

# Bankruptcy Rules for Derivatives: How Have They Changed and Why Do They Matter?<sup>1</sup>

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There were many causes of the 2008 financial crisis. The behavior of mortgage brokers, home buyers, ratings agencies, banks, and regulators all contributed to the problem. This paper focuses on how changes in bankruptcy rules made in the Commodity Futures Modernization Act of 2000 (CFMA) contributed to the behavior that has been blamed for the crisis.

The CMFA made a change in bankruptcy law for derivatives that contributed to crises at Enron and WorldCom. It made it profitable for banks to create and trade the collateralized debt obligations (CDO) and the credit default swaps (CDS) that exploded in use between 2004 and 2008. These instruments, which derived their value from subprime mortgages, fell sharply in price during 2008 and were the immediate cause of the insolvencies at Bear Stearns and Lehman Brothers.

This paper reviews the history of bankruptcy rules for OTC derivatives, describes how the CFMA changed the rules in 2000, and discusses eight issues in the debate about the treatment of OTC derivatives in bankruptcy.

## **A Brief History of Bankruptcy Rules for Derivatives<sup>2</sup>**

Until 1922, with the passage of the Grain Futures Act, the treatment of derivative claims in bankruptcy was determined by common law. According to common law, derivative contracts were not enforceable by the courts unless it could be proven that one side or the other was using the trade to hedge fundamental risk in its commercial business. The common law did not prohibit OTC trading in derivatives; it merely said that this activity would not be subsidized by the courts.

In 1922 The Grain Futures Act went one step beyond common law. It explicitly prohibited over-the-counter (OTC) trading. Furthermore, although grain futures could trade on organized exchanges, such trading was limited to grains that were specifically named in the law. This legislation was reenacted as the Commodity Exchange Act of 1936 (CEA). It continued to prohibit OTC trading in derivatives, replaced the word ‘grains’ with ‘commodities’ and listed an expanded set of commodities that were allowed to be traded on exchanges. The focus of the law was on preventing market manipulation. It also created a Commodity Exchange Commission to oversee the implementation of rules that would be enforced by the U.S. Department of Agriculture.

Between 1936 and 1973, there were 24 modifications to the law, expanding the list of commodities that were allowed to be traded on exchanges and determining the parameters of limits to individual trader positions and margin requirements. In 1974, Congress created the Commodity Futures Trading Commission (CFTC) to regulate the trading of futures and options on organized exchanges.

With the collapse of the Bretton Woods agreements on fixed exchange rates and the acceleration of inflation at different rates in major developed economies, the uncertainty in foreign exchange and interest rates created an increased demand for hedging. Advances in information technology and option pricing theory led to a decline in the cost of hedging and a rapid growth in the use of futures and options contracts.

In the early 1980s, the market for bond derivatives began to grow rapidly spurred by the development of the mortgage backed securities (MBS) at Salomon Brothers and junk bonds at Drexel Burnham Lambert. The market for short-term secured lending in the form of repurchase agreements (repos) also began to grow as the less-regulated shadow banks evolved to compete with commercial banks. Commercial banks were restricted from owning or operating most nonfinancial businesses. They were allowed to make commercial and industrial loans, but were not allowed to participate in the investment banking business. Mixing investment and commercial banking had been prohibited by the Glass-Steagall Act of 1935. Further, banks were constrained by interstate banking restrictions, capital requirements, and the more onerous oversight that came with being part of the nation's payment system. Access to the payment system gave banks a competitive edge in raising funds through the issue of deposits. But this advantage was mitigated by reserve requirements and deposit insurance premiums. Because they could not offer deposits, shadow banks raised funds through repos.

In 1982, there were two failures of government securities dealers, Drysdale Securities and Lombard Wall. In both cases, the firms had large portfolios of repos that complicated clearing in the payment system. The Federal Reserve argued at the time that overnight repos involving secure Treasury debt should be terminated and paid immediately to help clear up the tangled web of interconnected claims by various counterparties to the defaulting firms. Fed Chairman Paul Volcker argued that the automatic stay imposed by the bankruptcy code in Chapter 11 had seriously delayed and complicated the resolution of these two crises.

The automatic stay is meant to prevent creditors from seizing collateral or pursuing debt claims in court so that the bankrupt firm can continue to operate during the bankruptcy resolution. The main reason for the stay is the belief that most firms were worth more as ongoing concerns than when broken up into pieces during liquidation. The goal is to maximize the value that will be available to the creditors. The stay gave the bankruptcy court time to review the seniority of claims and allocate the funds following the bankruptcy code priority rules and precedents set in previous court decisions. But this delay caused by the stay severely complicates the regulator's problem in clearing a payment system that is clogged by an insolvent financial firm with a large derivative portfolio.

