

## CHAPTER 11

# Financial Market Infrastructure

## Too Important to Fail

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A major focus of this book is the development of failure resolution methods, including bankruptcy and administrative forms of insolvency management, that reduce to a manageable level the damage to the economy caused by any financial firm's failure. The alternative is the moral hazard of allowing a financial firm to believe that its failure would be dangerous to the financial system and that it would therefore likely receive significant government assistance when its solvency is suddenly threatened.

While orderly failure resolution is a desirable principle, I do not believe that it currently applies to all financial firms. In this chapter, I argue that failure resolution could not yet be safely applied to certain firms that operate key financial market infrastructures (FMIs) used for clearing over-the-counter derivatives or tri-party repurchase agreements (repos). The failure of key FMIs could indeed be dangerous to the financial system, even with the best available approaches to failure resolution.

By implication, a financial institution should not operate key financial market infrastructure backed by the same capital that supports much more discretionary forms of risk-taking, such as speculative trading or general lending. Not only would such a combination of activities expose a key FMI to losses caused elsewhere in the same financial institution, it would raise the firm's moral hazard based on the importance to the economy of the survival of the FMI and, thus, the entire firm.

Later in this chapter I will focus special attention on tri-party repo clearing, because this key FMI is currently operated in the United States by two large, complex banks that have significant latitude for risk-taking in their other lines of business. The failure of these banks could sharply

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I am grateful for comments from many. All errors and opinions are my own, exclusively. For potential conflicts of interest, please see my web page at [www.stanford.edu/~duffie/](http://www.stanford.edu/~duffie/). E-mail remarks to [duffie@stanford.edu](mailto:duffie@stanford.edu)

reduce access by the largest US broker-dealers to tri-party repo financing for their securities inventories. This would be dangerous to the financial system, possibly through the impact of fire sales of large quantities of securities. Every day, each of the larger US broker-dealers receives \$100 billion or more in overnight financing that depends from an operational perspective on one of these two tri-party repo clearing banks.

### Central clearing parties

Central clearing parties (CCPs) for derivatives are FMIs that guarantee derivatives payments to surviving clearing members of a CCP in the event of the failure of other clearing members. The potential loss exposures of some CCPs are extremely large in practice. These losses are intended to be covered by a “waterfall” of default management resources, including the initial margins and default guarantee funds of clearing members and the capital of the CCP.<sup>1</sup>

The failure of a CCP cannot be safely and effectively treated by currently available forms of bankruptcy or by the Dodd-Frank Act’s Title II administrative failure resolution.

For treating the failure of a systemically important bank holding company (BHC), the Federal Deposit Insurance Corporation (FDIC 2013) has suggested that it would exercise its authority under Title II of the Dodd-Frank Act by using a “single point of entry” approach by which the BHC can in principle be quickly recapitalized through a conversion of some of its debt to equity. This single-point-of-entry approach does not apply to a CCP, which has almost no debt relative to the largest plausible losses that could arise through the failure of its clearing members. Once the capital of a CCP is wiped out, the tail risk is held by clearing members, who are generally themselves systemically important firms. Whether Title II failure resolution authority applies to CCPs is argued by DeCarlo and Steigerwald (2013). If Title II does apply, it is also uncertain whether the FDIC is prepared to use this authority for resolving a failing CCP.<sup>2</sup> No other avail-

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1. For details, see the appendix of Duffie (2010), ISDA (2013), and Elliott (2013).

2. To my knowledge, the FDIC has not declared its intent in this area, for example in any response to a letter of November 10, 2010, from the general counsel of the CME Group Inc., Kathleen Cronin, to Ronald Feldman, executive secretary of the FDIC, requesting clarification regarding whether the CME is subject to the FDIC’s Orderly Liquidation Authority under Title II of the Dodd-Frank Act.

able form of administrative failure resolution authority is evident. The US bankruptcy code is not currently adapted to safely resolve a failing CCP. Even a proposed new Chapter 14 of the code that is designed to treat a range of systemically important non-bank financial companies, as outlined by Jackson (2012), would be poorly adapted to the special case of CCPs.

Altogether, this absence of systemically effective failure resolution methods for US CCPs is an unsatisfactory situation and is contrary to recommendations by the Committee on Payment and Settlement Systems, Technical Committee of the International Organization of Securities Commissions (CPSS-IOSCO 2013), as well as official-sector guidance from the European Commission (2012) and the Financial Stability Board (2013).

