BANKING POLICY REVIEW

# Over-the-Counter Swaps—Before and After Reform

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One of the landmark events of the financial crisis was the collapse and bailout of insurer AIG and the bailout of many large banks to which it had sold credit default swaps (CDS), including Goldman Sachs ($12.9 billion in swaps), Société Générale ($12 billion), and Deutsche Bank ($12 billion).[1] One lesson policymakers drew from this crisis was that financial firms could build up huge risk exposures essentially hidden from the view of regulators in over-the-counter (OTC) derivatives markets. The Dodd–Frank Act sought to shift most derivatives trading from an unregulated and opaque chain of bilateral deals to trades carried out in transparent, central marketplaces under the watchful eye of regulators. As a result, U.S. regulators have spent nearly five years writing and revising regulations governing OTC derivatives. In the U.S., the rulemaking is nearly complete, and market participants have moved a significant share of their business toward centralized trading and settlement.[2] European regulators' rulemaking process should be substantially completed by 2016.

Now that the main elements of the new regulations can be described, let's see how a simplified trade would be typically carried out by a fictional set of institutions both before and after the reform.[3] First Bank is a large dealer bank that buys and sells securities and derivatives. High Yield (HY) is a mutual fund that has a large portfolio of junk bonds. HY wants to hedge against the risk of a downturn in the junk bond market.

## BEFORE THE REFORM

First Bank sells HY a swap based on an index that is dependent on the value of a basket of junk bonds. The terms of the swap say that First Bank makes payments to HY if the value of the index falls and vice versa if the index rises. The offer that First Bank makes to HY for the swap includes the price that HY must pay to First Bank for this deal as well as what collateral HY must post in case HY were to default on its obligations. In the OTC market, collateral is referred to as margin, which may take the form of cash or other types of securities.[4] By contrast, a large dealer bank such as First Bank might post no margin at all. The terms of this agreement are completely private, as the counterparties — the participants in this deal — do not announce the terms of their deal in any public forum.

Now suppose that First Bank does not want to take on all of the risk of junk bond prices falling and being forced to make payments to its customer HY. So, First Bank finds another customer, say dealer bank Second Bank, which is bullish on the likelihood of junk bond prices skyrocketing and is willing to buy the swap. As is common in trades between dealer banks, neither party posts margin.

Let's stop here and follow the money: If junk bond prices fall, Second Bank makes payments to First Bank, and First Bank makes payments to HY.[5] What do we notice about these transactions?

First, all terms of the agreement, including margin requirements, are negotiated bilaterally, and the risks to all counterparties depend on First Bank and Second Bank's risk controls. What happens if junk bond prices collapse? Second Bank's bet on a price boom has not panned out,

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so it is contractually required to make payments to First Bank. But Second Bank has not posted any margin that can be seized by First Bank. Thus, First Bank may be unable to make its contractual payments to HY, which is also out of luck because First Bank has not posted any margin, either. This knock-on chain of defaults is one type of what financial economists call *contagion*. Of course, this example is too simple. Large dealer banks are engaged in thousands of transactions and, typically, no single pair of trades will really count for much. But if lots of financial firms are either hedging or taking large bets on the junk bond market, then we are talking about real money!

Second, the market is opaque. Other market participants — let alone regulators — have no straightforward way to learn the terms of the deals that First Bank or HY have made, or even to know that First Bank and HY have actually made a deal. This information could be important to potential customers deciding whether they want to do business with First Bank or HY.[6] Furthermore, HY itself has no way of knowing that by buying protection against a decline in the junk bond market, it has become exposed to the risk of Second Bank defaulting. But HY's ignorance of the risk it is taking on when it trades with First Bank is not the only problem. When junk bond prices plummet, other market participants start worrying about who is exposed to the shock. If market participants suspect that Second Bank is exposed, they may pull back from doing business with First Bank or HY.

## AFTER THE REFORM

The regulations impose changes in how swaps are cleared, traded, and reported.[7] There are actually two sets of regulations, one for *standardized* swaps and another for *nonstandardized* (or customized) swaps. An example of a nonstandardized swap is a CDS on a particular firm, a so-called *bespoke CDS*, or any swap traded by only a few market participants. Standardized swaps are ones used by many firms — for example, our CDS on a high-yield bond index. These types of swaps will be moved to central platforms, which include well-known exchanges such as the Chicago Mercantile Exchange, Inc.[8]

**How standardized swaps are regulated.** *Clearing.* Let's return to our initial example. For a moment, put aside considering precisely how prices are determined and how parties are matched to each other and just assume that HY trades with First Bank and that First Bank trades with Second Bank. Standardized swaps must be *centrally cleared*. This means that to execute these trades, First Bank and Second Bank must be members of a central counterparty that clears high-yield index swaps.[9]

Let's call our central counterparty Counterparty California ("Risk checks in, but it never leaves"), or CC. In this type of arrangement, CC guarantees the trades of each of its members. First Bank and Second Bank do not actually contract with each other. Instead, First Bank sells the swap to CC, and CC sells the swap to Second Bank. CC becomes the counterparty to every trade.

