

SYMPOSIUM

THE FEDERAL RESERVE AS COLLATERAL'S LAST RESORT

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INTRODUCTION

Central bank money or liquidity is at the heart of modern economies.¹ It is issued against collateral designated as eligible by, and on terms defined by, central bank collateral frameworks,² which are the focus of this Essay. Walter Bagehot's well-known dictum posits that in a liquidity crisis, central banks should act as lenders of last resort by lending freely against good collateral at penalty rates.³ The good collateral requirement ensures that a borrower is illiquid rather than insolvent.⁴ Yet in a financial crisis, it can be difficult—if not impossible—to distinguish between an illiquid and an insolvent firm. However, what is often underappreciated is that the ultimate practical difference between an illiquid and an insolvent firm is whether a firm has assets a central bank, such as the Federal Reserve, will accept as collateral for lending or for purchase, and at what valuation. What ultimately constitutes “good” or central bank “eligible” collateral, how best to assess its value,

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1 Kjell G. Nyborg, *Central Bank Collateral Frameworks* 1 (Swiss Fin. Inst. Rsch. Paper Series, Working Paper No. 15-10, 2015), <https://ssrn.com/abstract=2576075>.

2 *Id.*

3 See WALTER BAGEHOT, *LOMBARD STREET: A DESCRIPTION OF THE MONEY MARKET* 196–99 (New York, Scribner, Armstrong & Co. 1873).

4 Kathryn Judge, *The Federal Reserve: A Study in Soft Constraints*, 78 *LAW & CONTEMP. PROBS.*, no. 3, 2015, at 65, 78 n.69 (explaining that some have interpreted Bagehot's good collateral requirement to limit such lending to solvent institutions).

and whose perspective on these questions matters most are critical issues at the heart of central bank collateral frameworks.

In the financial crisis of 2007–09,⁵ Federal Reserve officials explained that the investment bank Lehman Brothers lacked the collateral necessary to secure its liquidity assistance.⁶ Consequently, the bank filed for Chapter 11 bankruptcy on September 15, 2008.⁷ On the following day, the Federal Reserve rescued the multinational insurer American International Group (AIG).⁸ Six months earlier, it had rescued the investment bank Bear Stearns.⁹ All three firms were important players in the shadow banking or market-based credit system.¹⁰ To collateralize their significant levels of short-term borrowing, all three firms had relied upon assets that, in the financial crisis, markets came to view as questionable.¹¹ Once markets lost faith in the quality of the firms' assets, the firms could no longer secure market funding. The Federal Reserve was their last resort. And the respective histories of these firms attest to the centrality of collateral and central bank collateral frameworks in modern credit markets.

The importance of central bank collateral frameworks extends beyond defining the terms upon which central banks provide liquidity or purchase assets. The institutional features of these frameworks, which are a result of legislation and central bank policy, can influence the production, liquidity, and pricing of assets that markets use as collateral.¹² Collateral frameworks can also impact market discipline and enable indirect bailouts of firms and governments.¹³ Those with assets a central bank such as the Federal Reserve will buy benefit from a wealth effect.¹⁴ The Federal Reserve recently

5 For simplicity, this Essay uses the phrase “financial crisis” to refer to the financial crisis of 2007–09 unless otherwise noted.

6 See Laurence Ball, *The Fed and Lehman Brothers 2* (July 2016) (unpublished manuscript) (<https://data.nber.org/data-appendix/w22410/The%20Fed%20and%20Lehman%20Brothers.pdf>) (arguing Lehman Brothers had the collateral necessary to secure the central bank's funding).

7 *Id.* at 1.

8 *Id.* at 44.

9 *Id.* at 26.

10 See *id.* at 1.

11 See *id.* at 21–22. AIG's near collapse is generally discussed in the context of its problematic credit-default swaps activity. See, e.g., William K. Sjostrom, Jr., *The AIG Bailout*, 66 WASH. & LEE L. REV. 943, 959–61 (2009). However, its securities lending activities also contributed to its troubles. See Hester Peirce, *Securities Lending and the Untold Story in the Collapse of AIG 4* (Mercatus Ctr., George Mason Univ., Working Paper No. 14-12, 2014), <https://ssrn.com/abstract=2435161>.

12 See Kjell G. Nyborg, *Collateral Frameworks: The Open Secret of Central Banks*, VoxEU (Jan. 24, 2017), <https://voxeu.org/article/how-central-bank-collateral-frameworks-distort-economy>.