Banks are not subject to the bankruptcy code, but rather to the regulatory procedures used by the FDIC in resolving bank resolutions (bailouts or closures). In the 1980s regulators gave legal certainty to overnight repos. This gives them special status in bankruptcy, essentially putting them at the head of the line of creditors. In the jargon of the FDIC, contracts with legal certainty were defined as Qualified Financial Contracts. In the industry this status is sometimes referred to as safe harbor status. The primary reason for giving repos legal certainty was to simplify the regulators' problems in working through a financial firm failure.

The financial industry lobbied Congress to make the bankruptcy code consistent with regulatory practice. The Congress granted the industry's request with the Futures Trading Practices Act of 1992 (FTPA). It exempted overnight repos in Treasury debt from CEA prohibition against OTC trading and it overrode state laws that prohibited OTC trading of interest rate swaps.

Within two years of the passage of this act there were two minor financial crises associated with the increased use of interest rate swaps. In 1994, Proctor & Gamble Co suffered a \$157 million trading loss speculating on interest rates through derivatives. Also that year, Orange County's pension fund lost \$2.5 billion speculating on interest rates with derivatives.<sup>3</sup> Four years later, in 1998 Long Term Capital Management (LTCM) faced bankruptcy funding long-term sovereign debt with short-term repos. Notice though, that these three financial crises involving short-term interest rate swaps did not bring down the macro economy.

During the 1990s, economists were writing about derivatives. Seims (1997) describes derivatives and how they can be used to hedge risk. Dybvig and Marshall (1997) describe three uses of derivatives which they call the good, the bad, and the ugly. The good is using derivatives to hedge risk. The bad is hedging too much, especially hedging by subsidiaries of larger firms that were acquired or developed because they were naturally hedged with other parts of the larger firm. To eliminate the bad, they recommend that all derivative trading should be done under the direct supervision of the CEO office. The ugly was using derivatives to gain leverage and take risks. They downplayed this outcome. Although there were some dramatic failures of individual firms brought down by rogue traders, there were no recent examples of systemic crises caused by such ugly behavior. Dybvig, Liang, and Marshall (2013) update the earlier article in light of the role that the ugly played in the financial crisis citing examples and changes in accounting rules.

In 1986, the Thatcher government had granted a type of legal certainty to OTC derivatives traded in London with the explicit goal of making London the derivative trading capital of the world. During the late 1990s, there was intense lobbying by large financial firms to change the bankruptcy rules in the United States. U.S. based firms who were broker/dealers in OTC derivatives wanted to level the playing field. Alan Greenspan as the Federal Reserve Chairman and Robert Rubin and Lawrence Summers from the Treasury all sided with the industry. The CFMA was passed with Section III giving legal certainty to almost all types of OTC derivatives by eligible participants.

### **CFMA of 2000: Section III. Legal Certainty**

As we noted earlier, there have been many changes in the rules for derivative trading, usually of the sort that would provide a specific type of product with an exemption from the CEA's prohibition against OTC trading. Although the CFMA of 2000 was hardly noticed by academics or the popular press, it was an uncharacteristically sweeping change in rules for almost all OTC derivatives. The law not only made trading OTC legally enforceable by the courts, which would have been a big change in itself, but, more importantly, it gave OTC derivatives legal certainty.

Overnight repos were already legally certain following rules that changed in the 1980s and 1990s. However, longer-term repos and other risk transferring derivatives were not legally certain. Rules before 2000 were confusing even to experts, resulting in costly litigation and putting a damper on OTC trading. Section III extended legally certainty to almost all derivatives and almost all financial market participants.

### **Legal Certainty**

Contracts with so-called ‘Safe Harbor’ status and ‘Qualified Financial Contracts’ refer to securities that are legally certain; that is they are:

Exempt from Chapter 11 bankruptcy provisions stays;

Eligible for closeout and netting at moment of filing for bankruptcy (or even before bankruptcy is declared depending on provisions in the ISDA master agreement); and

Exempt from eve of bankruptcy rules including the presumption of fraudulence.

*Exempt from Chapter 11 Stay.* The Bankruptcy Code has priority rules, but derivatives are not covered by priority rules. Chapter 11 implements a stay on creditors which prevents them from collecting debts immediately. The stay allows firms to stay in business while they reorganize. The stay also allows a judge to decide how to allocate the scarce assets among the different classes of creditors, depending on their priority status. Exemption from the stay effectively makes derivative claims prior to all other creditor claims. The term super-priority has been used to describe this status.

*Closeout and Netting.* The right to close out gives the counterparty to a failing firm the right to terminate the contract and claim the collateral. Bergman et al. (2004) provide a history of the law on netting. The paper includes a detailed description of the ISDA netting agreement and discusses several issues that we raise here. Most of the legal history is about the netting of payments between a bankrupt firm and one counterparty in non-derivative transactions. The U.S. courts generally supported that idea that cross payments between 2 parties could be netted, but this legal history mostly covers the era during which OTC trading was prohibited. Also, the netting privilege does not exempt a failing firm from the eve of bankruptcy laws. A firm could not arbitrarily chose which customers to pay before declaring bankruptcy.