How can adding another link in the chain help? The most important way is that CC is designed to manage risk.[10] CC requires all of its members to post margin and typically requires members to contribute to a reserve fund that can be used in the event that a member defaults. In addition, CC limits the total risk exposure of its members. It imposes position limits on its members, such as a limit on the total dollar value of high-yield swaps that First Bank can sell. CC also nets offsetting contracts among its members, thereby reducing each member's exposure to others.[11] Third, CC has formal procedures to handle defaults by its members. For example, if junk bond prices fall and Second Bank is unable to meet its contractual payments, CC may auction off the contract to its other members and reimburse First Bank for any losses, first from Second Bank's margin account and second from the reserve fund. Finally, CC is regulated by the Commodity Futures Trading Commission (CFTC). Indeed, it may receive special regulatory attention as a systemically important financial institution.[12]

There are actually two sets of regulations, one for standardized swaps and another for nonstandardized (or customized) swaps.

*Trading.* Now let's go back a step and ask about how counterparties are matched and how prices are determined. The regulations require that the swap be executed via one of two types of trading platforms. One type is a centralized exchange called a designated contract market. A real-world example of such an exchange is Bloomberg. Exchanges execute trades through a *central limit order book*, which publicly lists bids and offers and uses some well-defined mechanism to match them.[13] For example, First Bank posts the price at

which it agrees to buy the swap, and Second Bank posts the price at which it agrees to sell, and they are matched electronically according to some well-defined rule. In this way, HY can see whether it is getting a good deal from First Bank — if Second Bank is willing to buy the contract from First Bank at a much better price than First Bank was willing to pay, HY will not be happy — and other market participants (and the CFTC) can learn a lot about supply and demand conditions in this market.

A second possibility is that First Bank and Second Bank are members of a new type of entity called a swap execution facility (SEF) along with a number of other dealer banks and other large participants. Although swaps may be traded using a central order limit book, the SEF is permitted to use an alternate mechanism to ensure that HY can learn whether it got a good deal from First Bank. In addition to its own offer price, First Bank must quote HY offers from at least two other members of the SEF.[14]

*Reporting.* First Bank and Second Bank must report the initial primary terms of the trade and continue to provide information about any changes in the contract over time. These terms must be reported to a swaps data repository (SDR), which makes some of this information public (sometimes with a delay) and some of this information available only to the CFTC.[15] So, the CFTC has extensive information on the derivatives exposures of individual firms and sectors.

**How nonstandardized swaps are regulated.** Now consider that HY has taken a particularly large position in a single firm and wishes to hedge against the possibility of a ratings downgrade or a default by that firm. Unlike the index swap, this bespoke CDS contract would be regulated by the Securities and Exchange Commission (SEC) as a *security-based swap*. More generally, if a swap is not sufficiently standardized or not in high enough demand to be centrally cleared, it can still be traded bilaterally. The trade is executed much as it was before the new regulations, but with some important differences.[16]

Most important, under the proposed rules, HY and First Bank are not free to choose their own margin requirements. Unlike margin requirements for standardized swaps, which are set by the clearing houses, the proposed margin requirements for nonstandardized swaps are written into the regulations under the SEC's regulatory purview. The proposed regulatory requirements are quite detailed, imposing minimum amounts for particular classes of swaps, and they are designed to be conservative. For example, both dealer First Bank and mutual fund HY would have to post margin, since both swaps dealers and financial firms must post margin.[17] However, if HY were a large agribusiness firm seeking to hedge the risk of default by a supplier, regulations require only First Bank to post margin — although First Bank itself might require HY to post margin for it to be willing to do business with HY.

Furthermore, the types of securities that can be posted as margin are restricted. The firms can post cash or U.S. Treasury securities freely, but less liquid securities, such as corporate bonds, would require a *haircut*. That is, per dollar, a corporate bond would contribute only 80 cents toward the margin requirement. In addition to the margin requirements, First Bank will have to report information about the trade to an SDR.