13 See *id.*

14 Lev Menand, *Unappropriated Dollars: The Fed's Ad Hoc Lending Facilities and the Rules That Govern Them 25* (ECGI, Law Working Paper No. 518/2020, 2020), <https://ssrn.com/abstract=3602740>.

announced its intention to continue purchasing assets to support markets and to promote accommodative financial conditions.¹⁵

Post-financial crisis reforms and the continuing growth of the market-based credit system have fueled the importance of collateral securities in global financial markets. Yet while many economists¹⁶ and legal scholars¹⁷ have analyzed last resort lending by central banks and the shadow banking system itself,¹⁸ few have focused on collateral and central bank collateral frameworks.¹⁹ This shortfall is problematic. Market participants consider these frameworks a key consideration in collateral markets.²⁰

This Essay begins to close this gap in the legal scholarship. As it explains, collateral frameworks are institutional features of central banks that define the terms upon which central bank money is allocated in modern economies. Such allocations not only have survival implications for firms such as Lehman Brothers, but they can also impact credit allocation²¹ and wealth distribution in society.²² Increased academic scrutiny of these founda-

15 See FED. RSRV., MINUTES OF THE FEDERAL OPEN MARKET COMMITTEE 9 (2020).

16 See, e.g., Paul Tucker, *The Lender of Last Resort and Modern Central Banking: Principles and Reconstruction*, in BIS PAPERS NO. 79, RE-THINKING THE LENDER OF LAST RESORT 10, 27–28 (2014); Dietrich Domanski & Vladyslav Sushko, *Rethinking the Lender of Last Resort: Workshop Summary*, in RE-THINKING THE LENDER OF LAST RESORT, *supra*, at 1, 1–5; Mark A. Carlson & David C. Wheelock, *The Lender of Last Resort: Lessons from the Fed's First 100 Years* 32–40 (Fed. Rsrv. Bank of St. Louis, Working Paper No. 2012-056B, 2013), <https://ssrn.com/abstract=2173391>.

17 See, e.g., Colleen Baker, *The Federal Reserve as Last Resort*, 46 U. MICH. J.L. REFORM 69, 90–97 (2012); José Gabilondo, *Financial Hospitals: Defending the Fed's Role as a Market Maker of Last Resort*, 36 SEATTLE U. L. REV. 731, 732 (2013); Kathryn Judge, *The First Year: The Role of a Modern Lender of Last Resort*, 116 COLUM. L. REV. 843, 850–58 (2016).

18 See, e.g., MORGAN RICKS, THE MONEY PROBLEM: RETHINKING FINANCIAL REGULATION 3 (2016); Christina Parajon Skinner, *Nonbank Credit*, 9 HARV. BUS. L. REV. 149, 160 (2019).

19 For two notable exceptions, see generally KJELL G. NYBORG, COLLATERAL FRAMEWORKS: THE OPEN SECRET OF CENTRAL BANKS (2016) and MANMOHAN SINGH, COLLATERAL MARKETS AND FINANCIAL PLUMBING (3d ed. 2020). Singh states that “[n]o other market [besides the market for collateral] is so critical to the functioning of the financial system, and yet so poorly understood.” Manmohan Singh, *Collateral in Financial Plumbing*, in COLLATERAL MARKETS AND FINANCIAL PLUMBING, *supra*, at 7, 7.

20 BANK FOR INT’L SETTLEMENTS, CENTRAL BANK OPERATING FRAMEWORKS AND COLLATERAL MARKETS § 3, at 19 (2015) (noting that eighty percent of responding market participants surveyed stated that central bank collateral frameworks were a “very” or “somewhat” important element with respect to their participation in collateral markets”).

21 See, e.g., Kathryn Judge, *Why the Fed Should Issue a Policy Framework for Credit Policy* 1, 6–7 (Ctr. for L. & Econ. Stud., Columbia Univ. Sch. of L., Working Paper No. 632, 2020), <https://ssrn.com/abstract=3716600> (arguing that the Federal Reserve should provide a framework to illuminate the credit facilities it created to confront the economic fallout of the coronavirus crisis).

22 See Edward Luce, Opinion, *America's Dangerous Reliance on the Fed*, FIN. TIMES (Jan. 3, 2021), <https://www.ft.com/content/bcb8d4d9-ca6d-45b7-aafc-9e9ecf672a5b> (noting that the Federal Reserve's extraordinary market interventions during crises have implications for wealth inequality); see also Judge, *supra* note 4, at 65 (noting that “the Fed's actions can have significant distributional consequences”).

tional frameworks should help to promote central bank transparency, accountability, and oversight.²³

This Essay is the first step in a broader normative project analyzing the proper balance between legislation and central bank policy—between architecture and implementation—in shaping the Federal Reserve’s collateral framework to best promote market discipline and to minimize credit allocation. Its modest aim is twofold. First, it provides the first analysis of central bank collateral frameworks in the legal scholarship. Second, it analyzes the equilibrium between legislation and central bank policy in the Federal Reserve’s collateral framework in the context of its section 13(3) emergency liquidity authority, lending authority for designated financial market utilities, and swap lines with foreign central banks, and general implications of these arrangements.