It is the closeout provision that causes runs. Even before bankruptcy, the master agreement can stipulate thresholds that will trigger a closeout or termination of the contract. For example, an event that causes a default can allow counterparties to terminate open derivative contracts. The threshold can be a price change that requires more collateral to be posted. In the case of credit default swaps it can be a change in a credit rating. That is, when stipulated thresholds are met according to master agreement terms, the holder of the derivative can terminate the contract and claim the collateral. In a crisis situation, especially in the OTC market, the opaqueness of the market lends itself to fire sales that can cause more terminations to spread across the market.

All contracts between two parties are covered by a single master agreement with a common set of terms for closeout and netting. However firms may have multiple subsidiaries that trade derivatives and each of them will have their own netting arrangement with a given counterparty. Fleming (2014) describes the 7 subsidiaries of Lehman Brothers Holdings Inc. that each had separate master agreements with some of the same counterparties.

Bolton and Oehmke (2014) ask whether legal certainty for derivatives makes hedging more efficient. They use a partial equilibrium model of one firm with both derivative and other creditors. They ask whether default risk is more efficiently borne by the derivative dealer/brokers or by other creditors. They examine whether the lower cost of hedging with seniority for derivatives outweighs the costs imposed by this seniority. In their analysis, the desirability of seniority for derivatives depends on the interplay of three factors. First, once the firm has issued its debt it is (ex post) optimal to hedge default risk with a derivative that is senior to existing debt. Second, if the hedging is public information, other creditors will charge more for loans. In their model, seniority for derivatives is expected to increase spreads and reduce longer term debt. Firms may use derivatives to dilute the value of existing bonds. Third, there may be cross-netting benefits to derivative writers with multiple customers even when there is no gain from the special treatment of derivatives at the individual firm level. This effect depends on the correlation in the risks among the derivatives. If the risks are idiosyncratic, then there may be net benefits. But this analysis is not complete. The authors do not consider that derivative writers might use OTC contracts to increase leverage and take risks that are partially borne by taxpayers and they do not address eve of bankruptcy issues.

Aug and Sundaresany (2015) extend the work of Bolton and Oehmke (2014) by deriving the optimal capital structure of the borrowing firm. They show that, in the presence of seniority for derivatives, firms will hold more short-term debt (borrowed using derivatives) and they will collateralize it with less liquid collateral than they would in the absence of the seniority for derivatives. They do not consider the general equilibrium effect on counterparty behavior, and, like Bolton and Oehmke, they do not consider issues involving government guarantees and eve of bankruptcy trading.

*Eve of Bankruptcy Trades.* According to the bankruptcy code, for most trades within the past 90 days there is rebuttable presumption of a fraudulent transfer. One can rebut the presumption by establishing a contemporaneous exchange of new value (not a new transfer of collateral to secure an old debt). It is presumed by the court that such trades are fraudulent, made to transfer assets to friends or for the special interest of the firm's managers. The code also tries to stop the firm from using good assets to gamble its way back to solvency, knowing that such bets are likely to cause further losses.

Legal certainty gives OTC derivative trades an exemption from the rule on eve of bankruptcy trading. There is no presumption of fraud in the case of derivatives as there is in all other credit transactions made on the eve of bankruptcy. Instead, fraudulent behavior may be prosecuted after the fact, but the contracts will be cleared ignoring the timing of the deals. Also, in the case of fraud per se, e.g., a Ponzi scheme, the bankruptcy trustee can "avoid" (set aside) transfers up to one year before the date of filing of the bankruptcy petition.

## **The Growth in Derivative Trading**

CFMA was a sweeping law that brought clarification and broad coverage for most existing derivative transactions. As in previous legislation, the exemption from CEA trading restrictions and the Chapter 11 stay in the bankruptcy code was applied to named contracts and participants. As the banking system developed new vehicles to trade risk in subprime mortgages and credit default swaps, the Congress passed The Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 that made derivatives based on mortgage derivatives legally certain. The Financial Netting Improvements Act of 2006 further expanded the scope for netting. These two pieces of legislation solved an important problem for the industry. As the industry developed new products, their status would be uncertain until the courts decided on them or the Congress gave them legal certainty. Both pieces of legislation gave the International Security Dealers Association (ISDA) master agreement legal standing to define what would be legally certain and to define the terms for closeout and netting in each bilateral agreement.

