

THE FEDERAL RESERVE'S SUPPORTING ROLE BEHIND DODD-FRANK'S CLEARINGHOUSE REFORMS

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I. Introduction

Trade—whether domestic or international and whether of goods, services, or financial assets—relies upon the exchange of money. The integrity of these “money flows” is critical to the smooth conduct of international exchange.¹ Background infrastructures formally termed “payment, clearing, and settlement systems” (PCS systems) enable these money flows and are often referred to as the “plumbing” of financial markets. PCS systems begin their work after a financial trade is made. They confirm the details of the trade, exchange and settle any interim payments (money flows) owed between counterparties during the trade contract’s term, and complete its final settlement.² The robustness of this infrastructure is of great importance in financial markets.³ PCS systems generally function quietly, seamlessly, and in the background. However, breakdowns do occur and disruptions to PCS systems risk catastrophe in financial markets and in the broader economy. Although largely overlooked, failures in PCS systems both domestically and internationally exacerbated the financial crisis of 2008.⁴ The Federal Reserve’s critical and significant role in responding to some of these

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¹ Economist Perry Mehrling’s work focuses on the importance of the “money flows” involved in financial trade and the problems created by insufficient attention to liquidity in financial markets. *See generally* PERRY MEHLING, *THE NEW LOMBARD STREET: HOW THE FED BECAME THE DEALER OF LAST RESORT* (2011); Perry Mehrling, *Essential Hybridity: A Money View of FX*, J. COMP. ECON. (forthcoming 2013) (focusing on a “money view perspective,” that is, the critical role of money market operations in the stability of credit markets).

² For a detailed description of post-trade processes for securities and derivatives, see DAVID M. WEISS, *AFTER THE TRADE IS MADE: PROCESSING SECURITIES TRANSACTIONS* (2d rev. ed. 2006) and DAVID LOADER, *CLEARING AND SETTLEMENT OF DERIVATIVES* (2005).

³ *See* HEIDI MANDANIS SCHOONER & MICHAEL W. TAYLOR, *GLOBAL BANK REGULATION: PRINCIPLES AND POLICIES* 36–39 (2010).

⁴ *See* MEHLING, *THE NEW LOMBARD STREET: HOW THE FED BECAME THE DEALER OF LAST*

disruptions has similarly been largely overlooked.⁵

This Article analyzes the Federal Reserve's expanded role in PCS systems, particularly in connection with certain clearinghouses that have been designated by the newly created Financial Stability Oversight Council⁶ as "systemically significant." A central counterparty clearinghouse (clearinghouse) is a core infrastructure utility in PCS systems.⁷ The Federal Reserve's expanded role is a little understood, but critical supporting component of domestic and international regulatory reforms to the \$639 trillion over-the-counter (OTC) derivative markets.⁸ These reforms mandate the increased use of clearinghouses in OTC derivative markets. Due to critical reforms in Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act),⁹ the Federal Reserve is now positioned to ensure the stability of designated clearinghouses. Importantly, systemically significant clearinghouses are the quintessential "too big to fail" financial institutions.¹⁰

II. Clearinghouses: The Centerpiece of Regulatory Reforms to OTC Derivative Markets

On September 16, 2008, the Federal Reserve loaned billions of dollars to AIG, one of the world's largest insurance companies.¹¹ AIG could not make interim collateral payments it owed as the protection seller to guarantee its performance on about \$446 billion of bilaterally settled OTC credit default swaps (CDSs).¹² Without the central

RESORT, *supra* note 1, at 124 ("From this standpoint, what immediately draws attention is the utter breakdown of the underlying system of funding liquidity [during the financial crisis]. This is the plumbing behind the walls, and it failed very dramatically.").

⁵ For example, the Federal Reserve's significant use of central bank swap lines responded to severe disruptions in international dollar funding markets during the financial crisis. See Michael J. Fleming & Nicholas J. Klagge, *The Federal Reserve's Foreign Exchange Swap Lines*, CURRENT ISSUES ECON. & FIN. (Fed. Reserve Bank of N.Y., New York, N.Y.), Apr. 2010, at 1, 1-4, available at http://www.newyorkfed.org/research/current_issues/ci16-4.pdf.