## SOME CRITICISMS OF THE REGULATIONS

The main goal of this article is to be descriptive, but let me conclude with some of the more significant criticisms that economists and other analysts have leveled at the new regulatory framework. Probably most fundamentally, some critics view the regulations as a costly response to a problem that doesn't exist. For example, Peter Wallison has argued that OTC derivatives played only a minor role in the financial crisis. Many commentators have noted that central clearing concentrates risk at large clearing organizations. This concentration of risk poses a challenge for regulators such as the CFTC and SEC, which have not traditionally focused on safety and soundness concerns. As a result, the concentration of risk at a few institutions raises concerns for critics of Dodd–Frank's resolution mechanism for systemically important financial institutions.[18]

In addition, the Dodd–Frank Act exempts foreign exchange swaps and forwards from the new regulatory framework.[19] Darrell Duffie has argued persuasively against the decision to exempt foreign exchange derivatives from the regulation, and John Hull argues that nearly all derivatives, not just standardized derivatives, can be centrally cleared. Also, some view the introduction of new futures contracts that are close substitutes for swaps as an example of *regulatory arbitrage*, in which traders innovate to avoid costly regulations in swaps markets and shift transactions to less closely regulated venues.[20]

## NOTES

[1] A CDS is a type of insurance contract in which the seller pays the buyer when the credit risk of a security or group of securities rises. It is just one type of a wide range of derivative contracts grouped under the general term *swaps* for regulatory purposes.

[2] In the U.S., mandatory centralized trading for one group of swaps began in February 2014. At the end of 2014, over half of interest rate swaps and over 80 percent of credit default swaps were trading on centralized platforms.

[3] In this article, I can go over only the basics, as no single rulemaking document gives a complete account of the U.S. regulations. The Commodity Futures Trading Commission's website provides links to all of its rulemaking. Davis Polk's memorandum is a readable account of the regulations as of March 2013.

[4] In this article, I gloss over a lot of details about margin. For those interested, the Bank for International Settlements defines margin at http://www.bis.org/cpmi/glossary_030301.pdf.

[5] Actually, Second Bank is unlikely to wish to take a large bet like this and will search for customers willing to bet that junk bond prices rise, but that would only complicate the example.

[6] Knowing the terms of the deal might also be important to market participants who want to engage in similar trades but don't want to get a bad deal.

[7] The Securities and Exchange Commission (SEC) has jurisdiction over security-based swaps, or swaps based on individual stocks or bonds or narrowly focused indexes. The Commodity Futures Trading Commission (CFTC) has jurisdiction over all other swaps such as those based on broad securities indexes and government securities. The CFTC and SEC will share rulemaking authority over mixed swaps, or swaps that could fit into either category.

[8] As I will make clear, the regulations are written so that platforms might use a wide variety of trading mechanisms, although regulators expect most standardized transactions to migrate to the existing exchanges. But whatever the precise trading mechanism, the central platforms must clear all trades according to standardized rules.

[9] The regulation refers to central counterparties as derivatives clearing organizations (DCOs). The Chicago Mercantile Exchange is an example of a real-world DCO. The regulation refers to members of a DCO as a futures commission merchant. In this article, I assume that all customer swaps are intermediated by dealer banks. In fact, larger customers may be granted direct access to central clearing and trading mechanisms via certain types of agency agreements with dealer banks.

[10] Viral Acharya and Alberto Bisin demonstrate theoretically that from society's standpoint, bilateral trading can lead to too much risk.

[11] Imagine that First Bank and Second Bank have a second deal in which Second Bank's customer is hedging against the decline in junk bond prices and subsequently sells the swap to First Bank. If the contracts are for the same dollar amount, then while First Bank and Second Bank's gross exposure to each other is doubled, their net exposure to each other is actually zero.

[12] For example, CFTC regulations require CC to have risk mitigation techniques sufficient to withstand the failure of one or two clearing members and their affiliates, depending on how risky CC's profile is and on whether CC is designated systemically important in multiple jurisdictions. Currently, eight institutions are designated financial market utilities that are systemically important. For example, the CFTC is the primary regulator of Chicago Mercantile Exchange, Inc. and ICE Clear Credit, L.L.C.

[13] The regulations do not prescribe a particular method for matching orders.

[14] This system is called a *request for quote* system.

[15] The reporting delay and the division between public and nonpublic information are intended to balance the benefits of transparency and the need to monitor any abusive practices against ensuring that traders have an opportunity to keep trades secret long enough to make a profit. For example, large trades, known as *block trades*, are reported with a lag to give traders a chance to make some profit on the trade.

[16] The rules for nonstandardized swaps have not yet been finalized. Here, I describe the proposed rules as of September 2015. The most recent version of the SEC's proposed margin requirements for nonstandardized swaps can be found at https://www.sec.gov/rules/proposed/2012/34-68071.pdf.

[17] Alternatively, First Bank may use its own model for determining margin requirements, but this model must meet the specifications of the SEC.

[18] David Skeel critically examines Dodd–Frank's resolution scheme for systemically important institutions and proposes an alternative.

[19] A forward is a nonstandardized contract between two parties to buy or sell an asset at a specified future time at a price agreed upon beforehand.

[20] See the illuminating exchange between Robert Litan and Darrell Duffie about *futurization* of swaps, in which traders have designed futures contracts that are essentially identical to the regulated swaps contracts.

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