicts that GE's credit rating will remain stable or rise while Bob predicts GE's credit rating will fall. Given their differing beliefs, each sees an opportunity to profit from placing (and, each hopes, winning) a bet against the other. Thus Bob willingly "buys" CDS on GE bonds that Betty willingly "sells." As this example illustrates, this discussion employs the word "speculation" to refer to trading between disagreeing counterparties who each expect to

²¹ This example assumes that the parties to the bet deal directly with each other. Should they deal through a middleman like a swaps dealer, both may end up incurring transaction costs that make their trade a negative-sum game. See generally Stout, *Speculators*, *supra* note 10, at 752 (discussing how speculation in the presence of transaction costs erodes speculators' returns); Stout, *Betting the Bank*, *supra* note 10, at 60–62 (discussing the same).

²² This Article focuses primarily on how trading in derivatives reduces social welfare by encouraging speculation. Derivatives pose other potential welfare problems, for example, the potential to use derivative contracts to avoid tax laws, capital holding requirements, and other legal restrictions. See Frank Partnoy, Op-Ed., *Danger in Wall Street's Shadows*, N.Y. TIMES, May 15, 2009, at A39; Timothy E. Lynch, *Gambling by Another Name? The Challenge of Purely Speculative Derivatives* 33–35 (Draft of March 10, 2011) (manuscript on file with the editors) (discussing problems of regulatory arbitrage and moral hazard).

²³ See Rene M. Stulz, *Should We Fear Derivatives?*, 18 J. ECON. PERSPS. 173, 190 (Summer 2004) ("Derivatives . . . can create risk at the firm level.").

²⁴ Risk aversion is inevitable if money, like other goods, provides declining marginal utility. BARNES & STOUT, *supra* note 18, at 144–45.

earn trading profits from a future change in the underlying market phenomenon.²⁵

By placing bets with each other this way, speculators Bob and Betty have both exposed themselves to a new risk that neither was exposed to before. Why would rational actors willingly create new risk? Perhaps, like some gamblers in Las Vegas, they are not actually risk-averse, but enjoy the excitement. But more typically, derivatives speculators seem to accept risk because they believe they will earn trading profits that *compensate* them for the risk. This is why hedge fund managers often say they use derivatives to add “leverage” to their investment portfolios (a phrase that implies they expect positive returns from trading), rather than simply saying they use derivatives to add risk.

Yet the profits Bob and Betty each expect to earn from their derivative contracts are, on average, illusory. It is mathematically impossible for both sides to a purely speculative derivative contract to each profit from their trade, just as it is impossible for two gamblers to both win a bet. (Interestingly, however, until the event on which the bet is premised actually occurs, it remains possible for both parties *to think* they are going to make money on the bet. This explains the odd but common phenomenon of derivatives traders disagreeing over the current market value of a particular contract because they rely on different statistical predictive models to value the contract.)²⁶ Like any other form of gambling, derivatives trading is a zero-sum game in terms of traders’ net returns. In the parlance of economic theory, speculative derivatives trading is a form of *rent-seeking*—trying to acquire wealth not by creating it, but by taking existing wealth from someone else.²⁷

²⁵ One can imagine actors who trade in expectation of profit but still are not speculators in this sense. For example, hedgers seeking to offset risk might seek out counterparties willing to be paid to accept risk because they can bear it more cheaply or diversify it away. These counterparties are more accurately described as insurers rather than speculators.

Similarly, someone who needs to raise money quickly by selling an asset might trade with a professional dealer who offers a slightly less favorable price that compensates the dealer for the costs of maintaining the asset in her inventory until a buyer comes along. Again, such a counterparty is better described as a liquidity dealer than a speculator.

A more difficult question is how to describe savvy traders who not only hope to profit from predicting the future, but also actually do, because they obtain superior information that allows them to trade at favorable prices with less-informed buyers and sellers. When these successful traders deal with less-informed counterparties seeking liquidity, they are functionally equivalent to the liquidity dealers described above. But it is also possible that these better-informed traders—we might call them “information arbitrageurs”—deal with counterparties who similarly hope for trading profits but in fact incur trading losses. This Article uses the word “speculation” to refer to such trading between parties who each hope to profit from their different predictions for the future, even though only one of their predictions can be correct. For an excellent taxonomy of different forms of derivatives trading, see Lynch, *supra* note 22, at 8–15; see generally Stout, *Irrational Expectations*, *supra* note 10, at 227–36 (discussing meaning and normative implications of speculation); Stout, *Speculators*, *supra* note 10, at 735–38 (discussing the same).

²⁶ See, e.g., LEWIS, *supra* note 12, at 212, 216.

²⁷ Economists disapprove of rent-seeking because when parties expend time, money, or other valuable resources to extract rents, the net result is to reduce social welfare. See BARNES & STOUT, *supra* note 18, at 476–87 (discussing efficiency implications of rent-seeking).

Derivatives trading driven by subjective disagreement thus reduces speculating traders' welfare by increasing their aggregate risks without providing any compensating increase in their aggregate returns. Purely speculative derivative contracts can exist only because one of the parties is making a mistake, in the sense that his or her prediction for the future will prove less accurate than the other party's prediction.²⁸ (When two people disagree, at least one must be wrong.) Thus, like other contracts based on mistake, speculative derivative contracts cannot be presumed to increase the contracting parties' ex post net welfare.²⁹

Implicitly recognizing this logic, economists often defend speculation in the spot markets for goods not because it improves speculating traders' welfare but on the grounds that it provides other social benefits in the form of larger markets that offer buyers and sellers greater liquidity and more accurate ("efficient") market prices.³⁰ Part V of this Article will examine the supposed liquidity and price discovery benefits of speculation more carefully.³¹ As we shall see, even if speculation in spot markets provides these external social benefits—a questionable proposition in many cases—they are highly unlikely to be provided by speculative trading in OTC derivatives.

Thus the discussion below assumes that when derivative bets are non-mistakenly used as insurance to hedge against preexisting risks, derivatives trading conforms to Adam Smith's ideal of mutually beneficial exchange. But when derivative contracts are mistakenly used to speculate (gamble) in the hope of reaping positive returns from predicting the future better than one's counterparty can predict it, Smith's invisible hand goes astray. Rather than increasing speculators' welfare, betting on subjective disagreement diminishes speculators' welfare, subjecting them to new risks without providing any compensating increase in aggregate returns. Indeed, betting on market events can create new risk that is an order of magnitude larger than the risk associated with the underlying market phenomenon. A highly confident derivatives speculator, for example, might happily sell \$1,000,000 in CDS contracts on a \$100,000 bond.³²

²⁸ In contrast, insurance contracting does not require mistake and disagreement. Even when the parties to an insurance contract share exactly the same opinion about the likelihood of a future event—for example, both agree that the odds of a house burning down are 1 in 100—both remain willing to trade with the other. Betting for insurance thus can improve the welfare of both the insurance buyer (who offloads costly risk) and the insurance seller (who is paid a premium for accepting the risk, which it then either diversifies away or can bear more cheaply than the insurance buyer can).

²⁹ BARNES & STOUT, *supra* note 18, at 192–96 (discussing efficiency implications of contracts based on unilateral and bilateral mistake).

³⁰ See Stout, *Speculators*, *supra* note 10, at 735–39 (discussing economic defenses of speculation).

³¹ See *infra* text and notes 124–32.

³² See *infra* note 98 (discussing actual cases like this).

III. TRADITIONAL LEGAL APPROACHES TO DERIVATIVES

A. *The Common Law Approach*

As we have just seen, from a social welfare perspective, derivative contracts are a double-edged sword. When used to hedge against and reduce risk, they contribute to social welfare. When used to speculate, they create new risks that did not exist before, thus reducing social welfare.

Early on, the common law recognized and responded to this dilemma. Derivatives are sometimes described as “innovations”; this idea, however, is quite mistaken. Humans have been making bets on commercial and market events throughout history. (The Babylonians used derivative contracts to bet on the fates of desert trading caravans.)³³ Just as derivative contracts date back well before the modern era, so do laws regulating derivatives trading.

The English and American common law legal systems traditionally addressed the welfare implications of derivatives trading through the interesting strategy of distinguishing between hedging agreements in which at least one of the parties was seeking to reduce risk and purely speculative contracts between two parties each seeking trading profits. It accomplished this by focusing on whether or not one of the parties to the contract in fact owned or expected to own (“take delivery of”) the actual physical asset or commodity underlying the bet, meaning that party was exposed to the risk of a change in the value of the underlying asset. When one party owned or was expected to take delivery of the underlying asset, a derivatives contract was enforceable in the public courts. Thus, a contract based on wheat prices between a wheat farmer and a grain merchant would be enforced. But a derivative contract between two speculating parties who neither owned nor expected to own wheat—that is, a wager between two parties who each hoped to profit from predicting future wheat prices—was void and legally unenforceable. Speculators could bet, but public courts would not enforce their bets. Enforcement was a problem speculators were left to solve for themselves.

As the U.S. Supreme Court explained in the 1884 case of *Irwin v. Williar*:

The generally accepted doctrine in this country is . . . that a contract for the sale of goods to be delivered in the future is valid, even though the seller has not the goods, nor any means of getting them than to go into the market and buy them; but such a contract is only valid when the parties really intend and agree that the goods are to be delivered by the seller and the price to be paid by the buyer; and, if under guise of such a contract, the real intent be merely to speculate in the rise or fall of prices, and the goods are

³³ LAURENT L. JACQUE, GLOBAL DERIVATIVES DEBACLES: FROM THEORY TO MALPRACTICE 4 (2010).

not to be delivered, but one party is to pay to the other the difference between the contract price and the market price of the goods at the date fixed for executing the contract, then the whole transaction constitutes nothing more than a wager, and it is null and void.³⁴

This common law rule against “difference contracts” (the nineteenth-century term for derivative contracts) made it difficult for speculators to use derivative contracts to make cheap wagers on commodity prices. Unless they could find some way of ensuring their counterparty would make good on the bet despite its legal invalidity, speculators were forced to incur the cost and inconvenience of trading in the spot market.