⁶ The Financial Stability Oversight Council is a council of financial regulators established by the Dodd-Frank Act. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, §§ 111-23, 124 Stat. 1376, 1392-1412 (2010).

⁷ Although different types of clearinghouses exist, this Article uses the term "clearinghouse" to refer to a central counterparty clearinghouse, which is the type of clearinghouse involved in regulatory reforms to OTC derivative markets.

⁸ This figure represents the notional amount of outstanding OTC contracts. See MONETARY & ECON. DEP'T, BANK FOR INT'L SETTLEMENTS, STATISTICAL RELEASE: OTC DERIVATIVES STATISTICS AT END-JUNE 2012 1 (2012), available at http://www.bis.org/publ/otc_hy1211.pdf.

⁹ Dodd-Frank Act §§ 801-14.

¹⁰ See Phillip Wood, *What is a Central Counterparty in Financial Markets?*, ALLEN & OVERY (Aug. 20, 2009), <http://www.allenoverly.com/publications/en-gb/Pages/What-is-a-central-counterparty-in-financial-markets-.aspx> (commenting that central counterparties "really are too big to fail").

¹¹ See Press Release, Bd. of Governors of the Fed. Reserve Sys. (Sept. 16, 2008), <http://www.federalreserve.gov/newsevents/press/other/20080916a.htm>.

¹² See Henny Sender, *AIG Saga Shows Dangers of Credit Default Swaps*, FIN. TIMES (Mar. 6, 2009),

bank's assistance, AIG would have collapsed.¹³ Many of AIG's OTC derivative counterparties might have also collapsed, causing reverberations throughout the world economy. The Federal Reserve rescued AIG to prevent financial catastrophe by ensuring that the money flows expected by AIG's OTC derivative counterparties continued. Bilateral clearing and settlement of AIG's CDSs had obscured significant buildups of counterparty credit risk. Combined with counterparties' reliance on the performance guarantee of the AIG parent, bilateral clearing and settlement also facilitated lax risk management practices by AIG's CDS counterparties.

Immediately prior to AIG's distress, Lehman Brothers, an investment bank, collapsed.¹⁴ Yet the clearinghouse, LCH.Clearnet, ensured that the money flows related to Lehman Brothers' more than \$10 trillion of open trading positions continued uninterrupted.¹⁵ The virtues of clearinghouses—long-standing, but sleepy background financial market infrastructure utilities—suddenly burst into the international spotlight. Policymakers saw clearinghouses as a major solution to problems in OTC derivative markets; they offered a way to prevent future AIG-like situations.¹⁶ Consequently, the Dodd-Frank Act's regulatory reforms to OTC derivative markets in Title VII—and similar reform initiatives by the G-20¹⁷—mandate that standardized OTC derivatives be traded on electronic exchanges and use clearinghouses for clearing and settlement.

The virtues of clearinghouses are many, including enforcing contractual performance,¹⁸ facilitating multilateral netting and setoff of trades, promoting market liquidity, and enabling trade anonymity. Above all, clearinghouses alleviate concerns about counterparty credit risk. A clearinghouse essentially steps into the middle of a trade, becoming the buyer to the seller and the seller to the buyer through novation.¹⁹

<http://www.ft.com/intl/cms/s/0/aa741ba8-0a7e-11de-95ed-0000779fd2ac.html#axzz2PicxE6S0>.

¹³ For a thorough account of AIG's debacle, see generally William K. Sjostrom, Jr., *The AIG Bailout*, 66 WASH. & LEE L. REV. 943 (2009) (explaining AIG's collapse and its subsequent bailout by the U.S. government).