Legal certainty for repos caused an explosion in the use of repos to fund the growth in shadow banking. Boyle and Boyle (2000) and Pirrong (2002) document what they call explosive growth in derivatives between 1980 and 2000. However, that growth appears tepid when compared with the growth that followed the passage of the CFMA of 2000. Roe (2011, figure on page 577) shows that repos grew as fast as financial sector debt between 1980 and 2000, but much more rapidly after 2000. Basu and Gavin (2011) discuss some reasons why commodity derivatives grew so rapidly between 2000 and 2008. They missed what I now think is the fundamental cause of rapid derivative growth after 2000, which is the special status that derivatives have in bankruptcy after 2000.

Figure 1 shows the level of overnight repos held by the primary dealers between July 2001 and October 2013. Between 2001 and the peak in September 2008, overnight repos grew at an annual rate of 16 percent. Figure 2 shows the ratio outstanding notional derivative contracts to nominal GDP at the large banks around the world. The ratio rose from under 10 in 2000 to 45 by 2008. We get a similar pattern if we look at market value of money at risk rather than notional contracts, but, of course, the scale will be smaller. We use U.S. GDP, but the pattern is similar if we use world GDP. The point is that this growth was truly explosive. Also note in Figure 2 that the BIS did not begin to collect data on credit default swaps until after 2003 because such contracts were relatively rare before then.

## **Issues involving legal certainty**

The debate about legal certainty for derivatives has been going on at least since the 1980s when regulators had to sort out the complex interconnections of claims created by repos when a financial firm failed. Note that overnight repos were basically secured loans made at fixed interest rates. They could be used to take risks, but initially the time was short and the underlying asset was U.S. government debt. It was a big step to adopt legal certainty for these derivatives, which was also extended to interest rate swaps. But it was a much bigger step to give legal certainty to all OTC derivatives. The main proponents of legal certainty were industry

broker dealers trading in OTC derivatives and the regulators that worried about risks to the payment system when a big player became insolvent. The main opponents of the CFMA before the financial crisis were lawyers. In this section, we summarize the arguments made by legal, economic and finance experts for and against making derivatives legally certain. The issues include

1. Contagion
2. Crisis Resolution
3. Viability of Market for OTC Derivatives
4. Economic Efficiency
5. Liquidity
6. Moral Hazard (Behavior response in general equilibrium)
7. Speculation
8. Theoretical Analysis (What do models say?)
- 9.

### **1. Contagion**

Fed Chairman Alan Greenspan argued that legal certainty is needed to prevent contagion in the event of a bankruptcy by a firm with open ‘out of the money’ derivative contracts. His position reflected the Fed’s focus on what happens when a big bank cannot meet its obligations on the payment system at the end of a day. He worried that if one big firm (like a Bear Stearns or a Lehman Brothers) fails and they have many debts to OTC derivative counterparties, then that failure may set off a domino effect in which the failure of one big bank is spread to other big banks and throughout global financial markets. He argued for legal certainty to prevent just the sort of crisis that actually occurred in September 2008.

Edwards and Morrison (2005) explain why this reasoning is wrong. They use the failure at LTCM to show that legal certainty has exactly the opposite effect. LTCM had been very successful betting on price spreads of long-term assets that were expected to converge in the long run. The profits from this type of arbitrage were very small. To earn large profits required very high leverage. One way the LTCM increased leverage was to borrow money through repos using assets as collateral. The Asian financial crisis in 1997 and the Russian bond default in 1998 caused declines in bond prices that led to large declines in the value of collateral issued by LTCM.

By August LTCM was nearly bankrupt and firms that held collateral based on repos made in the United States (where repos were legally certain) wanted to closeout positions and claim collateral. U.S. regulators feared that a collapse of LTCM could cause significant problems at other large financial institutions, many of whom had made term loans with maturities as long as 6 months. To prevent a run on LTCM collateral, the New York Fed arranged a meeting of 16 of the largest counterparties in which the Fed asked the counterparties to share information and share the losses that would be expected if LTCM filed bankruptcy.

This ‘bailout’ resembles the bankruptcy stay, in the sense that the creditors did not claim collateral, but shared the losses much as would happen in bankruptcy proceedings. Of course it

happened in a matter of days rather than months. But it was the legal certainty of repos that set off the fears of a run and fire sales of the assets used by LTCM as collateral. Antinolfi et al. (2015) analyze the effect of the exception from bankruptcy stay on the derivative market. They conclude that it helps the creditors who hold collateral, increases the size of the market by enhancing the liquidity of collateral, but can also lead to runs and fire sales that damage the real economy.

Legal certainty also contributes to runs by making it easier for the borrowing firm to do repo transactions even after it begins to have financial problems. Lending firms will feel safer lending through derivatives that have legal certainty. The other creditors probably will not be able to see the collateral that has been pledged until it is too late. Without legal certainty, the big banks would have been more careful in lending to LTCM (and later to Enron and WorldCom).