The common law rule against enforcing derivative contracts was also subject to an important exception that highlights how the law sought to protect hedging while discouraging speculative transactions. Even if neither party to a derivative (“difference”) contract expected to take delivery of the goods underlying the contract, courts nevertheless would enforce the contract if one party had some preexisting economic interest in the underlying good that would be damaged by the very same event that would allow it to profit under the contract. This “indemnity” exception to the general rule of unenforceability can still be recognized in modern insurance law, which enforces insurance wagers only to the extent the policyholder holds an “insurable interest” in the property being insured and would suffer an offsetting economic loss from any destructive event that triggered payment under the policy.³⁵

Why did the common law discriminate in this fashion between contracts used for hedging and those used for speculating? In brief, the common law viewed derivative speculation as a form of gambling.³⁶ Gambling in turn was associated with a variety of social and economic ills.

Eighteenth- and nineteenth-century cases sometimes condemned gambling using moral or religious arguments. This might tempt contemporary observers into dismissing the common law’s hostility toward gambling as something that is archaic and irrational, just as moral and religious arguments against rock-and-roll or bikinis are dismissed today on the same grounds. This approach does not do justice to the wisdom of the common law.³⁷ Murder and theft are also condemned as immoral and are contrary to most religions, yet rules proscribing murder and theft provide clear economic benefits. Similarly, while courts in derivative contract cases some-

³⁴ *Irwin v. Williar*, 110 U.S. 499, 508–09 (1884).

³⁵ *Stout*, *Speculators*, *supra* note 10, at 718, 724–25.

³⁶ *See, e.g.*, *Brua’s Appeal*, 55 Pa. 294, 298–99 (1867) (noting that speculative difference contracts are unenforceable because “[a]nything which induces men to risk their money or property without any other hope of return than to get for nothing any given amount from another, is gambling . . . no matter by what name it might be called.”).

³⁷ *See generally* RICHARD A. EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* (1995) (defending wisdom of the common law).

times used moral rhetoric to explain the rule against enforcing speculative contracts, nineteenth-century case law made clear that courts also saw the rule as serving several important and distinctly economic functions.

One of these functions was to discourage the waste of valuable human capital. As already noted, gambling by its nature is a rent-seeking activity that redistributes existing wealth rather than creating new wealth. When rent-seeking exhausts valuable resources like time, money, or human ingenuity, the zero-sum game becomes a negative-sum game that reduces net social welfare.³⁸ Thus common law judges condemned the use of derivative contracts to speculate on market events because they “promote no legitimate trade”³⁹ and “discourage the disposition to engage in steady business or labor.”⁴⁰ This nineteenth-century concern finds its modern echo in the fear that, by the end of the twentieth century, many of America’s brightest and most productive scientists and mathematicians were being lured to Wall Street to squander their talents on earning private profits for investment banks and hedge funds at other traders’ expense.⁴¹

A second economic problem courts associated with both conventional gambling and derivatives speculation arose from the possibility that, in order to win their bets, gamblers and derivatives traders might be tempted to try to exercise control over the future by manipulating the fate of the thing they were betting on. Just as a racetrack gambler might try to “fix” the outcome of a horserace, or an insurance buyer allowed to purchase a fire policy on another’s house might be tempted to play with matches, a speculator who bought derivatives based on some asset price or financial metric might be tempted to try to manipulate the underlying market or metric. (In July 2010, Goldman Sachs agreed to pay \$550,000,000 to settle SEC charges that it had deliberately structured a CDO contract to fail, in order to ensure a trading profit for one of its hedge-fund clients.)⁴²

Finally—and the primary focus of this discussion—a third striking economic concern judges voiced in refusing to enforce purely speculative difference contracts was the fear that speculation increased risk. Thus, courts

³⁸ See *supra* note 27 (discussing rent-seeking).

³⁹ *Melchert v. Am. Union Tel. Co.*, 11 F. 193, 195 (C.C.D. Iowa 1882).

⁴⁰ *Justh v. Holliday*, 13 D.C. (2 Mackey) 346, 349 (1883).

⁴¹ See *Baker*, *supra* note 14, at 1309 (noting increase in size of financial sector in decade preceding crisis and suggesting “this trend . . . arguably withdraws vital human capital from other critical economic sectors”); see generally FCIC REPORT, *supra* note 1, at 64 (noting how financial sector grew from 5 percent to 8 percent of GDP from 1980s to early 2000s, while finance sector profits grew from 15 percent to as much as 33 percent of all corporate profits); SCOTT PATTERSON, *THE QUANTS: HOW A NEW BREED OF MATH WHIZZES CONQUERED WALL STREET AND NEARLY DESTROYED IT* (2010) (describing how during 1980s and 1990s Wall Street became favored source of employment for highly skilled physicists, mathematicians, and engineers).

⁴² Jean Eaglesham, *Banks in Talks to End Bond Probe*, WALL ST. J., Dec. 2, 2010, at A1 (describing Goldman Sachs settlement and SEC investigations into other banks that structured derivatives deals); see also Partnoy & Skeel, *supra* note 16, at 1034 (discussing how derivatives can create incentives “to affirmatively destroy value”).

accused derivative contracts of “induc[ing] men to risk their money or property.”⁴³ Increased risk, in turn, was thought to cause harm, not only by impoverishing losing gamblers and their families, but also by contributing to other social ills and disruptions. Showing an intuitive understanding of the social costs of risk, judges noted that derivatives-fueled trading losses could lead to “bankruptcies, defalcations of public officers, embezzlements, forgeries, [and] larcenies.”⁴⁴ In a prescient foreshadowing of the 2008 credit crisis, one nineteenth-century judge voiced the concern that enforcing speculative derivatives would lead to a chain of failures among speculating traders, “carrying down the bona fide dealer in [the market’s] collapse.”⁴⁵

Economic logic supports the common law’s concern that rampant speculation using derivative contracts increases individual and systemic risk. Unlike the use of derivatives bets for hedging—which reduces risk, or at least reassigns risk to a party that can bear it more inexpensively—purely speculative trading increases risk. After all, when two people gamble, we end up with one person who has more money than before and one who has less money, instead of two people who each have some money. Such wealth exchanges are the very definition of financial risk. Moreover, as will be discussed in Part V, nineteenth-century judges’ fear that enforcing purely speculative derivative contracts might increase derivatives traders’ risks in a fashion that harmed the broader economy seems to have been proven, in the twenty-first century, quite well-founded.

It is nevertheless important to emphasize that, despite judicial concern about the negative economic impacts of gambling, the common law did not prohibit parties who wanted to wager through speculative derivative contracts from doing so. The state merely declined to subsidize speculators by giving them access to publicly funded courts to enforce their wagers. Speculation was not a crime to be punished by the state.

*B. Private Ordering Under the Common Law:
The Rise of the Exchanges*

Not surprisingly, in denying speculators access to public judicial resources, the common law rule of unenforceability for speculative difference contracts did not eliminate the human temptation to try to profit from predicting the future. But it did force would-be speculators to think about how they might privately arrange their affairs to ensure that their counterparties would make good on their bets. The result was “private ordering.” Derivatives speculators solved the problem of enforcement by moving their trading onto private venues that enforced their betting contracts for them, even as public courts refused to shoulder that burden.

⁴³ *Brua’s Appeal*, 55 Pa. at 299.

⁴⁴ *Cunningham v. Nat’l Bank of Augusta*, 71 Ga. 400, 403 (1882).

⁴⁵ *Kirkpatrick & Lyons v. Bonsall*, 72 Pa. 155, 158 (1872).

The private venues in question were the commodity exchanges. Exchange markets—physical locations where buyers and sellers of commodities meet to exchange their wares—have existed for millennia. But in the second half of the nineteenth century, commodity exchanges came to be dominated not by buyers and sellers exchanging physical corn, wheat, or cotton, but instead by traders exchanging abstract contracts based on the market prices of corn, wheat, and cotton. The shift began with the practice of exchanging not physical commodities but “elevator receipts” that supposedly represented a given quantity of a physical commodity being stored elsewhere (e.g., in a grain elevator).⁴⁶ Soon traders abandoned the exchange of elevator receipts in favor of “futures” contracts. Futures contracts formally called for the future delivery of a given quantity of a physical commodity at today’s price. As a practical matter, however, performance was determined not by actual delivery, but by “set-off” (i.e., purchasing a second, offsetting futures contract for the delivery of the same quantity of goods on the same delivery date).⁴⁷ Thus, in economic reality, futures contracts performed through set-off were difference contracts by another name.

In many cases, the futures traded on the exchanges were bought and sold by farmers, millers, merchants, and others with legitimate commercial interests in hedging against changes in the price of the commodity in question. In other cases, however, exchange futures were traded by “scalpers” who simply hoped to reap speculative profits from predicting price changes.⁴⁸ Moreover, the invention of a crucial new technology—the telegraph—soon made it possible for speculators in every major city in the nation to use the exchanges to bet on the prices of goods they would never see and could not even be sure existed. The result was an explosive growth in futures trading. In 1888 it was estimated that futures contracts for 25 *quadrillion* (25,000,000,000,000,000) bushels of wheat changed hands in the United States, even though American farmers harvested only 415 *million* (415,000,000) actual bushels of wheat that year.⁴⁹

Despite the fact that many, if not most, exchange-traded futures may have been traded for speculative rather than for hedging purposes, futures traders generally did not worry that their counterparties would not perform. A speculative futures contract might be unenforceable in court, but it could and would be enforced by the exchanges themselves. The reason for this was that the only way to trade futures on an exchange was to trade through the brokerage services of an exchange member who would guarantee performance.⁵⁰ Members in turn were closely monitored by the exchanges and sub-

⁴⁶ Jonathan Ira Levy, *Contemplating Delivery: Futures Trading and the Problem of Commodity Exchange in the United States, 1875-1905*, 3 AM. HIST. REV. 307, 313 (2006).

⁴⁷ *Id.* at 311–13.

⁴⁸ *Id.* at 315–16.

⁴⁹ *Id.* at 313.

⁵⁰ 198 U.S. 236, 245 (1905) (“The members make sales and purchases exclusively for future delivery, the members dealing always as principals between themselves . . .”).

ject to a variety of requirements such as membership standards, collateral (“margin”) posting requirements, capital requirements, and standardized contract terms to make sure they could perform their role as guarantor. In effect, commodity exchanges functioned like private gambling clubs owned by sophisticated business parties with both the motive and the means to ensure that members in the club would make good on their bets.⁵¹ Because the members of the exchange collectively assumed the financial risk of nonperformance of any derivatives contract traded on the exchange, they made certain that both their trading clients and their fellow members could, and would, perform.