¹⁴ Andrew Ross Sorkin, *Lehman Files for Bankruptcy; Merrill Is Sold*, N.Y. TIMES, Sept. 15, 2008, at A1, available at <http://www.nytimes.com/2008/09/15/business/15lehman.html?pagewanted=all>.

¹⁵ See PETER NORMAN, *THE RISK CONTROLLERS: CENTRAL COUNTERPARTY CLEARING IN GLOBALISED FINANCIAL MARKETS* (2011).

¹⁶ See Mark J. Roe, *The Dodd-Frank Act's Maginot Line: Clearinghouse Construction 9* (Mar. 5, 2013) (unpublished working paper), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2224305 ("Post-failure, the thinking ran, AIG might not have failed, or its failure would not have been as consequential if AIG's obligations had been cleared.").

¹⁷ See *G-20 Leaders Statement After Talks in Pittsburgh (Full Text)*, BLOOMBERG (Sept. 25, 2009), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=auIe3UTJncpY>.

¹⁸ See Ed Nosal, *Clearing Over-the-Counter Derivatives*, ECON. PERSPECTIVES (Fed. Reserve Bank of Chi., Chicago, Ill.), Fourth Quarter 2011, at 137, available at http://www.chicagofed.org/digital_assets/publications/economic_perspectives/2011/4qtr2011_part1_nosal.pdf.

¹⁹ See generally NORMAN, *supra* note 15; JIABIN HUANG, *THE LAW AND REGULATION OF CENTRAL*

Consequently, the original obligation is transformed into legally independent obligations between the clearinghouse and the counterparties, who are known as clearinghouse members. Clearinghouse members are now only directly exposed to the counterparty credit risk of the clearinghouse. Clearinghouse design incorporates many layers of risk management protection to ensure the institution's fortress-like robustness even in times of financial crisis. These layers include requiring members to maintain cash or securities in margin accounts to guarantee their obligations; a member contributed-to default insurance fund to cover any payment shortfalls by a defaulting member; and possibly ex-ante arrangements for additional financial assessments from non-defaulting members or for other pre-arranged backup financial resources such as bank lines of credit.²⁰

III. The Federal Reserve's New Mandate to Buttress Clearinghouse Reforms in OTC Derivative Markets

Despite having extensive risk management practices, clearinghouses can, and have, failed.²¹ A member default, operational issues, or even investment management practices²² could trigger a clearinghouse default.²³ The failure of a systemically significant clearinghouse could be catastrophic. It would threaten widespread, domino-like disruptions of critical money flows that its members and other financial institutions count upon to meet their own financial obligations all over the world. Intervention by a government backstop—a last resort clearinghouse—would likely be needed to avert the collapse of a systemically significant clearinghouse. Due to critical but little understood reforms in Title VIII, the Federal Reserve can now assume this role in certain situations. Therefore, the reforms in Dodd-Frank Act's Title VIII act as an essential complement to better-known clearinghouse reforms in Title VII.²⁴

Clearinghouses, however, are not the only financial institutions responsible for the

COUNTERPARTIES (2010) (providing thorough explanations of central counterparty clearinghouses).

²⁰ See NORMAN, *supra* note 15, at 10.

²¹ See NORMAN, *supra* note 15, at 131–33, 347–51; HUANG, *supra* note 19, at 122–24.

²² 12 C.F.R. § 234.4(a)(3) (2013) (“[The central counterparty must] hold[] assets in a manner whereby risk of loss or of delay in its access to them is minimized. Assets invested by a . . . central counterparty are held in instruments with minimal credit, market, and liquidity risks.”). The Bank of England has noted that the default of a central counterparty's investment counterparty could trigger the financial distress or default of the central counterparty. *Financial Stability Report: December 2011*, FIN. STABILITY REP. (Bank of Eng., London, U.K.), Dec. 2011, at 1, 20–22, available at <http://www.bankofengland.co.uk/publications/Documents/fsr/2011/fsrfull1112.pdf>.