The run on LTCM occurred partly because repos had been given legal certainty. Obviously, there were many flaws in LTCM risk management strategy as documented by Jorion (2000). But the ability to borrow money through safe harbor repos concealed some of the bad management strategy from the market and encouraged more money to flow into LTCM for too long. This crisis occurred before the passage of the CFMA in 2000. Ironically, it was partly due to this experience in managing the complex resolution of LTCM debts that led Greenspan and others to support Section III of the CFMA.<sup>4</sup>

## **2. Crisis resolution**

When a bank realizes that it may fail, it is required to warn regulators of the possibility. If regulators have not been alerted by the failing bank beforehand, then the failure will become evident at the end of a business day when the firm fails to meet its payment system obligations. When it does so, the Fed will step in as the lender of last resort and the FDIC will step in as the resolution authority for deciding whether it is cheaper for the insurance fund to close the bank and pay off the depositors or to put in sufficient funds to make the failing bank an attractive candidate for acquisition by a competing bank (as the FDIC, Fed, and Treasury arranged in the purchase of Bear Stearns by JPM Chase). History is replete with big firms that have failed at the end of day, but rarely are they associated with major financial crises that lead to major economic decline. Significant examples include Drysdale Securities, Lombard Wall, Continental Illinois, and Bear Stearns.

The FDIC and the Fed both supported legal certainty for derivatives because it would make the resolution of a crisis less complicated. In the absence of the exemption from the stay in the bankruptcy code, derivative contracts would get tied up in long, drawn out Chapter 11 proceedings. Even with the potential for safe harbor status, some Lehman derivatives had not cleared after 4 years. This is mostly due to the fact that in many of the master agreements, the counterparties did not insist on safe harbor status or they made a contract outside U.S. jurisdiction. Fleming (2014) tells the story of the amazingly complicated resolution problem posed by Lehman. One can see why regulators believe that such institutions are too big to fail (TBTF).

Volcker argued that in a bankruptcy the automatic stay on derivatives could cause a systemic liquidity crisis. Mehle, writing for the U.S. Treasury disagreed with Volcker:

“[P]arties [to repurchase agreements] do not merit better treatment under the Bankruptcy Code than any other party making a secured loan. . . . [T]he perception of increased risk in the [repo] market is healthy, because it forces more responsibility in [repo] transactions by causing lenders to securities dealers to evaluate the financial condition of their borrowers, as creditors must . . . in every other type of secured lending transaction. There is absolutely no likelihood of a government securities market breakdown from the effect of this discipline, as some have suggested, but rather an improvement in practices which will tend to prevent debacles . . . .

. . . [W]e [at Treasury] do not support legislation to exempt [repos] from the judicial stay provided for by the Bankruptcy Code. (Mehle letter to Senator Dole, 1983)

The unresolved policy tradeoff is between reducing with the complexity of crisis resolution and increasing the likelihood that crises will occur and increasing the severity when they do.

### **3. Viability of Market**

One of the arguments made by the big banks in testimony pursuant to the passage of the CFMA of 2000 was that many of the derivative activities that they were engaged in or would like to engage in would not be viable in the long term without the passage of the legislation. This seems to reflect the Treasury’s 1983 argument that without exemption from judicial stay, the monitoring and credit evaluation costs would be large enough to make investors cautious. Comments made on some of Dodd-Frank proposals to limit legal certainty confirm this belief by market participants. Roe (2011, pages 577-578) documents public and Congressional testimony with industry comments such as these:

The limitations would have a chilling effect on the ‘repo’ market and thus on broader credit availability;

The limitations would negatively affect the efficient operations of the credit markets, increasing the cost of raising capital;

Without the bankruptcy priorities the market would shrivel; and

The limitations would be ‘nuclear’ for the market.

While industry spokesmen have an interest in exaggerating the effect of such legislation, it is true that many of the more complicated derivatives such as CDOs and CDSs were not widely used until after legal certainty was established.

#### **4. Liquidity**

Derivatives on risky debt are much more likely to be used as collateral if they are legally certain. Derivatives written on legally certain securities creates liquidity that is used to fund all sorts of economic and financial activity, including bond and stock underwriting, initial public offerings of privately held companies going public, mergers and acquisitions, commercial and industrial loans, lines of credit for operating capital, lines of credit for households, margin calls, and many other sorts of bridge loans needed to build structures, import goods, buy equipment, and so forth.

One problem is understanding how giving legal status to derivatives affects net liquidity available to the nonfinancial sector. No doubt liquidity is increased in good times when everyone is confident about the future and the value of collateral is rising. In good times, the haircut on risky paper is small. But during a crisis, this liquidity dries up quickly as the value of collateral falls. Every financial crisis becomes a liquidity crisis. This is because creating ever larger amounts of liquidity means securitizing ever more risky classes of assets. In bad times, an economy with such liquidity is likely to experience a liquidity crisis. It seems likely that legal certainty makes liquidity more procyclical than it would be otherwise precisely because it encourages the securitization of risky assets.