As the organized exchanges grew, however, they soon began facing competition from storefront “bucketshops” that allowed anyone who walked in the door to buy or sell futures, without paying for a membership or acting through a broker who was a member. Unlike the exchanges, which provided stable and reliable trading venues, bucketshops often closed or went bankrupt.⁵² Soon a number of states passed “anti-bucketshop” statutes that not only declared bucketshop wagers legally void but also made running a bucketshop criminal.⁵³ Meanwhile, the organized exchanges mounted their own attack against the bucketshops. Because bucketshops relied on the commodities prices reported by the exchanges, the exchanges sought to prevent the bucketshops from using their price quotations by claiming a private property right in quoted prices. One bucketshop operator, the Christie Grain & Stock Company, supposedly responded by sending spies into the futures trading pits of the Chicago Board of Trade to steal price quotations. The battle between the bucketshops and the organized commodity exchanges went before the U.S. Supreme Court in the case of *Board of Trade of Chicago v. Christie Grain & Stock Co.*⁵⁴

In the *Christie* case, the Board of Trade sought to enjoin Christie’s bucketshop from using the Board of Trade’s price quotations. Christie in turn argued that the Board had no legitimate property right in its own quotations because board-traded futures were nothing more than legally invalid difference contracts. Justice Oliver Wendell Holmes, who delivered the Court’s opinion in the case, ruled in the Board’s favor based on contractual formalities. As a practical matter, only a small percentage of the futures contracts traded on the Board were actually settled by physical delivery. Nevertheless, the contracts formally called for physical delivery. Moreover, they were settled not by “paying differences” but through the “set-off” procedure. According to Holmes, “[s]et-off has all the effects of delivery.”⁵⁵

⁵¹ Stout, *Speculators*, *supra* note 10, at 719; Lynn A. Stout, *Regulate OTC Derivatives by Deregulating Them*, 32 REGULATION 30, 32–33 (Fall 2009) [hereinafter Stout, *Regulate OTC Derivatives*].

⁵² Levy, *supra* note 46, at 316.

⁵³ Stout, *Speculators*, *supra* note 10, at 721.

⁵⁴ 198 U.S. 236.

⁵⁵ *Id.* at 248.

Holmes thus handed the organized commodities exchanges a stunning legal victory that assured their future.⁵⁶ Speculative difference contracts entered into off the exchanges in the “over-the-counter” (OTC) market were void under the common law and were possibly criminal under state antibucketshop laws. On the exchanges, however, speculative trading in futures was not only permitted; futures contracts were legally enforceable because set-off was deemed a “delivery.”

C. Codifying the Common Law: The Commodities Exchange Act

The late 1800s saw enormous growth in both futures exchanges and the derivative products traded on them. By the end of the nineteenth century, more than twenty different futures trading markets had emerged in the United States. Speculators could trade futures not only on the prices of wheat and corn, but also on those of horses, mules, sheep, swine, lard, beef, hops, rye, cheese, coffee, oil, gas, petroleum, and a host of other commodities.⁵⁷

Nevertheless, and despite this explosion in apparently speculative activity, the futures exchanges proved themselves to be remarkably stable, long-lived organizations. Many exchanges created in the nineteenth century, such as the Chicago Mercantile Exchange (CME) and the Chicago Board of Trade (CBOT), are still in business today. Nor does history suggest that exchange-based futures added to systemic risk. Several banking crises took place during the nineteenth century, but none of them involved futures exchanges.⁵⁸ Similarly, commodity futures exchanges played no discernable role in the Crash of 1929 or the ensuing Great Depression.

This is not to suggest that futures trading on the exchanges posed no policy problems whatsoever. Farmers, small businesses, and others who dealt in physical commodities often complained that futures traders were manipulating and “fixing” market prices. As a result, Congress took a first step toward regulating the commodity futures exchanges with the Grain Futures Act of 1922, reenacted in 1936 as the Commodity Exchange Act (CEA).⁵⁹

The history of the CEA is remarkably long and complex. That history is replete with political turf battles between the agency Congress eventually created to enforce the CEA, the Commodity Futures Trading Commission (CFTC), and other regulatory bodies like the Treasury Department and the Securities Exchange Commission (SEC). Congress also amended the CEA numerous times over the years either to expand or limit the CFTC’s jurisdic-

⁵⁶ Levy, *supra* note 46, at 47 (“Ultimately, Holmes had granted the pits a monopoly in all kinds of futures trading, which would last for decades.”).

⁵⁷ Levy, *supra* note 46, at 3, 14.

⁵⁸ See generally FCIC REPORT, *supra* note 1, at 29 (discussing banking crises of the nineteenth and early twentieth centuries).

⁵⁹ 7 U.S.C. §§ 1–27f (2011).

tion over various types of derivatives trading.⁶⁰ The basic outlines of the CEA, however, can be summarized as follows. First, the CEA authorized the CFTC to oversee and regulate the private commodity exchanges and to impose rules, particularly rules to detect and prevent market manipulation. More significantly, at least for this discussion, the CEA also codified and hardened the old state common law rule by strictly prohibiting trading in “off-exchange futures” (OTC derivatives).⁶¹ (As in the case of the common law rule, there was an exception for OTC trading of “forward” contracts intended to be settled by actual delivery, which were presumed to serve a hedging purpose.)⁶² The CEA’s new “exchange trading requirement” meant that federal law, like state antibucketshop statutes, went beyond the common law by making off-exchange futures illegal as well as judicially unenforceable.⁶³

Whatever the disadvantages of this somewhat heavy-handed regulatory approach, it had at least one advantage: it kept speculative trading in futures and other derivative contracts from causing significant problems for other parts of the economy. Apart from the occasional market manipulation scandal (e.g., onions in the 1950s, silver in the 1980s),⁶⁴ during most of the twentieth century organized future exchanges functioned so smoothly they received little or no media or public attention.⁶⁵ Indeed, it might be said that the federal version of the common law rule against difference contracts regulated derivatives speculation so well that both the rule itself, and the problems of speculation that it was designed to address, faded from public memory.

IV. MODERN DEVELOPMENTS IN FINANCIAL DERIVATIVES LAW

A. *The 1993 “Swaps Exemption”*

As just described, the CEA ensured that speculative derivatives trading in commodities like wheat, corn, and silver remained largely confined to the organized and regulated exchanges. Yet there are any number of other com-

⁶⁰ See generally Baker, *supra* note 14, at 1310–14; Stout, *Speculators*, *supra* note 10, at 721–24.

⁶¹ The original CEA regulated only futures trading in certain agricultural commodities like cotton and grain. In 1974, Congress expanded the CEA to apply to futures trading in “all other goods and articles,” and created the five-member CFTC dedicated to enforcing the statute. *Speculators*, *supra* note 10, at 721–22.

⁶² Stout, *Speculators*, *supra* note 10, at 722.

⁶³ Stout, *Speculators*, *supra* note 10, at 723–24.

⁶⁴ See *Commodities: Odorous Onions*, TIME, July 2, 1956, available at <http://www.time.com/time/magazine/article/0,9171,891311,00.html> (describing onion scandal); Kurt Eichenwald, *2 Hunts Fined and Banned from Trades*, N.Y. TIMES, Dec. 21, 1989, at D1 (discussing how William and Nelson Hunt settled CFTC charges that they had manipulated the silver market).

⁶⁵ See Baker, *supra* note 14, at 1298 (noting that “exchange-traded derivatives are relatively uncontroversial from a public policy perspective”).

mercial and market phenomena that would-be speculators might try to profit from betting on. Possible candidates include bond ratings, interest rates, mortgage default rates, housing prices, inflation rates, and even the weather.⁶⁶

Given these options, it is hardly surprising that Wall Street eventually stumbled upon the idea of using derivative contracts to bet on financial phenomena.⁶⁷ One of the most prominent examples was the rise of the OTC market for “interest rate swaps.” By the mid-1980s, a number of banks and businesses were trading in interest rate swaps, essentially betting with each other on whether interest rates were going to rise or fall.⁶⁸ At first, financial firms accustomed to thinking of futures in terms of corn or wheat may not have realized that OTC swaps might be “difference contracts” void under the common law, or “off-exchange futures” of the sort banned by the CEA. By the end of the 1980s, however, the derivatives industry was well aware of the problem.⁶⁹

Industry representatives mounted an organized campaign to give “legal certainty” to interest rate swaps.⁷⁰ They began by approaching the CFTC for assurances that it would not try to subject swaps to the CEA’s exchange-trading requirement. The CFTC—at the time headed by Wendy Gramm, a conservative economist and the wife of Republican Senator Phil Gramm—promptly issued a 1989 “safe harbor” policy statement declaring that the CFTC would not attempt to regulate swap transactions.⁷¹ Soon after, in 1992, Congress gave the CFTC clear legislative authority to exempt various types of derivatives from the CEA. The 1992 amendments also clearly stated that federal law now preempted any state laws that made OTC derivatives unenforceable, whether as gambling contracts or otherwise.⁷² In 1993, the CFTC used its new power to formally exempt OTC swaps from the CEA—and,

⁶⁶ See FCIC REPORT, *supra* note 1, at 46 (describing types of financial derivatives).

⁶⁷ Even before the rise of the market for interest rate swaps, derivatives were traded on corporate equities (stock options and futures) and, after the adoption of floating currency rates in the mid-1970s, on foreign currencies as well. Congress allocated the regulation of these types of financial derivatives to the SEC and the Treasury Department, respectively. See generally Baker, *supra* note 14, at 1311–13 (describing SEC and CFTC disputes over jurisdiction of equities derivatives); 1997 GAO REPORT, *supra* note 19, at 22–26 (discussing jurisdictional issues surrounding currency derivatives).

⁶⁸ See *supra* text accompanying note 21 (describing interest rates swaps).

⁶⁹ Stout, *Speculators*, *supra* note 10, at 780.

⁷⁰ See Brief for Int’l Swaps and Derivatives Ass’n et al. as Amici Curiae Supporting Petitioners, *Cary Oil Co. v. MG Ref. & Mktg. Inc.*, 230 F. Supp. 2d 439 (S.D.N.Y. 2002) (No. 99 Civ. 1725 (VM)(DFE)) [hereinafter ISDA Mem.] (describing industry effort to secure legal certainty for OTC swaps).