²³ An increasingly significant source of revenues for OTC derivative market clearinghouses will likely be their investment activities; that is, the investment of the cash and securities collateral held in members' margin accounts for the safety of the clearinghouse. Clearinghouses could have an incentive to increase profits through lucrative, but risky, investment activities which could be in tension with robust risk management practices. See generally HUANG, *supra* note 19, at 54–56 (describing the central counterparty's investment of its financial resources such as member margin, default funds, and capital).

²⁴ See Colleen Baker, *The Federal Reserve as Last Resort*, 46 U. MICH. J.L. REFORM 69, 104–14 (2012).

continuation of critical payments in the OTC derivative markets. For this reason, Title VIII's regulatory reforms give policymakers the discretion to potentially backstop an expansive set of financial institutions and markets. One of Title VIII's key terms—financial market utility (FMU)—is a broadly defined concept.²⁵ It includes traditional clearinghouses and securities repositories, but the term FMU could also encompass other systemically important financial institutions that play a critical role in PCS systems such as individual brokers, dealers, investment companies, and clearing banks.²⁶ Although clearinghouses are the focus of this Article, it is important to note that Title VIII's reforms are potentially applicable to any financial institution that fits the expansive definition of an FMU.

Title VIII contains many critical regulatory reforms related to PCS systems. These reforms include authority for financial regulators to prescribe risk management standards,²⁷ enhanced examination and enforcement powers for financial regulators over systemically significant clearinghouses²⁸ and over other financial institutions engaged in certain PCS system activities.²⁹ For the first time, systemically significant clearinghouses can be permitted access to Federal Reserve bank accounts and services.³⁰ Such services include FedWire, a settlement service and also a component of the federal safety net.³¹ The Federal Reserve can also pay interest on clearinghouse account balances.³² The possibility of allowing a systemically significant clearinghouse to have an account at a Federal Reserve Bank is a significant change to the law.³³ Traditionally, such accounts and services generally have been available only to depository institutions. These reforms

²⁵ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 803(6), 124 Stat. 1376, 1805 (2010) (defining financial market utility).

²⁶ *See id.*

²⁷ *See id.* § 805.

²⁸ *See id.* § 807.

²⁹ *See id.* § 808.

³⁰ *See id.* § 806(a).

³¹ *See id.* (“The Board of Governors may authorize a Federal Reserve Bank to establish and maintain an account for a designated financial market utility and provide the services listed in section 11A(b) of the Federal Reserve Act”). For a description of FedWire Funds Services, see *Fedwire Funds Services*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., http://www.federalreserve.gov/paymentsystems/fedfunds_about.htm (last visited Apr. 18, 2013). Other components of the federal safety net include the Federal Reserve's last resort lending operations and the Federal Deposit Insurance Corporation's provision of federal deposit insurance. *See generally* Kenneth Jones & Barry Kolatch, *The Federal Safety Net, Banking Subsidies, and Implications for Financial Modernization*, 12 FDIC BANKING REV. (Fed. Deposit Ins. Corp., Washington, D.C.), no. 1, 1999, at 1, available at http://www.fdic.gov/bank/analytical/banking/1999may/1_v12n1.pdf (noting the generally accepted components of the federal safety net).

³² *See* Dodd-Frank Act § 806(c).

³³ *See* Anna L. Paulson & Kirstin E. Wells, *Enhancing Financial Stability: The Case of Financial Market Utilities*, CHI. FED. LETTER (Fed. Reserve Bank of Chi., Chicago, Ill.), Oct. 2010, at 1, 2, available at http://www.chicagofed.org/digital_assets/publications/chicago_fed_letter/2010/cfloctober2010_279.pdf.

create a potentially significant risk for the Federal Reserve Bank.³⁴ For example, a clearinghouse account could incur an inadvertent overdraft.³⁵

An important implication of these reforms is that several Federal Reserve services available to regulated banks can now be made available to systemically significant clearinghouses. Yet it is unclear that designated clearinghouses will be regulated as heavily as traditional banks. For example, the Federal Reserve has implemented rules regarding risk management standards for systemically significant clearinghouses under its supervision.³⁶ But it is unclear that these risk management standards sufficiently incorporate stringent capital requirements paralleling those of regulated banks.³⁷ Nevertheless, systemically significant clearinghouses are among the most important too-big-to fail financial institutions.