#### **5. Economic Efficiency**

If one googles “Doing God’s work” one will find famous quotes by Lloyd Blankfein, the CEO of Goldman Sachs, explaining to his employees why they should not be embarrassed by their large bonuses that came on the heels of the Lehman Bankruptcy. He says that Goldman Sachs profits and their large bonuses are a direct reflection of the social good they do in hedging risk, thus, promoting economic growth in the nonfinancial sector and general prosperity. He is indirectly claiming that OTC derivative trading is essential to the achievement of our economic potential.

But financial industry icons are not alone in making such statements. Congressional testimony and public comments by Treasury Secretaries Robert Rubin, Lawrence Summers and Henry Paulson as well as Fed Chairman Alan Greenspan have supported the critical importance of having supersized banks, precisely those banks that are the broker/dealers in the derivative markets. Theoretical work by Bernanke and Gertler (1989), Kiyotaki and Moore (1997), Kehoe and Levine (1993), and others emphasize the importance of collateral. Industry spokesmen interpret this research as support for policies in which derivative trading makes more assets eligible for use as collateral.

#### **6. Moral Hazard and Feedback Effects**

Summers (2007) wrote that moral hazard was a problem to worry about for the long run, not something to worry about in the middle of a financial crisis. Now that the financial crisis is over, it is time to think about how changes in regulation and regulatory enforcement will affect the behavior of people in the financial industry. How has the financial sector changed because of the

change in the bankruptcy rules as they apply to OTC derivatives? How do we expect it to evolve in the future?

Financial firm behavior seems to change very quickly when changes in regulations create new opportunities. Procter & Gamble and Orange County got into trouble funding long-term liabilities with short-term repos within a year of the passage of the Futures Trading Practices Act of 1992. Even after Enron and WorldCom began to have financial problems, they were able to borrow money from large banks using OTC derivatives. These collateralized loans reduced the banks' incentive to monitor the energy firm's activity and financial condition. They could be reasonably certain that their funds were not at risk, even if the energy firms failed. It is not just that the OTC energy trades were new, but they were opaque and they were ahead of all other creditors in the event of bankruptcy. This was a change in the rules that helped Enron and WorldCom damage employees and other creditors while continuing to grow and appear successful. It is true that fraud was involved, including illegal behavior by the lending banks, but the incentive for doing these deals that were part of the fraud was in some part aided by the new opportunities that came from ability to borrow funds using legally certain derivatives.

New netting and closeout rules will also change financial firm behavior. The rules create two classes of investors. Those in the first class are part of the derivative trading pool with the right to net their credits and debts with a failing firm. Those who cannot are in the second class that will absorb the losses that are avoided by closeout and netting. These exemptions from the bankruptcy code do not do anything to reduce risk, they merely shift it to the second class creditors. Fleming (2014) reports that Lehman Bros. had over 900,000 open derivative contracts when it failed. Three of their seven derivative trading subsidiaries paid off 100 percent of their debts to counterparties while the average payout to secured debtors was 28 percent, about half the normal recovery rate in a financial failure. In time, the market participants will adjust. The second class will shrink. One is a problem that the counterparties in these transactions are often public institutions where managers may be politically appointed and the market mechanisms do not always work so well.

For a lender to understand the seniority of its credits with any particular borrower, it has to know what the borrower's derivative position will be if and when it files for bankruptcy.<sup>5</sup> This law makes all non-derivative lending less secure. The law gives a failing firm the ability to borrow through the derivative markets as long as it can provide collateral—even in the days before filing for bankruptcy. This possibility should reduce the supply of long-term debt and raise the cost relative to government debt. Even if it is possible to devise covenants that can protect a lender, legal costs will rise ex ante and post-bankruptcy litigation is also likely to rise.

With legal certainty, banks have an incentive to turn every transaction into a derivative transaction. We should expect to see innovation in finance that is spurred by the opportunity to 'jump the line' in bankruptcy. Because the broker/dealers in OTC derivative trading have this advantage in bankruptcy, they themselves will be viewed as relatively more creditworthy, to the disadvantage of midsize regional banks. The TBTF firms get bigger and the taxpayer exposure to risk rises.

With legal certainty, banks have a reduced incentive to monitor weak counterparties. They know they will be first in line with collateral in hand. When Bear Stearns went down in March 2008, a common refrain among market observers was that they thought Lehman Bros. would be the first to go. Yet sophisticated financial firms continued to lend to Lehman Bros. Many felt that a Lehman Bros. failure would not cause a major panic because it had been anticipated for so long. Others argued that Lehman Bros. was able to sell commercial paper to even the most sophisticated financial market players because, with the government having bailed out Bear Stearns, they thought it would be likely to bail out Lehman Bros. But such a bailout was uncertain and lenders to Lehman Bros. purchased credit default swaps to hedge against the risk that Lehman Bros. would go bankrupt. But these transactions were entirely opaque. Neither the Fed nor the other major players knew the full extent of AIG's exposure in this area until after the September 15 bankruptcy filing.<sup>6</sup> If Lehman had been bailed out as Bear Stearns had been, as many industry pundits argued, then the regulators still would not have learned AIG was selling bond 'insurance' but holding no reserves to back it. Because this bond 'insurance' was not really insurance, this crisis was likely to occur and eventually expose AIG. The longer it went on, the bigger the crisis was likely to be.