⁷¹ Policy Statement Concerning Swap Transactions, 54 Fed. Reg. 30,694 (July 21, 1989).

⁷² Futures Trading Practices Act of 1992, Pub. L. No. 102-546, 106 Stat. 3590, §§ 502(a) (amending 7 U.S.C. 6), 502(c) (amending 7 U.S.C. 16(e)(2)(A)). Through this amendment the FTCA explicitly pre-empted the nearly forgotten common law rule against difference contracts.

under the 1992 amendments, from state anti-wagering and anti-bucketshop laws as well.⁷³

As a result, for the first time in U.S. history, speculative wagers on interest rates made outside the watchful gaze of a member-owned exchange were declared both legal and legally enforceable. Just as a nineteenth century judge might have predicted, the near-immediate result was a series of swaps-fueled speculative disasters.⁷⁴ In April 1994, Proctor & Gamble Co. announced it had suffered a \$157 million trading loss speculating on interest rates through derivatives.⁷⁵ Proctor & Gamble's loss was overshadowed only a few months later by the unexpected bankruptcy of Orange County's pension fund, which lost \$2.5 billion.⁷⁶ In 1998, the near-collapse of the hedge fund Long Term Capital Management (LTCM) so threatened the banking industry that the Federal Reserve had to orchestrate a nearly \$4 billion bailout to rescue the fund.⁷⁷

B. The CFTC Unsuccessfully Moves to Regulate OTC Derivatives

The new Chair of the CFTC, Brooksley Born, was alarmed by the Proctor & Gamble and Orange County disasters and the rapid growth of the opaque and unregulated OTC derivatives market. In the summer of 1998, just a few weeks before LTCM's near-collapse, the CFTC issued a concept release indicating that it might seek to exercise regulatory authority over financial derivatives.⁷⁸ This was a dramatic shift in policy, as it implied OTC derivatives might be treated as illegal off-exchange futures.⁷⁹

By this time, however, the OTC derivatives industry was an organized, powerful, and influential interest group. The industry quickly responded to the threat the CFTC posed to its business model. In the process, it proved itself far more politically powerful than the small, stodgy, and badly out-lobbied CFTC.⁸⁰ Representatives from the derivatives industry besieged Congress with appeals to stop any federal regulatory effort. Ignoring the object lessons provided by Proctor & Gamble, Orange County, and LTCM,

⁷³ Regulation of Hybrid Instruments, 58 Fed. Reg. 5,581 (Jan. 22, 1993) (to be codified at 17 C.F.R. pt. 34).

⁷⁴ See FCIC REPORT, *supra* note 1, at 46–47 (describing post-1993 swaps scandals).

⁷⁵ Stout, *Betting the Bank*, *supra* note 10, at 53.

⁷⁶ Stout, *Betting the Bank*, *supra* note 10, at 53.

⁷⁷ FRANK PARTNOY, INFECTIOUS GREED: HOW DECEIT AND RISK CORRUPTED THE FINANCIAL MARKETS 261 (2003); see also FCIC REPORT, *supra* note 1, at 57 (noting LTCM had entered derivative contracts with more than \$1 trillion in notional value).

⁷⁸ Over-The-Counter Derivatives, 63 Fed. Reg. 26,114 (May 12, 1998) (to be codified at 17 C.F.R. pts. 34–35).

⁷⁹ ISDA Mem., *supra* note 70, at 7 (“The CFTC’s pronouncements provoked great concern.”).

⁸⁰ See generally ISDA Mem., *supra* note 70, at 7–10 (describing industry campaign for passage of CFMA).

Congress enacted legislation to limit the CFTC's rulemaking authority over OTC financial derivatives.⁸¹

Brooksley Born resigned from her CFTC position, and a Presidential Working Group was tasked with recommending how best to "modernize" derivatives regulation. The Working Group—whose members included Federal Reserve Chairman Alan Greenspan, Treasury Secretary Robert Rubin, and Treasury Undersecretary Lawrence Summers⁸²—produced a report that dismissed the CFTC's concerns and critiqued its attempt to exercise jurisdiction over OTC derivatives.⁸³ According to the Working Group, "[a] cloud of legal uncertainty has hung over the OTC derivatives markets in the United States in recent years."⁸⁴ This cloud, the Working Group fretted, "could discourage innovation and growth of these important markets."⁸⁵ In the eyes of the Working Group, it was essential that the CEA be amended to bring "legal certainty" and enforceability to all off-exchange derivatives trading.

Thus the political stage was set for the final and most dramatic transformation in the legal infrastructure underlying the market for derivative contracts. This was the sudden and wholesale removal of centuries-old restraints on off-exchange derivatives speculation, not only in interest rate swaps but in other financial derivatives as well, through the passage of the Commodities Futures Modernization Act of 2000 (CFMA).⁸⁶

C. Speculation Unbound: The CFMA

Like most financial legislation, the CFMA is long, complex, technical, and difficult to understand without a thorough grounding in the history of derivatives regulation. This may go a long way toward explaining why the CFMA's passage went relatively unnoticed and unremarked by anyone outside the derivatives industry. Nevertheless, the CFMA worked a radical change in the laws undergirding the U.S. financial system. For the first time in U.S. history, the CFMA gave "legal certainty" not only to speculative interest rate swaps, but also to speculative trading by "eligible contract participants" (banks, corporations, mutual funds, pension funds, and wealthy individuals) in virtually all other OTC financial derivatives as well. The CFMA accomplished this by simply excluding most financial derivative transactions from the CEA and its ban on off-exchange trading.⁸⁷

⁸¹ Stout, *Speculators*, *supra* note 10, at 768.

⁸² Ironically, these three officials were featured on the February 15, 1999 cover of *Time* magazine as "The Committee to Save the World." FCIC REPORT, *supra* note 1, at 59.

⁸³ PRESIDENT'S WORKING GRP. ON FIN. MRKS., OVER-THE-COUNTER DERIVATIVES MARKETS AND THE COMMODITY EXCHANGE ACT (Nov. 1999) [hereinafter PWG REPORT].

⁸⁴ Nov. 9, 1999 Letter from President's Working Group on Financial Markets, PWG REPORT, *supra* note 83, at 1.

⁸⁵ PWG REPORT, *supra* note 83, at 1.

⁸⁶ Commodities Futures Modernization Act of 2000, Pub. L. No. 106-554, 114 Stat. 2763 (2000).

⁸⁷ *Id.* §§ 103, 120 (codified at 7 U.S.C. §§ 2(h), 25(a)(4) (2001)).

With great irony, this change was touted as essential to *reduce* systemic risk. Prior to the CFMA's passage, the House Committee on Banking and Financial Services had claimed the CFMA was needed because "[o]utdated statutes that raise questions about the enforceability of contracts with banks and bar improvements in the way banks reduce risk pose a palpable threat to the safety and soundness of the financial system. U.S. banking regulators warned that uncertainties and unintended consequences associated with the CEA could potentially turn financial disruptions in the global system into financial disasters."⁸⁸ The President's Working Group had similarly promised that legal certainty for financial derivatives "will help to reduce systemic risk in the U.S. financial markets."⁸⁹ The statute itself declared that its purpose was to "reduce systemic risk by enhancing legal certainty in the markets for certain futures and derivatives transactions."⁹⁰

This remarkable—and in light of subsequent events, remarkably mistaken—claim appears to have been based on an unspoken belief that OTC derivatives, once given legal certainty, would be used primarily for hedging purposes and not for risk-adding speculation. Even when the CFMA was passed, there was little or no empirical evidence to support this blithe and optimistic assumption. To the contrary, the Proctor & Gamble, Orange County, and LTCM disasters that followed on the heels of the 1993 swaps exemption had already shown, quite directly, how legalizing OTC speculation could and would add to systemic risk. Nevertheless, with apparently unquestioning faith in the need for "modernization," Congress in one single step removed legal restraints on derivatives speculation that traced back not just years, but centuries.

V. THE CFMA AND THE 2008 CRISIS

A. *Sudden Growth in the OTC Market*

The CFMA's legalization of purely speculative OTC financial derivatives trading, not only in interest rate swaps but in all other financial derivatives, was followed by immediate and explosive growth in the OTC derivatives market. Derivatives are usually measured according to their "notional value," meaning the value of the underlying financial asset on which a derivatives contract is written. For example, the notional value of a credit default swap on a bond with a \$100,000 face value is \$100,000.⁹¹ According to the Bank for International Settlements, at the end of 1999, just prior to the CFMA's passage, the total notional value of OTC derivatives—mostly inter-

⁸⁸ H.R. REP. NO. 106-711, pt. 2 at 54 (2000), *reprinted in* 106 H. Rpt. 711 (LEXIS).

⁸⁹ PWG REPORT, *supra* note 83, at 6.

⁹⁰ Commodities Futures Modernization Act, § 2(6).

⁹¹ Similarly, the notional value of an interest rate swap to exchange the interest payments that would be made on a \$100,000 debt is \$100,000.

est rate swaps and other financial derivatives already exempt from the CEA—was approximately \$88 trillion.⁹² By 2008 the OTC market had grown by an order of magnitude, to more than \$670 trillion (\$670,000,000,000,000).⁹³

Notional value is a notoriously imperfect measure of the size of the derivatives market, but it is widely used for the simple reason that no better measure exists. Derivative contracts are, after all, probabilistic wagers. Until a particular contract is performed—that is, until it is determined which party won the wager, and the bet is paid off—the value of a derivative bet constantly shifts, sometimes dramatically, as new information arrives that changes probabilities. Moreover, probability estimates often are inherently subjective. (Jack predicts that there is an 80 percent probability interest rates will rise next year, Jill thinks the probability is only 30 percent.)⁹⁴ Thus, reasonable parties can disagree on the likely value of their wagers. Indeed, without disagreement there would be little wagering.