Title VIII's most important reform is a new, highly expansive lending authority for the Federal Reserve in "unusual *or* exigent circumstances."³⁸ In certain circumstances, the Federal Reserve can use this new lending authority to combat critical disruptions in PCS systems.³⁹ The Federal Reserve's discount window lending authority can be thought to exist on a spectrum between the access of regulated banking institutions on one end and the Federal Reserve's 13(3) emergency power on the other end. The Federal Reserve's Title VIII lending authority lies between these poles and is arguably

³⁴ A notice of proposed rulemaking recognizes that the possible extension of Federal Reserve accounts and services to designated FMUs presents credit, settlement and others risks to Federal Reserve Banks. *See* Financial Market Utilities, 78 Fed. Reg. 14,024 (proposed Mar. 4, 2013) (to be codified at 12 C.F.R. pt. 234).

³⁵ *Id.* at 14,025–26 ("FMUs will structure their settlement processes and use of Reserve Bank accounts and services, in a manner that would seek to avoid any intraday account overdraft, and . . . a designated FMU would have the resources to promptly rectify any inadvertent overdraft."). The proposed rulemaking, however, does not appear to prohibit coverage of an inadvertent overdraft. *Id.*

³⁶ *See* 12 C.F.R. § 234.4 (2013).

³⁷ *See* Financial Market Utilities, 78 Fed. Reg. at 14,026 ("[designated FMUs must be] in generally sound financial condition . . . [and i]n general a designated FMU should maintain adequate capital to support its ongoing operations and absorb reasonable business losses"). Ultimately, it is unclear that financial regulators can or will impose substantial capital requirements appropriately parallel to those required for banks. Li Lin and Jay Surti note that central counterparties will "generate the same types of financial risks" as banks and they recommend that regulators take a more prescriptive approach to "risk buffers" to prevent under-capitalization and possible regulatory arbitrage by clearing members. Li Lin & Jay Surti, *Capital Requirements for Over-the-Counter Derivatives Central Counterparties* 5–6 (Int'l Monetary Fund, Working Paper No. 13/3, 2013) available at <http://www.imf.org/external/pubs/ft/wp/2013/wp1303.pdf>.

³⁸ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 806(b). 124 Stat. 1376, 1811 (2010) (emphasis added). The use of "or" contrasts with the more restrictive "unusual and exigent" in the Federal Reserve's 13(3) emergency authority. 12 U.S.C. § 343(A) (2012).

³⁹ *See* Baker, *supra* note 24, at 109–12 (explaining the statutory prerequisites required for the use of this new Federal Reserve lending authority such as an affirmative vote by a majority of the Board of Governors, and an inability to obtain such funding from other banks).

much closer to—although certainly not identical to—that of regulated banks.⁴⁰ It can be used to assist not only clearinghouses, but any financial institution designated either ex-ante or in an emergency⁴¹ as a systemically significant FMU.

Importantly, this new lending authority of last resort⁴² fundamentally transforms the Federal Reserve's role in financial markets.⁴³ It also represents a significant expansion of the already expansive⁴⁴ federal safety net for financial markets and institutions, which is ultimately backed by taxpayers. Central banks around the world have long acted as lenders of last resort to their traditional banking systems. Lenders of last resort lend to healthy banks facing immediate, short-term funding needs due to the time frame mismatch between a bank's balance sheet assets and liabilities. The idea that central banks would also act as lenders of last resort for financial markets such as the OTC derivative markets—a role sometimes referred to as a market-maker or dealer of last resort—is more recent and controversial.⁴⁵ Yet this is effectively the result of Title VIII's reforms.