Giving OTC derivatives super priority in bankruptcy is an institutional arrangement that makes the financial system more susceptible to fraud and insider trading. Exemption from eve of bankruptcy provisions encourages bad behavior (betting the house, helping friends). Financial crises are often blamed on bad behavior, implying that it is behavior by bad people. But this explanation gives a free pass to bad regulations. From a social perspective, we want rules that encourage people to be honest. Giving large financial firms a subsidy (legal preference in bankruptcy) to use opaque derivative markets creates an opportunity for being dishonest that would not exist without it. The transactions are opaque, but also the standard balance sheet items in quarterly reports of the counterparties often do not reveal that a firm (or a government as in the case of Italy and Greece) has added debt and taken unseen risks. Cohn, Fehr and Marechal (2014) use survey and experiment evidence to argue bankers are more dishonest, but only when they are engaged in the banking business. Legal certainty for OTC derivatives gives bankers more opportunities for insider trading, diluting bond and equity values, and gambling because the regulations allow, even encourage it.

The idea that deposit insurance causes banks to take too many risks is well known. That is why we have bank examiners and capital requirements. The government guarantees also affect how the financial sector will exploit safe harbor status for OTC derivatives. The banks already have an incentive to take on too much leverage. The OTC derivatives give them a relatively inexpensive and opaque way to do it. Quarterly Call Reports required by regulators provide a one day per quarter snapshot of the bank's balance sheet and trading positions. But banks can go from perfectly safe to bankrupt in a matter hours or days trading OTC derivatives. It is impossible for bank examiners to keep up with the traders in this activity.

A few, maybe less than 20, large banks dominate the OTC derivative trading business.<sup>7</sup> Regulators already believe that these firms are TBTF. The implicit guarantee gives these large

firms an advantage over their mid-sized regional competitors. The safe harbor status for a large part of their trading income shifts risk to other creditors and also shifts more risk to the taxpayer.

### **7. Speculation and Gambling Lead to Social Ills and Economic Inefficiency**

Stout (2011, 2013) makes the argument that much of the derivative trading after 2000 reflects speculation (where neither side is a hedger) and should be thought of as pure gambling. By focusing on the welfare effects of speculation, she draws attention away from the bankruptcy code issues and gets strong opposition from the finance profession and industry advocates who argue that speculation helps in price discovery and adds liquidity to the market. Furthermore, Milgrom and Stokey (1982) is often referenced to argue that speculative markets would not be sustainable in the absence of a hedging motive. They do not consider the special treatment in bankruptcy because they wrote their paper before any derivative contracts had this safe harbor status. They did not consider that it might be a way to exploit regulations and shift risk to taxpayers. Although Stout argues that pure speculation is inherently welfare reducing, she does not call for ban on it. She recommends returning to the common law in which courts do not enforce derivative contracts unless one side or the other can prove that it is hedging a commercial business risk.

### **8. Theoretical Models and Policy Analysis**

Financial economists generally use models in which derivative trades are efficient, reducing risk and enhancing social welfare. The models rarely consider the fact that many derivative trades are meant to increase leverage in a world with TBTF policies and/or deposit insurance. In these models, speculative trading provides liquidity and helps in price discovery. In such models there is no reason for government intervention. Before the financial crisis, these models rarely included the possibility of using OTC derivatives for anything but reducing risk.

Since the crisis that has been an explosion in modeling of financial frictions, including those in OTC derivative markets. In a good example of this research, Atkeson, Eisfeldt and Weill (2012) develop a bilateral search model of OTC trading and show that one can explain many of the facts involving the size and concentration in the industry by assuming that all derivative trading reduces risk. In an updated and highly revised version, Atkeson, Eisfeldt and Weill (2015) show that financial frictions can lead to too much concentration among broker/dealers and not enough bilateral trading among the regional banks.<sup>8</sup> They suggest taxing OTC derivative trading of the broker/dealers and subsidizing OTC trading by regional banks. They also modify the model to analyze what happens when there is a large negative shock to the value of collateral. In this instance they find that too many broker/dealers drop out of the market and suggest that subsidizing them to stay in the market may be the best policy. This model in which all derivative trading reduces risk seems to form the basis for recent government policy. But none of theoretical models include enough real world features to make reliable policy recommendations.