The very nature of a derivatives contract thus deprives us of any reliable way to capture, *ex ante*, how much money will eventually change hands *ex post* as a result of a derivatives wager. However, notional value gives at least a weak sense of the magnitude of the risks created by derivatives trading and the potential losses to which derivatives traders might be exposed. For example, a party who sells a credit default swap on a \$100,000 bond could lose as much as \$100,000 if the bond proves worthless. Should four different parties each sell a CDS on the same \$100,000 bond, the maximum possible CDS loss that could result from the bond's default is \$400,000. As this example illustrates, derivatives trading can amplify risks in the underlying economy—for example, by turning a problem in the \$1.3 trillion subprime mortgage market into a multi-trillion-dollar speculative crisis.⁹⁵

The dramatic increase in the notional value of the OTC market that followed the passage of the CFMA accordingly provides evidence of the increase in financial risk that followed the legalization of OTC trading. A

⁹² Reg. OTC Derivatives Mkts. Statistics, Bank for Int'l Settlements (Nov. 13, 2000), at 3, available at http://www.bis.org/publ/otc_hy0011.htm. Before the 1993 swaps exception, the OTC market was even smaller. See S. REP. NO. 111-176 at 29 (describing how in 1994, shortly after the swaps exemption was adopted, the GAO estimated that the notional value of the OTC market stood at only \$12.1 trillion).

⁹³ Bank for Int'l Settlements, Semiannual OTC Derivatives Statistics at End-June 2010, Table 19, available at <http://www.bis.org/statistics/derstats.htm>. See also FCIC REPORT, *supra* note 1, at 48 (stating that the gross present market value of OTC derivatives outstanding grew from \$3.2 trillion in 2000 to \$20.3 trillion in 2008, while notional value grew from \$95 trillion to \$672 trillion in the same period).

⁹⁴ The reality of this sort of subjective disagreement is often neglected in economic discussions of speculation, possibly because of the influential “no-trade” theorem, which states that rational actors using Bayesian analysis should never be willing to trade with each other on the basis of subjective disagreement. See generally Stout, *Irrational Expectations*, *supra* note 10 (discussing the no-trade theorem and its inapplicability to many financial markets).

⁹⁵ See FCIC REPORT, *supra* note 1, at 145 (“[S]ynthetic CDOs . . . would multiply losses when housing prices collapsed As a result, the losses from the housing collapse were multiplied exponentially.”).

notional value of \$670 trillion also suggests, quite obviously, that in absolute terms the level of risk being created was very large indeed. An OTC market of \$670 trillion averages out to more than \$100,000 in notional derivatives bets for each living person today. This is four times the total per capita *wealth* (about \$25,000) of the human population.⁹⁶

B. *The Prevalence of Speculation in the Post-CFMA Market*

In theory, even a \$670 trillion OTC derivatives market might reduce rather than increase economic risk if those \$670 trillion in contracts were entered into only for hedging rather than for speculative purposes. In practice, however, there are a number of reasons to suspect that by 2008 the OTC derivatives market was dominated by speculative trading.

The first reason, as just noted, is the sheer size of the OTC market relative to the real economy. It is difficult to see how buying a \$1 million dollar fire insurance policy on a \$250,000 house is “hedging.” Similarly, it is difficult to see how a derivatives market four times larger than the underlying economy can be explained away as “insurance.” In theory, if the risk on a particular asset were passed from party to party many different times through multiple successive derivative contracts, we could end up with a derivatives market with a notional value that exceeds the value of the underlying assets. This is similar to the way in which the practice of “reinsurance” can result in outstanding insurance contracts in amounts that exceed the value of the insured property. In practice, however, the imbalance between the notional size of the derivatives market and the underlying economy seems too great to be plausibly explained away in this fashion.⁹⁷ This is especially true because OTC derivatives are not written on *every* asset in the global economy (e.g., housing in Russia, cars in Brazil) but instead only on a few favored underlying assets. In 2008, for example, the \$67 trillion CDS market was made up almost entirely of CDS written on certain mortgage-backed bonds and the corporate bonds of a limited number of favored issuers, such as GE. Meanwhile, the total value of *all* asset-backed and corporate bonds outstanding in the U.S. that year was only \$15 trillion.⁹⁸

A second reason to suspect that the post-CFMA derivatives market was dominated by speculation is that the market grew to \$670 trillion only after

⁹⁶ See James B. Davies et al., *Estimating the Level and Distribution of Global Household Wealth* 52–59 (Appendix VI: Population, Wealth and GDP by Country, 2000), (Working Paper #2007-5 Dec. 2007), available at http://economics.uwo.ca/centres/epri/wp2007/Davies_os.pdf (estimating world population of 608 billion and average wealth per capita of \$26,416).

⁹⁷ See also LEWIS, *supra* note 12, at 143 (suggesting that the synthetic CDO derivatives market was created because there were not enough actual mortgage-backed bonds in existence to satisfy speculators’ appetites for placing bets on the subprime mortgage market).

⁹⁸ Stout, *Regulate OTC Derivatives*, *supra* note 51, at 33. The FCIC’s investigation found many cases where banks had made derivatives bets on mortgage-backed bonds in amounts many times larger than the values of the bonds themselves. FCIC REPORT, *supra* note 1, at 145.

the CFMA gave “legal certainty” to purely speculative OTC transactions. Even before the CFMA, both the common law and the CEA recognized the legality of off-exchange “forward” contracts entered into by hedging parties who intended to settle the contract by delivering the underlying assets.⁹⁹ Thus the “legal certainty” provided by the CFMA was disproportionately important to would-be speculators. The market’s rapid growth after the CFMA’s passage accordingly provides indirect evidence that growth was due to speculators, more than hedgers, entering the market.¹⁰⁰

A third reason to suspect that speculation rather than hedging drove the OTC market was the nature of the parties who dominated the market. Corporate “end users”—such as airlines seeking to hedge fuel prices and international manufacturing firms seeking to hedge currency fluctuations—certainly did business in the rapidly expanding OTC market. Yet the bulk of post-CFMA derivatives trading was done by financial firms like hedge funds, pension funds, mutual funds, investment banks, and newly created “proprietary trading” divisions of commercial banks and insurance companies like AIG.¹⁰¹ Speculation is the basic business model of these entities. Their very purpose is to reap trading profits by “buying low and selling high.”

This reality is not always apparent from the way fund managers talk about their business. For example, a hedge fund manager might describe a derivative contract as a “hedge” against a loss in value on some other speculative investment in the manager’s portfolio. This is much the same, however, as a racetrack gambler who bets on a particular horse to win a race saying that she is “hedging” when she subsequently purchases a betting ticket for the same horse to “win/place/show” (come in first, second, or third in the race).¹⁰² Neither the racetrack gambler, nor the hedge fund manager, is truly hedging by reducing a preexisting economic risk. Rather, both are “hedging a bet” by simply passing off some of the risk they have already created for themselves through gambling or speculating to another gambler or speculator.¹⁰³

Finally, perhaps the most compelling reason to conclude that the CFMA’s legalization of speculative off-exchange derivatives trading led to a dramatic increase in the incidence of speculative trading was that the

⁹⁹ See *supra* text accompanying notes 33–34.

¹⁰⁰ See FCIC REPORT, *supra* note 1, at 50 (“The value of the underlying assets for CDS outstanding worldwide grew from \$6.4 trillion at the end of 2004 to a peak of \$58.2 trillion at the end of 2007. A significant portion was apparently speculative or naked credit default swaps.”).

¹⁰¹ Baker, *supra* note 14, at 1297 (explaining that OTC markets are “primarily the province of . . . banks and other financial institutions, insurance companies, hedge funds, other types of investment funds, and even government entities”); see also FCIC REPORT, *supra* note 1, at 50.

¹⁰² Stout, *Regulate OTC Derivatives*, *supra* note 51, at 33.

¹⁰³ *Before S. Comm. on Agric., Forestry, and Nutrition*, 111th Cong. (2009) (testimony of Prof. Lynn A. Stout), available at http://216.40.253.202/~usscanf/index.php?option=com_docman&task=doc_download&gid=93.

CFMA's passage was promptly followed by *exactly the sort of increase in risk that economic theory predicts would result from increased speculation*.¹⁰⁴ The first notable example was the collapse of Enron. Enron is remembered today mostly for its ambitious accounting fraud. The motive behind the fraud, however, was the desire of Enron's managers to hide massive losses the company suffered speculating in energy derivatives.¹⁰⁵ These derivatives losses, which eventually led to the firm's bankruptcy, were made possible by the CFMA.¹⁰⁶ (Senator Phil Gramm was one of the biggest political supporters of the CFMA; at the time of its passage, Wendy Gramm, the former CFTC Chair, had just joined Enron's board of directors.)¹⁰⁷

As both economic theory and nineteenth-century difference contract case law would predict, it was only a matter of time before other speculative traders followed Enron's disastrous path. Many of these losing speculators proved to be systemically important financial firms with deep ties to one another and to the economic system. The first major financial institution to be brought down by OTC derivatives losses was investment bank Bear Stearns. In March of 2008, Bear Stearns found itself nearly insolvent from trading losses suffered by two in-house hedge funds that speculated in mortgage-backed bonds and derivatives. Bear avoided bankruptcy only through a last-minute, government-orchestrated bailout in the form of a Federal Reserve-assisted sale to JP Morgan Chase.¹⁰⁸

On September 15, 2008, it was announced that brokerage firm Merrill Lynch had suffered the same fate, and would be sold off to Bank of America.¹⁰⁹ The same day, Lehman Brothers declared bankruptcy.¹¹⁰ In Lehman's case, the federal government made no move to intervene and try to save the company, a decision that injected still more fear into the financial sector.¹¹¹ When insurance giant AIG announced the very next day, September 16, that it had suffered multibillion dollar losses trading CDS, even a proposed federal bailout for AIG could not avert a crisis.¹¹² Banks and financial firms began refusing to lend to each other out of fear that their

¹⁰⁴ Stout, *Speculators*, *supra* note 10, at 772–73 (predicting in 1999 that expanding opportunities to speculate cheaply through derivatives would increase systemic risk).

¹⁰⁵ MARK JICKLING, THE ENRON COLLAPSE: AN OVERVIEW OF FINANCIAL ISSUES, CRS REP. RS21135, at 4 (2002) (“The core of Enron’s business appears to have been dealing in derivative contracts based on the prices of oil, gas, electricity, and other variables.”), available at <http://fpc.state.gov/documents/organization/8038.pdf>.

¹⁰⁶ The CFMA even contained a provision, dubbed the “Enron Loophole,” that insulated Enron’s “Enron Online” electronic energy derivatives trading system from being deemed an “exchange” subject to CFTC supervision and oversight. See MARK JICKLING, THE ENRON LOOPHOLE, CRS REP. RS22912 (2008), available at <http://fpc.state.gov/documents/organization/107208.pdf>.