A mitigating factor here is the restricted scope of risk-taking actions by a CCP, which cannot make general loans and has limited discretion over the manner in which it invests collateral. Lower discretion in risk-taking implies lower scope for moral hazard. Given the systemic importance and relatively limited scope for risk-taking of large CCPs, it is reasonable to treat them as “too important to fail.” That said, CCPs do fail from time to time. For example, in October 1987 the clearing house of the Hong Kong Stock and Futures Exchange had a disorderly failure described by the Hong Kong Securities Review Committee (1988). Careful regulation, supervision, and failure planning should be used to reduce to the greatest possible extent the adverse impact of CCPs’ failures. There is room for significant improvement in this area. For now, CCPs are too important to fail, as key regulators have acknowledged.<sup>3</sup>

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3. In testimony provided in October 2013 to the Treasury Select Committee of the UK Parliament, Bank of England Deputy Governor Paul Tucker stated that “central counterparties have almost been mandated by the G20 leaders to be too important to fail. We need to make sure these institutions are sound and well-regulated and could recover in distress.” <http://www.telegraph.co.uk/finance/newsbysector/banksandfinance/10363688/Clearing-houses-are-the-biggest-risk-says-Tucker.html>

In Dudley (2012), the president of the Federal Reserve Bank of New York, William C. Dudley, stated that “for the system to be safer it is not sufficient to ensure that trades are standardized and that they are mandated to be cleared through CCPs, but also it is necessary that CCPs be ‘bullet proof.’ They have to have the ability to perform and meet their obligations regardless of the degree of stress in the financial system and even if one or more of their participants were to fail in a disorderly manner.” See <http://www.newyorkfed.org/newsevents/speeches/2012/dud120322.html>.

## Tri-party repo clearing

A repurchase agreement, or repo, is the sale of a portfolio of securities combined with an agreement to repurchase that portfolio on a specific future date at a pre-arranged price. Abstracting from some legal distinctions concerning their bankruptcy treatment, repos are essentially collateralized loans. The cash provided at the purchase leg of a repo is effectively the proceeds of the loan; the repurchase price is the effective loan repayment amount; and the underlying securities are the loan collateral. Repos are normally over-collateralized in order to protect the cash provider from exposure to loss associated with a decline in the value of the collateral before the repo matures.

Broker-dealers finance substantial amounts of their securities inventories with tri-party repos (TPRs). The three parties involved in a TPR are the borrowing dealer, the cash lender, and an agent that assists with trade confirmations, settlements of the cash and securities transfers, the allocation of each dealer's collateral to its various lenders, and other forms of operational assistance. Copeland, Duffie, Martin, and McLaughlin (2012) provide details on the operation and systemic importance of the tri-party repo market. In the United States, two large banks, JPMorgan Chase and The Bank of New York Mellon, act as the agents for the vast majority of tri-party repos. Currently, a total of roughly \$1.5 trillion of tri-party repos is handled by these two banks every day.

There is nothing in principle that requires a TPR agent bank to be exposed to losses on the repurchase agreements that it handles for borrowers and lenders, nor to expose repo counterparties to its own failure. In US practice, however, both directions of loss exposure exist and represent systemic risk.

The two large clearing banks offer intraday credit to a securities dealer between the times at which its previously arranged repos mature and the times at which new repos are funded by new cash investors. Until recently, this intraday credit provided by the two TPR agent banks was extensive, covering essentially all repos for a substantial part of each day. The Federal Reserve Bank of New York (2010) has encouraged a financial industry task force to dramatically reduce the extent of this intraday credit. Significant progress has been made toward this goal. But for now the TPR agent banks could nevertheless suffer significant losses in the most extreme plausible scenarios.

The other direction of exposure, of the repo borrower and lender to a potential failure of the TPR agent bank, is the main focus of my remarks here. If one of the two large TPR agent banks were to become illiquid or insolvent due to losses in some other line of business such as trading or general lending, a systemic crisis could be triggered by the potential discontinuation of its TPR clearing function.

First, the dealers who rely on the TPR agent bank for handling their repos could find themselves without the means to quickly obtain financing from other sources. They may not have operationally feasible backups, given their dependence on the specific infrastructure of their TPR agent banks. A fire sale of a large quantity of securities could follow. This could depress the prices of the securities, causing other levered investors to add to the aggregate magnitude of the fire sale, further reducing the securities prices, and possibly creating a general financial crisis. Begalle, Martin, McAndrews, and McLaughlin (2013) have examined the potential size of the fire sales relative to typical daily trade volumes, pointing to some large asset classes that could be heavily affected.

Second, in US practice, cash borrowers and lenders settle their TPR cash transfers in the form of deposits in the TPR agent banks. This exposes repo counterparties to a potential failure of their TPR agent bank, for example through losses to the TPR agent bank that stem from its unrelated lines of business. Even a perceived threat to the liquidity or solvency of an agent bank could provide a sufficient incentive for cash investors to fail to renew tri-party repos with dealers using that agent bank. This in turn could cause extreme stress to those dealers and possibly the earlier mentioned risk of fire sales.