## Conclusions

Almost all forms of derivative trading existed before 2000. The most idiosyncratic and exotic existed only on a small scale. Removing legal certainty for derivatives would not prohibit any derivative trading. It would only put derivative claims on the same footing as all other creditor claims and put the responsibility for failure more directly on the parties that take the risk.

Legal certainty erodes market discipline for those doing business with large firms. More derivative trading expands liquidity by making inherently illiquid claims liquid. It adds to the supply liquidity, but it also adds to the demand. On net, it seems to increase the net supply in good times which can lead to too much leverage and too much systemic risk. But it also can lead to fire sales and liquidity shortages in bad times.

By shifting risk to non-derivative claimants, legal certainty can be expected to reduce the amount of financing done through long-term lending and encourage the concentration of financial business in the few large banks that are broker/dealers for OTC derivatives.

The Fed and the FDIC like legal certainty because it helps them resolve crises more quickly, but it also increases the likelihood that crises will occur, and when they do, they are likely to be more severe.

The big myth is that OTC trading reduces total risk in the economy. This ignores the fact that big banks use explicit and implicit government guarantees to increase leverage and 'bet' with other people's money. When they win (and they can win big for a long time), they get huge returns and when they lose big, the taxpayers pick up the pieces. The CFMA of 2000 may not have caused the crisis, but it enabled the actors who did. It gave them the tools and opportunity to sell complicated risky paper that caused all the major financial firms to be interconnected in a way that caused panic in New York and Washington.

It is encouraging to see new research being done on different aspects of OTC derivative trading. Generally this research assumes that aggregate risk comes from nature, not from the activity of the broker/dealers. We look forward to research on how legal certainty affects failure resolution complexities, aggregate economic growth, risk-shifting and liquidity available to the nonfinancial sector. We need quantitative estimates of how legal certainty, interacting with government guarantees, increases risk-taking and concentration in the banking sector. These issues and institutions are so complicated that no single model can address them all. But they have to be addressed to fully understand the consequences of giving legal certainty to OTC derivatives.

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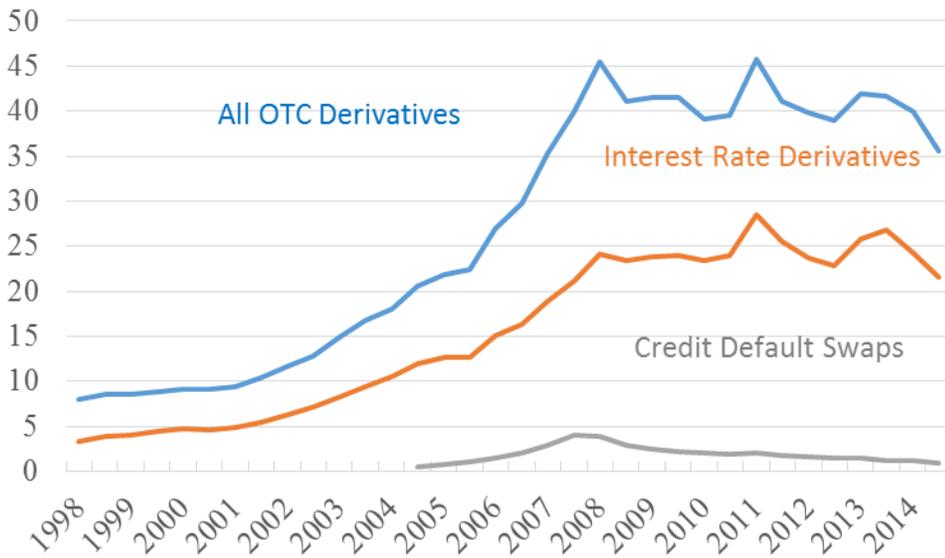
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Figure 1. Overnight Repurchase Agreements at Primary Dealers  
\$Trillions (July 2001 through April 2013)



Source: <http://www.ny.frb.org/markets/glds/search.html#data-PDFMRP>

Figure 2: OTC Derivatives: Notional Contracts relative to U.S. Nominal GDP



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<sup>2</sup> This section draws heavily from Stout (2011a, b) and Roe (2011).

<sup>3</sup> See Stout (1995).

<sup>4</sup> See Ramo (1999) for a discussion of the influence that Alan Greenspan, Robert Rubin and Larry Summers exerted on financial policy during this period.

<sup>5</sup> See Acharya and Bisin (2014) for an analysis of this asymmetric information problem. However, they do not consider issues involving exemption from bankruptcy rules.

<sup>6</sup> See McDonald and Paulson (2015).

<sup>7</sup> Atkeson, Eisfeldt and Weill (2012) report data showing that 5 banks hold 95% of the OTC derivatives traded among commercial banks.

<sup>8</sup> Atkeson, Eisfeldt and Weill (2015) also includes a review of other recent theoretical papers on OTC trading.