¹⁰⁷ See David Corn, *Who Wrecked the Economy?: Foreclosure Phil*, MOTHER JONES (July/Aug. 2008), available at <http://motherjones.com/politics/2008/05/foreclosure-phil>.

¹⁰⁸ FCIC REPORT, *supra* note 1, at xxi; S. REP. NO. 111-176 at 40.

¹⁰⁹ S. REP. NO. 111-176 at 41.

¹¹⁰ *Id.*

¹¹¹ *Id.* at 43 (“When Lehman Brothers declared bankruptcy, the markets panicked . . .”).

¹¹² *Id.* at 42.

counterparty might already be insolvent due to bad derivatives bets. The Federal Reserve was forced to act as lender of last resort, injecting more than \$3.3 trillion in short-term loans and other assistance into the economy to prevent collapse.¹¹³

C. Did Derivatives Speculation “Cause” the Crisis?

Only eight years after the CFMA legalized widespread speculative OTC trading in financial derivatives in 2000, several systemically important firms embroiled in OTC derivatives suddenly imploded, leading to the most significant financial disruption our nation has suffered since the Great Depression. Similarly, after the CFTC created a “safe harbor” for OTC trading in interest-rate derivatives in 1989, Orange County’s pension fund failed in 1994 and the LTCM hedge fund unexpectedly collapsed in 1998. Correlation does not always reflect causation, however. (Although sometimes it actually does.) Moreover, while the congressionally mandated Financial Crisis Inquiry Commission recently concluded that the CFMA was an important factor in the crisis, it cited many other contributing factors.¹¹⁴ Nevertheless, at least two lines of analysis support the view that the CFMA may have been the primary cause of the Panic of 2008, in the sense that the crisis would have been smaller, more confined, and less economically destructive, and might even have been averted entirely, if the CFMA had not been passed.

First, financial crises and bubbles admittedly can arise from a variety of economic events, such as frauds, commodity price shocks, and speculation in spot markets. Such events make it apparent that financial meltdowns can occur even absent unfettered derivatives speculation. Rampant derivatives speculation, however, is still *sufficient* to trigger a crisis. Consider the example of LTCM, whose sudden and unexpected failure nearly precipitated a financial crisis as early as 1998. LTCM was a privately held hedge fund, not a publicly owned bank; LTCM was speculating on interest rates, not on home mortgages; and LTCM’s interest-rate derivative bets were not rated by any credit rating agency. Nevertheless, the prospect of LTCM’s collapse was deemed so threatening to the financial system that the Federal Reserve orchestrated a bank-led bailout.¹¹⁵

The LTCM example shows how the legalization of OTC trading in almost any type of derivative can add perilous levels of speculative risk to an economy. It may have been mere chance that in 2008 the added risk happened to materialize in the mortgage derivatives market and happened to affect primarily banks rather than other sorts of firms. But large speculative gains and losses could just as easily have materialized from unexpected

¹¹³ Hilsenrath & Rappaport, *supra* note 5, at C1.

¹¹⁴ FCIC REPORT, *supra* note 1, at xxiv, xv–xxviii.

¹¹⁵ See FCIC REPORT, *supra* note 1, at 48 (discussing testimony of Alan Greenspan that if LTCM had been allowed to collapse, it might have had systemic effects).

shocks in derivative markets based on interest rates—as with LTCM—or energy prices—as with Enron—and could easily have taken down systemically important non-bank firms.¹¹⁶ While weakened bank oversight, incompetent credit rating agencies, and unprincipled mortgage lending practices all happened to play roles in the 2008 crisis, none of those factors were necessary for a derivatives-fueled crisis to occur. Conversely, no matter how well we oversee banks, credit rating agencies, and mortgage lending, logic suggests that without adequate restraints on derivatives speculation, we can expect more crises triggered by derivatives in the future.¹¹⁷

Second, regardless of whether or not the 2008 crisis might have been avoided but for the CFMA, the CFMA is *necessary* to explain the enormous scale of the crisis. Absent derivatives, the fallout from economic shocks to a particular spot market, whether for oil, currencies, or mortgage-backed bonds, tends to be tied to the size and scope of that spot market. Unfettered speculative trading in derivatives, however, can magnify shocks in underlying markets and amplify them into risks that are many times larger than the underlying market itself. Derivatives speculation can have this effect because it is much cheaper, easier, and less capital intensive than speculating in spot markets.¹¹⁸ As a result, derivatives markets invite all and sundry to try to profit by gambling on their predictions for the future and allow them to place bets (and take on risks) that are an order of magnitude larger than the spot market itself. Derivatives allow speculators to write \$10 trillion in derivative contracts on a \$1 trillion market for mortgage bonds, just as a bookie can take in \$100,000 in bets on a horserace with a \$10,000 winner's purse.

This seems to have happened in 2008. It has been argued, for example, that the roots of the 2008 crisis lay in the American housing market and especially in lenders' decisions to extend mortgages to individuals with poor or no credit.¹¹⁹ Although there is truth in this view, the subprime mortgage market is simply too small to explain the scale of the 2008 crisis. The value of all subprime mortgages outstanding in the U.S. in 2007 was only \$1.3 trillion.¹²⁰ Even if every single one of those subprime mortgages—troubled or not—had become worthless overnight, losses would have been confined to that figure. It was the grant of “legal certainty” to OTC derivatives speculation on mortgage-backed bonds that allowed weakness in a \$1.3 trillion mortgage market to be amplified into a speculative crisis that nearly brought

¹¹⁶ AIG was not a bank, nor were Enron or Orange County's pension fund.

¹¹⁷ Similarly, imposing constraints on derivatives speculation will prevent some, but not necessarily all, future crises.

¹¹⁸ See *supra* text accompanying notes 19–21.

¹¹⁹ See, e.g., S. REP. NO. 111-176 at 11 (“This financial crisis was precipitated by the proliferation of poorly underwritten mortgages with abusive terms . . .”).

¹²⁰ *Will the Subprime Mess Ripple Through the Economy?*, ASSOCIATED PRESS (Mar. 13, 2007), available at <http://www.msnbc.msn.com/id/17584725>.

down the economy, that has already required \$3.3 trillion in government intervention,¹²¹ and that erased nearly \$11 trillion in household wealth.¹²²

In sum, although many different factors contributed to the 2008 crisis, the CFMA's legalization of OTC derivatives trading plays a key role in explaining the sheer size and scope of the disaster. Moreover, while the losses suffered by derivatives speculators in 2008 happened to be concentrated in the derivatives market for mortgage-backed bonds and happened to involve several banking institutions, speculation in other types of derivatives by other types of firms creates similar systemic risks, as illustrated by the case of LTCM. The CFMA can thus be said to have "caused" the 2008 crisis in the sense that it was both necessary and sufficient to explain the crisis.

D. The Negative Welfare Consequences of Post-CFMA Derivatives Speculation

The years following the 2008 credit crisis have been plagued by slow economic growth and high unemployment.¹²³ The 2008 crisis thus offers a distressing, but useful and certainly memorable, object lesson in the negative welfare consequences of unrestrained speculation.

As discussed in Part III, nineteenth-century case law associated speculative trading in off-exchange derivatives ("difference contracts") with specific economic ills—including, as this Article has emphasized, the danger that the hope of speculative profits would lure traders to create new risks that threatened the stability of the broader economy. Experts will likely be debating the exact role derivatives played in the 2008 crisis and the current economic slump decades from now, just as they still debate the origins of the Crash of '29 and the Great Depression. Nevertheless, actual experience with post-CFMA derivatives markets is consistent with, and reinforces, the idea that unrestrained speculative trading in derivatives outside an organized exchange can indeed increase systemic risk.

As we have seen, the rapid expansion of the OTC derivatives market after the passage of the CFMA tempted large banks, investment funds, and insurance companies to create and take on speculative risks. These risks eventually materialized into trading losses that caused the failures of several systemically important financial institutions and the near-failures of several more. In light of this experience, the claim that OTC derivatives are used mainly for hedging, and have the practical effect of reducing systemic risk, cannot be taken seriously any longer. Far from making the financial system

¹²¹ S. REP. NO. 111-176 at 43 ("Though the market for subprime mortgages was less than 1% of global assets . . . the use of unregulated derivatives products based on these . . . served to spread and magnify the risk.").

¹²² FCIC REPORT, *supra* note 1, at xv ("Nearly \$11 trillion in household wealth has vanished . . .").

¹²³ S. REP. NO. 111-176 at 39, 44.

safer and more stable, unrestrained OTC derivatives speculation nearly destroyed it.

The natural conclusion is that while derivative contracts can indeed be socially beneficial when used for hedging, when they are used instead to place speculative bets, they create risks that reduce both traders' and society's welfare. Before leaving the topic of speculation's welfare effects, however, it is worth taking time to address a potential defense of speculative trading first mentioned in Part III. This is the claim that, even if speculative trading reduces traders' net welfare by increasing average risks without increasing average returns, it remains an economically valuable activity because it provides important external social benefits in the form of more liquid markets and more accurate or "efficient" market prices.¹²⁴

In other writings, the author has examined in detail whether, and to what extent, these theoretical defenses of speculation apply in spot markets for corporate equities. As it turns out, the economic value of providing greater marginal liquidity in the spot market for equities has not been empirically established and is easily exaggerated.¹²⁵ (Does an investor who buys stocks to save for retirement or a child's college tuition really need a stock market so liquid that every share changes hands, on average, every four months?)¹²⁶ The economic benefits of more accurate ("efficient") equity prices are similarly theoretical and easily exaggerated. Unless a company is actually selling stock to raise capital for some investment, the benefits of ensuring new information gets reflected into stock prices hours or minutes faster than it would otherwise may be modest at best.¹²⁷

But the liquidity and price-discovery defenses of speculation are particularly unpersuasive when applied to OTC financial derivatives.¹²⁸ A speculative derivatives contract, it should be remembered, is a contract between two parties who do not intend to either make, or take, physical delivery of the underlying asset on which the contract is written. Someone who speculates in derivatives does not in any real sense create an inventory that provides liquidity for those who want to trade in the underlying physical asset (although she might be said to provide "liquidity" for those who seek insur-

¹²⁴ See *supra* text accompanying notes 30–31.