The settlement of FMI transactions in commercial bank deposits is contrary to clear and well-justified principles set down by CPSS-IOSCO (2012), whose Principle 9 for FMI states:

*An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimize and strictly control the credit and liquidity risk arising from the use of commercial bank money.*

CPSS-IOSCO (2012) continues by stating, “One way an FMI could minimize these risks is to limit its activities and operations to clearing and settlement and closely related processes.” Applying the CPSS-IOSCO

principles to US tri-party repo clearing practice, either a TPR agent bank should have no other significant lines of business or the agent bank should arrange for cash settlement in central bank deposits or in a separate “narrow bank” that is not exposed to losses from unrelated lines of business. While the current US practice of settling TPRs in the agents’ commercial bank deposits may offer operational efficiencies, this benefit is trumped by the imperative to insulate system-critical FMIs and systemically important FMI users from unnecessary exposures.

When a large multi-line financial institution operates a systemically important FMI, as is current practice in the US tri-party repo market, its government and central bank are under pressure to forestall the failure of the financial institution in order to assure continuity of services provided by the FMI. In some cases, a government official should not stand rigidly on the principle that no such financial institution should receive extra assistance to avoid failure. By this point, it would be too late to prevent the too-important-to-fail moral hazard with a better design of the tri-party repo market architecture. The exigencies of preventing a significant financial crisis would take priority.

## References

- Begalle, Brian, Antoine Martin, James McAndrews, and Susan McLaughlin. 2013. “The Risk of Fire Sales in the Tri-Party Repo Market.” Federal Reserve Bank of New York staff report 616. [http://www.newyorkfed.org/research/staff\\_reports/sr616.html](http://www.newyorkfed.org/research/staff_reports/sr616.html).
- CPSS-IOSCO (Committee on Payment and Settlement Systems, Technical Committee of the International Organization of Securities Commissions). 2012. “Principles for Financial Market Infrastructures.” Madrid: IOSCO. <http://www.bis.org/publ/cpss101a.pdf>.
- CPSS-IOSCO. 2013. “Recovery of Financial Market Infrastructures.” Consultative report. Madrid: IOSCO. <http://www.bis.org/publ/cpss109.pdf>. Comments: <http://www.bis.org/publ/cpss103/comments.htm>.
- Copeland, Adam, Darrell Duffie, Antoine Martin, and Susan McLaughlin. 2012. “Key Mechanics of the U.S. Tri-Party Repo Market.” *Economic Policy Review*, Federal Reserve Bank of New York. <http://www.newyorkfed.org/research/epr/2012/1210cope.html>.
- DeCarlo, David, and Robert Steigerwald. 2013. “Orderly Liquidation under Title II of Dodd-Frank. Part I: Do Financial Market Utilities Qualify as ‘Financial Companies?’” Draft working paper, Federal Reserve Bank of Chicago.

- Dudley, William. 2012. "Reforming the OTC Derivatives Market." Remarks at the Harvard Law School's Symposium on Building the Financial System of the 21st Century, Armonk, New York, March. <http://www.newyorkfed.org/newsevents/speeches/2012/dud120322.html>
- Duffie, Darrell. 2010. *How Big Banks Fail and What to Do about It*. Princeton, NJ: Princeton University Press.
- Elliott, David. 2013. "Central counterparty loss-allocation rules." Financial Stability Paper No. 20, Bank of England.
- European Commission. 2012. "Consultation on a Possible Recovery and Resolution Framework for Financial Institutions other than Banks." Directorate General Internal Market and Services. Brussels: DG Internal Market and Services. [http://ec.europa.eu/internal\\_market/consultations/2012/nonbanks/consultation-document\\_en.pdf](http://ec.europa.eu/internal_market/consultations/2012/nonbanks/consultation-document_en.pdf)
- FDIC. 2013. "The Resolution of Systemically Important Financial Institutions: The Single Point of Entry Strategy." Washington, DC: FDIC. [http://www.fdic.gov/news/board/2013/2013-12-10\\_notice\\_dis-b\\_fr.pdf](http://www.fdic.gov/news/board/2013/2013-12-10_notice_dis-b_fr.pdf).
- Federal Reserve Bank of New York. 2010. "Tri-Party Repo Infrastructure Reform." New York: Federal Reserve Bank of New York. [http://www.newyorkfed.org/banking/tpr\\_infr\\_reform.html](http://www.newyorkfed.org/banking/tpr_infr_reform.html).
- Financial Stability Board. 2013. "Application of the Key Attributes of Effective Resolution Regimes to Non-Bank Financial Institutions." Consultative document. Basel, Switzerland: FSB.
- Hong Kong Securities Review Committee. 1988. "The Operation and Regulation of the Hong Kong Securities Industry." Hong Kong: Securities Review Committee.
- ISDA (International Swaps and Derivatives Association). 2013. "CCP Loss Allocation at the end of the Waterfall." New York: ISDA.
- Jackson, Thomas. 2012. "Bankruptcy Code Chapter 14: A Proposal." In *Bankruptcy Not Bailout, A Special Chapter 14*, edited by Kenneth Scott and John Taylor, 25–72. Stanford CA: Hoover Institution Press.