IV. Central Bank Challenges Resulting from Clearinghouse Reforms

Domestic and international reforms to OTC derivative markets will increase the size and systemic significance of certain clearinghouses. As a result of Title VIII's

⁴⁰ Both rely on section 10B of the Federal Reserve Act. See *id.* at 111. See generally *id.* at 104–14 (explaining Title VIII's reforms, including the Federal Reserve's new lending authority).

⁴¹ See Dodd-Frank Act § 804(c)(3) (providing for emergency designations by the Financial Stability Oversight Council).

⁴² In a New York University Journal of Law & Business Symposium, Thomas C. Baxter, General Counsel and Executive Vice-President of the Legal Group at the Federal Reserve Bank of New York, remarked: “And we have new lending of last resort powers with respect to financial market utilities in Title VIII of Dodd-Frank.” Symposium, *Regulatory Reform and the Future of the U.S. Financial System: An Examination of the Dodd-Frank Regulation*, 7 N.Y.U.J.L. & BUS. 427, 492 (2011).

⁴³ See Baker, *supra* note 24, at 112.

⁴⁴ Researchers at the Federal Reserve Bank of Richmond estimate that the federal financial safety net covered “as much as 57 percent of all financial firm liabilities at the end of 2011.” *How Large is the Federal Financial Safety Net?*, FED. RESERVE BANK OF RICHMOND, http://www.richmondfed.org/publications/research/special_reports/safety_net/ (last visited Apr. 18, 2013).

⁴⁵ See Baker, *supra* note 24, at 93. See also SCHOONER & TAYLOR, *supra* note 3, at 56 (“Despite initial concerns among central bankers that this course of action [acting as a purchaser of last resort] violated a leading principle of central banking followed for over a century, during the Global Financial Crisis a number of central banks adopted this practice.”). If central banks broadly adopt the role of market-makers of last resort, some economists argue that ex-ante approval of financial institution products that could be potentially purchased by a central bank would be needed. See Martin Wolf, *Central Banks Should Not Rescue Fools*, FIN. TIMES (Aug. 28, 2007), <http://www.ft.com/intl/cms/s/0/d3db8c86-5564-11dc-b971-0000779fd2ac.html#axzz2OnhkaIzl>. For an argument supporting the ex-ante approval of certain financial products, see Saule T. Omarova, *From Reaction to Prevention: Product Approval as a Model of Derivatives Regulation*, 3 HARV. BUS. L. REV. ONLINE 98 (2013), <http://www.hblr.org/?p=3111>.

reforms, the Federal Reserve is positioned to play a critical role in ensuring the financial stability of designated clearinghouses. Yet the very presence of a potential central bank backstop for systemically significant clearinghouses—essentially the possibility of catastrophic liquidity insurance—creates a significant moral hazard. Insurance changes the incentives of economic actors by introducing the risk that persons will engage in excessive risk-taking because a third party will share the potential downside costs of reckless behavior.⁴⁶ Yet the benefits of any additional risk-taking will accrue only to the person taking on the risk. For example, AIG’s CDS counterparties likely relaxed their risk management practices because of the “insurance” provided by the AIG parent’s guarantee.⁴⁷

The moral hazard concern in the clearinghouse context is the possibility that a systemically significant clearinghouse may relax traditionally robust risk management practices to improve its competitive position or to increase its revenues. If a designated clearinghouse were to need central bank assistance, the public could absorb the potential cost of this additional risk-taking. Therefore, Title VIII threatens to institutionalize the Federal Reserve’s rescue of AIG by potentially replacing the deep pockets of the AIG parent with those of the U.S. government. As I argue elsewhere, however, the regulatory reforms in Title VIII fall short of effectively addressing this critical issue.⁴⁸