¹²⁵ See Lynn A. Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611, 683–88 (1995).

¹²⁶ See Leo E. Strine, Jr., *One Fundamental Corporate Governance Question We Face: Can Corporations Be Managed for the Long Term Unless Their Powerful Electorates Also Act and Think Long Term?* 66 BUS. LAW. 1, 11 (2010) (raising the question and estimating from U.S. Statistical Abstract of the United States data that annual turnover on U.S. stock exchanges now averages 311 percent).

¹²⁷ See Lynn A. Stout, *The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation*, 87 MICH. L. REV. 613, 695 (1988) (concluding that "more efficient [stock] trading markets may bring little economic benefit").

¹²⁸ See FCIC REPORT, *supra* note 1, at 146 (noting how Goldman Sachs executives testifying before FCIC admitted that synthetic CDOs were bets that "magnified overall risk" and "maintained [that] their creation had 'social utility' because it added liquidity to the market.").

ance, or for a speculating counterparty's bets).¹²⁹ Thus, it is hardly surprising that, in 2008, the liquidity that OTC derivatives markets supposedly provided to investors in mortgage-backed bonds proved to be illusory. Indeed, the 2008 credit crisis is also described as a liquidity crisis.¹³⁰

The price-discovery argument for OTC derivatives speculation is even weaker. Exchange-based trading in which multiple buyers and sellers post their bid and ask prices produces price quotations that can be made publicly available. In contrast, OTC trading involves private, bilateral agreements entered between parties with no obligation to report either the fact of their transaction, or their transaction terms, to the outside world. Thus, OTC derivatives trading typically does not provide price discovery benefits.¹³¹ Indeed, a standard criticism of the OTC derivatives market is that it lacks "transparency."¹³²

The end result is that, taken as a whole, both economic theory and painful recent experience support the claim that the public subsidization of off-exchange derivatives speculation as a result of the CFMA's granting "legal certainty" to speculative OTC contracts dramatically increased risk in the financial sector. This increased risk, in turn, has had a direct, substantial, and negative effect on social welfare. (This conclusion does not take into consideration other possible negative effects of speculation, such as the waste of valuable human capital or possible manipulation of underlying market prices.)¹³³ These negative consequences, it is important to emphasize, were not the result of changes or "innovations" in financial markets. They were the result of *changes in the law*. To prevent similar speculative crises in the future, we similarly must turn to the law for assistance.

VI. LEGAL RESPONSES TO 2008: THE PROMISE AND LIMITS OF DODD-FRANK

A. *The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010*

In the immediate wake of the 2008 credit crisis, there was widespread agreement among the Democratic lawmakers who controlled both the U.S.

¹²⁹ See *supra* note 25 (discussing speculators as liquidity dealers in spot markets).

¹³⁰ See, e.g., S. REP. NO. 111-176 at 40 ("Bear Stearns, whose assets were concentrated in mortgage-backed securities, faced a major liquidity crisis as it failed to find buyers for its now-toxic assets").

¹³¹ PWG REPORT, *supra* note 83, at 18 (noting "[OTC] markets for financial derivatives . . . are not used for price discovery"); FCIC REPORT, *supra* note 1, at 46 (in the OTC market, "price discovery is limited").

¹³² See, e.g., Baker, *supra* note 14, at 1306 ("an important problem in OTC derivatives markets is their lack of transparency"); S. REP. NO. 111-176 at 30 ("OTC contracts . . . suffer from . . . less transparency. Information on prices and quantities is opaque. This can lead to inefficient pricing . . .").

¹³³ See *supra* text accompanying notes 38–42.

Senate and the House of Representatives on the need for some legal response. Nevertheless, there remained considerable disagreement on the root causes of the crisis, which some experts pronounced unforeseeable.¹³⁴ (As noted earlier, the crisis was in fact foreseen by several specialists in derivatives regulation, including the author and CFTC Chair Brooksley Born.)¹³⁵ Disagreement over the causes of the crisis sparked disagreement about the appropriate actions to be taken. It was more than a year before Congress finally produced comprehensive legislation designed to address the financial system. This legislation, signed into law by the President on July 21, 2010, was named the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act).

The Dodd-Frank Act totals hundreds of pages and provides for a vast array of new rules, regulations, and congressionally ordered studies intended to prevent the financial system from reliving the events of Fall 2008.¹³⁶ For example, on the theory that loose and fraudulent mortgage lending practices led to weaknesses in the subprime mortgage market, Title XIV of the Act (the Mortgage Reform and Antipredatory Lending Act) imposes additional disclosure requirements and standards on home loan lenders,¹³⁷ and Title X calls for the creation of a new Bureau of Consumer Financial Protection that would also oversee mortgage lending.¹³⁸ In the remarkably optimistic hope that U.S. Treasury employees will be able to foresee and prevent future crises, Title I (the Financial Stability Act) creates two new agencies within the Treasury Department, the Financial Stability Oversight Council and the Office of Financial Research, and gives them the quixotic task of identifying and responding to new risks that might emerge in the financial system.¹³⁹ Because AIG was an insurance company, Title V creates a new federal “Insurance Office” to monitor the insurance industry for systemic risk.¹⁴⁰ (Insurance regulation is typically a matter of state law, and, while state law may be imperfect, it does not appear to have played any role in the crisis; AIG’s derivatives trading losses were not suffered in its state-regulated insurance operations but in a special offshore subsidiary called the Financial Products Division.)¹⁴¹

¹³⁴ LEWIS, *supra* note 12, at 226 (quoting 2008 testimony of Standard & Poor’s President Devon Sharma that “[v]irtually no one—be they homeowners, financial institutions, rating agencies, regulators, or investors—anticipated what is occurring”); *see also* Baker, *supra* note 14, at 1292 (noting that the “financial crisis took most economists by surprise”); FCIC REPORT, *supra* note 1, at 3 (noting that “few foresaw the crisis”).

¹³⁵ *See supra* text accompanying notes 10, 78.

¹³⁶ *See generally* Dodd-Frank Act.

¹³⁷ *Id.* §§ 1400–1498.

¹³⁸ *Id.* §§ 1001–1100H.

¹³⁹ *Id.* §§ 101–176. Given that both the U.S. Treasury and the Federal Reserve failed to identify the risks in the system that led to the 2008 crisis, Title I of the Dodd-Frank Act appears to evidence a triumph of hope over experience.

¹⁴⁰ *Id.* §§ 501–592.

¹⁴¹ *See* FCIC REPORT, *supra* note 1, at 140 (discussing role of Financial Products Division).

The Dodd-Frank Act has been subject to widespread criticism for its length and complexity, for increasing the number and expanding the power of regulatory agencies, and for providing an opportunity for shareholder activists to push through controversial and long-frustrated policy proposals largely unrelated to the 2008 crisis. (For example, Title IX of the Act imposes several “investor protection” provisions on all U.S. public companies, even though there is little or no evidence that lack of shareholder or SEC power contributed to the credit crisis, which was largely confined to the financial sector.)¹⁴²

Nevertheless, the Congress that enacted Dodd-Frank clearly recognized that the OTC derivatives market had played a critical, if poorly understood, role in causing the crisis.¹⁴³ Thus Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (referred to here as Title VII) deals directly with the thorny problem of what to do about OTC derivatives speculation.

B. Dodd-Frank Provisions on OTC Derivatives

Like the rest of Dodd-Frank, Title VII is long, technical, and difficult even for an experienced regulatory lawyer to decipher. Nevertheless, the basic strategy that Title VII adopts to “reform” the derivatives markets is easy to understand. In brief, like the original CEA and the common law rule against difference contracts, Title VII permits and protects OTC trading in derivatives for hedging purposes, while simultaneously working to confine speculative trading to the modern equivalent of a privately organized commodity futures exchange. In effect, Title VII—which becomes effective 360 days after Dodd-Frank’s passage—seeks to turn back the regulatory clock by reversing the CFMA’s 2000 grant of “legal certainty” to speculative OTC derivatives.¹⁴⁴

This turning back of the regulatory clock is accomplished primarily through Subtitle A of Title VII, entitled Regulation of Over-the-Counter Swaps Markets. (As the definition provided in Section 721(a)(2) of Title VII makes clear, “swap” is only another label for a derivative, just as “difference contracts” and “off-exchange futures” were once favored syno-

¹⁴² See S. REP. NO. 111-176 at 35–38 (describing “investor protection” provisions included in Act because “[i]n connection with the crisis, concerns have also been raised that investors need more protection”).

¹⁴³ *Id.* at 43.

¹⁴⁴ Title VII also contains the “Volcker Rule,” which partially reverses another statute passed by Congress around the same time as the CFMA (the Gramm-Leech-Bliley Act of 1999) that increased speculative trading by commercial banks by eliminating Depression-era prohibitions on banks engaging in speculative trading for their own accounts. See *id.* at 8 (describing Volcker rule). Although the Volcker rule, which reinstates a limited ban on speculative proprietary trading by banks, is not the focus of this Article, its passage will also likely reduce systemic risk from speculative derivatives trading.

nyms.)¹⁴⁵ The most critical part of Subtitle A is Section 723(a)(2), which imposes a “clearing requirement” on all speculative financial derivative contracts. The clearing requirement is the functional equivalent of the old CEA requirement that speculative commodity futures be traded only on organized exchanges.¹⁴⁶

In particular, Section 723(a) amends the CEA to add the provision that “[i]t shall be unlawful for any person to engage in a swap unless that person submits such swap for clearing to a derivatives clearing organization that is registered under this Act.”¹⁴⁷ Sections 721, 723(a), and 725(c) of Title VII then make clear that, to be registered with the CFTC as a “derivatives clearing organization” (DCO), an organization must either be a recognized futures exchange or perform the same sorts of trade-guarantee and private-enforcement functions that have been performed by exchanges since the nineteenth century.¹⁴⁸ These enforcement functions include: assuming liability for performing the trade, setting membership eligibility and capital requirements, requiring that traders post collateral (“margin”) to ensure performance, making daily settlements of contracts, and setting standards for accepting contracts for trading.¹⁴⁹ Thus, like the original CEA and the common law against difference contracts, Title VII creates a legal barrier to the public enforcement of financial derivative contracts that are not also enforced privately by an exchange or other “clearing organization.”