Additionally, the operations of systemically significant clearinghouses are highly complex and can involve multiple jurisdictions.⁴⁹ They are in essence “globally systemic financial institutions.”⁵⁰ And just as domestic clearinghouses can fail, so too can those located overseas. Avoiding the collapse of a significant overseas clearinghouse might ultimately also require central bank assistance. An interesting twist, however, is that an overseas clearinghouse might need emergency assistance in a foreign currency for settlement purposes. And it might be infeasible to quickly obtain the necessary amounts of this foreign currency—such as U.S. dollars—from financial markets at reasonable rates or from the currency reserves of the home country central bank. In fact, the possibility of an overseas clearinghouse needing emergency euro funding has created a

⁴⁶ See SCHOONER & TAYLOR, *supra* note 3, at 60–66 (discussing moral hazard in banking).

⁴⁷ See Gretchen Morgenson, *Behind Insurer’s Crisis, Blind Eye to a Web of Risk*, N.Y. TIMES, Sept. 28, 2008, at A1, available at <http://www.nytimes.com/2008/09/28/business/28melt.html?pagewanted=all>.

⁴⁸ See Baker, *supra* note 24, at 102–03.

⁴⁹ For example, the Chicago Mercantile Exchange, designated as a systemically significant financial market utility, recently began clearing interest rate swaps, an OTC derivative, in London. See Michelle Price, *Rate-Swap Clearing Service for Europe Is Opened by CME*, WALL ST. J., Mar. 19, 2013, at C3, available at <http://online.wsj.com/article/SB10001424127887323639604578368322427725166.html>; Additionally, the language of rules implementing Title VIII’s regulatory reforms refers to the overseas operations of designated clearinghouses. See, e.g., 12 C.F.R. § 234.4(a)(1) (2013) (“[The] central counterparty has a well-founded, transparent, and enforceable legal framework for each aspect of its activities in all relevant jurisdictions.”).

⁵⁰ See Lin & Surti, *supra* note 37, at 5 (“The market power of . . . major CCPs creates necessary conditions for them to be globally systemic financial institutions.”).

controversy between the U.K. and the European Central Bank (ECB).⁵¹ The ECB insists that any clearinghouses clearing a significant amount of euro-denominated assets, and that consequently could require emergency euro funding, must be physically located in the euro zone so that its financial regulators can supervise these institutions.⁵²

If a clearinghouse needed a large infusion of foreign money, the relevant foreign central bank could supply the requisite money flows via mechanisms known as “swap lines.” The Federal Reserve’s swap lines are currency agreements that are, as currently used,⁵³ effectively secured loans from the Federal Reserve to a foreign central bank. For example, the Federal Reserve loans U.S. dollars to the ECB and these loans are collateralized by euros.⁵⁴ Although not widely understood, the Federal Reserve’s swap lines with foreign central banks played a significant role in stabilizing international PCS systems during the financial crisis.⁵⁵ Swap lines are controversial and potentially problematic.⁵⁶ In effect, they can provide insurance⁵⁷ for overseas financial institutions confronting foreign exchange shortages and attendant elevated exchange rates. Central banks might lend to another at a policy rather than a market exchange rate.⁵⁸ The swap line function is another example of a central bank acting as a lender of last resort, but this

⁵¹ See Michael Watt, *How the CCP Location Debate Helped Split the EU*, RISK.NET (Jan. 10, 2012), <http://www.risk.net/risk-magazine/feature/2134744/ccp-location-debate-helped-split-eu>.

⁵² See Jeremy Grant & Alex Barker, *ECB Clearing House Policy Could Stoke Tensions*, FIN. TIMES (Nov. 23, 2011), <http://www.ft.com/intl/cms/s/0/6602e2ca-15e2-11e1-a691-00144feabdc0.html#axzz2PicxE6S0>; Huw Jones, *UK Bolsters Clearing Lawsuit Against ECB*, REUTERS, Feb. 14, 2012, available at <http://www.reuters.com/article/2012/02/14/britain-ecb-court-idUSL5E8DE6DI20120214>.

⁵³ See Michael D. Bordo, Owen F. Humpage & Anna Schwartz, *Epilogue: Foreign-Exchange-Market Operations in the Twenty-First Century* 10 (Nat’l Bureau of Econ. Research, Working Paper No. 17984, 2012), available at http://www.nber.org/papers/w17984.pdf?new_window=1 (“Unlike most previous swap agreements, the post-2007 lines were not reciprocal. The [Federal Reserve] System did not use (or invest) the foreign exchange that it acquired through the swaps.”).

⁵⁴ See *Credit and Liquidity Programs and the Balance Sheet*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., http://www.federalreserve.gov/monetarypolicy/bst_liquidityswaps.htm (last visited Apr. 18, 2013) (describing the Federal Reserve’s swap lines).

⁵⁵ At their height, the amount of this swap line assistance reached more than \$580 billion dollars or approximately one-fourth of the Federal Reserve’s 2008 assets. See Fleming & Klagge, *supra* note 5, at 5. The Federal Reserve’s swap line assistance continues to stand in the billions even today. See generally Colleen Baker, *The Federal Reserve’s Use of International Swap Lines*, 54 ARIZ. L. REV. (forthcoming 2013), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2226708. (examining the Federal Reserve’s use of swap lines during and after the recent financial crisis and proposing a new statutory framework for these mechanisms).

⁵⁶ See generally *id.* (discussing potential public policy and regulatory and supervisory problems associated with the Federal Reserve’s swap line function).

⁵⁷ See generally Alice Ross, *BoE Urged to Support Renminbi Trading*, FIN. TIMES (Dec. 4, 2013), <http://www.ft.com/intl/cms/s/0/df40d7dc-3d69-11e2-b8b2-00144feabdc0.html#axzz2QC1mnFDd> (quoting an unnamed banker stating that “[a] swap line would be an insurance policy”).

⁵⁸ Mehrling, *Essential Hybridity: A Money View of FX*, *supra* note 1 (manuscript at 14–15) (noting that the rates at which central banks lend to one another could be policy rates).

time acting internationally.

Swap line arrangements have traditionally existed between central banks. Yet a swap line could also be put into place between a central bank and nongovernmental overseas third party, such as a clearinghouse.⁵⁹ The U.S. dollar is the international currency. It is highly foreseeable that a systemically significant overseas clearinghouse could have an emergency need for substantial amounts of U.S. dollar funding. The potential problems associated with a central bank's last resort lending to a systemically significant domestic clearinghouse would be multiplied in lending to an overseas clearinghouse over which it has no direct regulatory, supervisory, or enforcement powers.

V. Conclusion

In proactively thinking about both future problems in OTC derivative markets and future financial crises, it is important to focus on possible disruptions to PCS systems. Central banks such as the Federal Reserve are now positioned to ensure the financial stability of domestic and international financial institutions and markets that are critical to the money flows involved in these systems. But before central banks confront this situation in reality, policymakers should realize that much additional thought and regulatory reform remains to be completed. In particular, the management and resolution of a distressed systemically significant domestic or international clearinghouse requires further reflection. As a recent paper by the International Swaps and Derivatives Association soberly cautions, "the contagion risk entailed by central clearing should not be understated, and the risk of multiple defaults across [central counterparties] should not be underestimated."⁶⁰ In sum, well-intentioned reforms of OTC derivative markets could ultimately create an impossibly interconnected, concentrated, international web of clearinghouses, central banks, and swap lines resulting in a solution potentially worse than the original problem.

⁵⁹ Section 1103 of the Dodd-Frank Act suggests this possibility because it requires that information about swap line transactions with a nongovernmental third party be publicly disclosed after two years. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1103, 124 Stat. 1376, 2118–20 (2010).

⁶⁰ INT'L SWAPS & DERIVATIVES ASS'N, RISK SENSITIVE CAPITAL TREATMENT FOR CLEARING MEMBER EXPOSURE TO CENTRAL COUNTERPARTY DEFAULT FUNDS 7 (2013), *available at* <http://www2.isda.org/>.