Also like the old CEA and the common law, Title VII provides an exemption from the clearing requirement if one of the two parties to the swap “is using swaps to hedge or mitigate commercial risk.”¹⁵⁰ Title VII leaves it to the CFTC to define “commercial risk.”¹⁵¹ However, Title VII also sends a clear signal that Congress did not consider the use of derivative contracts to offset financial risks from other speculative investments to be true hedging worthy of legal sanction. Section 723 flatly states that “financial entities” cannot rely on the “commercial risk” hedging exemption to escape the clearing requirement.¹⁵²

Thus, just as the CFMA worked a major if largely unnoticed change in the legal rules underlying the derivatives market, Title VII of the Dodd-Frank Act performs a remarkable legislative about-face and restores the same sort of legal infrastructure that has been used to regulate derivatives trading in the U.S. for most of the last two centuries. Hedging transactions remain both legal and legally enforceable on the OTC markets. Purely spec-

¹⁴⁵ Dodd-Frank Act § 721(a)(2); *see also* Baker, *supra* note 14, at 1297 (noting that OTC derivatives are often generically called swaps).

¹⁴⁶ Dodd-Frank Act § 723(a)(2).

¹⁴⁷ *Id.*

¹⁴⁸ *Id.* §§ 721, 723(a), 725(c).

¹⁴⁹ *Id.*

¹⁵⁰ *Id.* § 723(a).

¹⁵¹ *Id.* § 721(b).

¹⁵² *Id.* § 723(a).

ulative trading in derivatives, however, is confined to clearinghouses that perform the contract-guarantee and systemic risk-reducing functions of nineteenth-century private exchanges.

C. Limitations of and Potential Loopholes in Dodd-Frank

Perhaps the story ends here, in the sense that Title VII of Dodd-Frank will largely succeed in the coming decades in preventing derivatives trading from creating dangerous systemic risks, just as the CEA and the common law rule against difference contracts largely succeeded. But optimism should be combined with realism. From a realist's perspective, certain aspects of Title VII raise concerns about the statute's long-term effectiveness in constraining risky derivatives speculation.

Interestingly, one frequently cited concern that we probably do not have to worry about is the possibility that Title VII will simply drive U.S. financial institutions to do their risky OTC derivatives trading offshore, in nations with more lax regulations. This evasive strategy would not have defeated the old common law rule against speculative difference contracts: under U.S. choice-of-law rules, speculative difference contracts could not be enforced against a party located in a state that viewed the contracts as unenforceable due to public policy, no matter where the contract was entered or what choice-of-law provisions it might contain.¹⁵³ (There is little point to negotiating a gambling contract with someone who retains the legal option to repudiate the contract if they don't win the bet.)¹⁵⁴ Title VII of Dodd-Frank adopts a similar strategy by providing in Section 722 that the statute applies to swaps-related activities outside the United States if those activities "have a direct and significant connection with activities in, or effect on, the commerce of the United States."¹⁵⁵ Like the common law rule, this strategy would discourage offshore counterparties from seeking to engage U.S. institutions in speculative OTC trading elsewhere.

The more significant concern regarding Dodd-Frank's ultimate effectiveness at reining in OTC speculation arises from the fact that Title VII grants the CFTC authority to weaken the clearing requirement or, in some cases, to eliminate it entirely. For example, Title VII leaves it to the CFTC to define "commercial risk" and so determine, to some extent, the scope of the hedging exemption. Title VII also grants the CFTC the legal authority to determine which organizations are qualified as DCOs suitable for perform-

¹⁵³ See RESTATEMENT (SECOND) OF CONFLICT OF LAWS §§ 187, 188 (2010) (dealing with choice of law for contracts).

¹⁵⁴ A derivatives speculator worried that his counterparty might renege could try to employ private enforcement techniques, like requiring the counterparty to post significant collateral. This strategy, however, increases the cost (and diminishes the appeal) of using derivatives for speculation.

¹⁵⁵ Dodd-Frank Act § 722(d).

ing derivatives-clearing functions.¹⁵⁶ Finally, Title VII permits the CFTC to exempt whole classes of admittedly speculative derivatives transactions from the mandatory clearing requirement. In particular, Section 723 provides that, after review, the CFTC may “determine that the clearing requirement . . . shall not apply to [a particular] swap, or group, category, type, or class of swaps.”¹⁵⁷

The ultimate success of Dodd-Frank’s derivatives clearing requirement as a strategy for reducing systemic risk accordingly depends, to a very great extent, on the professionalism, effectiveness, and political savvy of a small public agency.¹⁵⁸ This agency, moreover, must confront an enormously powerful coalition comprised of Wall Street investment banks, commercial banks, hedge funds, and investment funds,¹⁵⁹ all of which either have made, or hope to make, billions of dollars trading OTC derivatives.¹⁶⁰ It has been reported that from 1998 to 2008, financial firms made an estimated \$1.7 billion in political contributions and spent another \$3.4 billion on lobbying.¹⁶¹ Trying to hold the regulatory line against such a well-heeled interest group will be challenging, to put it mildly. Let us hope the CFTC proves up to the task.

VII. CONCLUSION

Philosopher George Santayana supposedly said that those who do not remember the past are condemned to repeat it. This Article has tried to remind us of the history of derivatives regulation and has argued that studying that history is essential to avoiding a repeat of the disastrous credit crisis of Fall 2008.

Some might object that it has not been empirically proven that the CFMA’s revolutionary grant of “legal certainty” to speculative OTC deriva-

¹⁵⁶ *Id.* § 725.

¹⁵⁷ *Id.* § 723(a). Similarly, Title VII grants the Treasury Department the authority to determine that foreign-currency based swaps should not be regulated under the Act. *Id.* § 721.

¹⁵⁸ For example, although Section 723 requires that all swaps (derivatives) must be submitted for clearing to a clearing organization, it does not address the possibility that a clearing organization might find it unattractive to try to clear highly customized or “bespoke” derivative contracts that are unique to the parties involved. Some in the derivatives industry accordingly may choose to create customized derivatives in the hope of escaping the clearing requirement. This strategy, if successful, would seriously threaten the effectiveness of the exchange clearing requirement. (AIG’s derivatives bets, for example, were “customized.” Baker, *supra* note 14, at 1290 & n.12.) Although Section 723 gives the CFTC power to “take such actions as the Commission determines to be necessary” if no clearinghouse accepts a derivative contract for clearing, substantial industry pushback and pressure on the CFTC to widen the customized derivative loophole can be anticipated.

¹⁵⁹ See generally Asjylyn Loder & Phil Mattingly, *Under Siege at the CFTC*, BLOOMBERG BUSINESSWEEK, Oct. 18, 2010, at 39.

¹⁶⁰ See FCIC REPORT, *supra* note 1, at 50 (noting that Goldman Sachs estimated that derivatives generated 25 to 35 percent of its revenues from 2006 through 2009).

¹⁶¹ Baker, *supra* note 14, at 1311.

tives directly caused the crisis.¹⁶² As Karl Popper and other philosophers of science have pointed out, this objection is a red herring because it is impossible to “prove” anything.¹⁶³ Rather, our knowledge of the world advances through the formulation of hypotheses that either are subsequently falsified by contrary empirical evidence (in which case the hypothesis should be rejected) or persist as plausible models of reality.¹⁶⁴ This Article has advanced the hypothesis that the 2000 CFMA directly caused the 2008 credit crisis. The hypothesis is consistent with the evidence, including the timing, scope, and facts of the crisis as it actually unfolded. No empirical evidence refutes the hypothesis. We would therefore be wise to accept it as a plausible model of reality. Conversely, the hypotheses that legalizing OTC derivatives trading reduced systemic risk, or provided significant liquidity benefits, should be rejected as at best wishful thinking.¹⁶⁵

There is, however, another and deeper lesson to be learned from the 2008 crisis. That lesson is that law matters. All significant markets, including financial markets, must be built on some underlying legal infrastructure. (A completely “free” market without laws is a Hobbesian world where the strong and fast seize what they want from the weak and slow.) Without a deep understanding of the nature and importance of the legal rules that organize financial markets it is impossible either to understand the markets, or to predict their behavior.

This reality poses a challenge for those who seek quick or simple “silver bullet” solutions to problems in the financial sector, because the task of understanding the complex laws of financial regulation is best suited to legal specialists—not to economists, journalists, or populist politicians, who may miss important details that a lawyer would spot.¹⁶⁶ It is no coincidence that the members of the President’s Working Group who praised OTC derivatives as valuable innovations were economists and bureaucrats without legal training, while the most prominent pre-crisis advocate for regulating the OTC market was Brooksley Born, a lawyer. This does not mean that the job is easy, even for experienced and skilled legal experts. The Dodd-Frank Act has been criticized not only for falling short in addressing the problem of

¹⁶² See, e.g., Editorial, *Derivatives Rules on ICE*, WALL ST. J., Jan. 7, 2011, at A12 (disputing that derivatives markets were a root cause of the financial crisis).

¹⁶³ See generally KARL POPPER, *THE LOGIC OF SCIENTIFIC DISCOVERY* (1934); THOMAS KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* (1970).

¹⁶⁴ See generally POPPER, *supra* note 163; KUHN, *supra* note 163.

¹⁶⁵ See JOHN QUIGGEN, *ZOMBIE ECONOMICS: HOW DEAD IDEAS STILL WALK AMONG US* (2011) (referring to economic ideas that persist this way despite contrary empirical evidence as “zombie ideas”).

¹⁶⁶ Baker, *supra* note 14, at 1330 (detailing how derivatives speculation was further encouraged by bankruptcy law rules that granted OTC derivatives a “privileged status”); see generally Partnoy & Skeel, *supra* note 16, at 1048–50 (discussing favorable treatment of derivative contracts in bankruptcy); FCIC REPORT, *supra* note 1, at 48 (same).

“too big to fail,” but for being itself “too big to read.”¹⁶⁷ Nevertheless, to truly understand how markets work—and how they fail—there is no safe substitute for a full comprehension of the complex legal armatures on which markets are constructed.

¹⁶⁷ Glen Hubbard, *Financial reform fails on ‘too big to fail,’* NPR (May 24, 2010), <http://marketplace.publicradio.org/display/web/2010/05/24/pm-financial-reform-bill-too-big-to-fail-hubbard-commentary/>.