Part I addresses the role of collateral in financial markets, specifically in the market-based credit system. Part II turns to central bank liquidity provision and collateral frameworks, particularly in the context of the Federal Reserve. It demonstrates that via their collateral frameworks, central banks such as the Federal Reserve act in and are acted upon by markets. Part III analyzes the equilibrium between legislation and central bank policy in the Federal Reserve’s collateral framework in the context of three emergency facilities and general implications of these arrangements. The Essay then concludes.

I. COLLATERAL AND THE SHADOW BANKING/MARKET-BASED CREDIT SYSTEM

This Part first provides a brief overview of collateral’s central role in the shadow banking or market-based credit system. It then examines the system’s fragility and the instability triggered by problems in collateral flows.

A. *Sketch of the Shadow Banking System*

As the shadow banking system grew prior to the financial crisis, collateral use by markets “rose exponentially,”²⁴ especially levels of “cash equivalent instruments.”²⁵ The shadow banking²⁶ or market-based credit system now

23 See Kathryn Judge, *A Different Take on the AIG Case: The Dangers of Invoking 19th Century Principles to Solve 21st Century Problems*, CLS BLUE SKY BLOG (June 23, 2015), <https://clsbluesky.law.columbia.edu/2015/06/23/another-take-on-aig-the-dangers-of-invoking-19th-century-principles-to-solve-21st-century-problems/> (arguing that principled guidelines for the Fed’s use of its discretionary authorities promote accountability and improve oversight).

24 Manmohan Singh & Peter Stella, *Money, Collateral and Safe Assets*, in COLLATERAL MARKETS AND FINANCIAL PLUMBING, *supra* note 19, at 81, 81.

25 Daniel K. Tarullo, Member, Bd. of Governors of the Fed. Rsrv. Sys., *Evaluating Progress in Regulatory Reforms to Promote Financial Stability* (May 3, 2013). Morgan Ricks notes the following to be a nonexclusive list of such instruments: “financial commercial paper; asset-backed commercial paper; Eurodollars; short-term repurchase agreements; securities lending collateral delivery obligations; auction rate securities; and money market mutual fund shares.” Morgan Ricks, *The Money Problem: Rethinking Financial Regulation*,

provides as much credit—if not more lending—than the traditional banking system.²⁷ However, the systems are symbiotic. Prior to the financial crisis, “[l]arge banks sponsored shadow banking entities such as Structured Investment Vehicles (SIVs), money market funds, asset-backed commercial paper conduits, and auction rate securities. These firms also dominated the underwriting of assets purchased by entities within the shadow banking system.”²⁸ The systems’ interconnectedness risks the transmission of vulnerabilities and shocks between them.²⁹ For example, in the financial crisis, shadow banking institutions turned to the traditional banking system for credit and liquidity assistance³⁰ via lines of credit when investors pulled back from funding their securities.³¹ Since the financial crisis, the shadow banking system has only continued to increase in volume,³² and in its “products, services, and financial models.”³³ Its growth has “relied on the increased use of collateral as complementary ‘liquid’ assets beyond bank reserves.”³⁴

In the shadow banking system, financial intermediation occurs via securities markets rather than depository institutions. In many ways, the shadow banking system looks, smells, and acts like traditional banking. A significant part of it consists of short-term lending via repurchase agreements (“repo”) that is used to fund longer-term securities assets. The accompanying reuse of securities collateral is “identical to the money creation that takes place in commercial banking through the process of accepting deposits and making loans.”³⁵ Collateral flows drive credit creation as much as money itself.³⁶

HARV. L. SCH. F. ON CORP. GOVERNANCE (Mar. 15, 2016), <https://corpgov.law.harvard.edu/2016/03/15/the-money-problem-rethinking-financial-regulation/>.

26 See Zoltan Pozsar, Tobias Adrian, Adam Ashcraft & Hayley Boesky, *Shadow Banking*, FED. RSRV. BANK N.Y. ECON. POL’Y REV., Dec. 2013, at 1 (defining shadow banks as “financial intermediaries that conduct maturity, credit, and liquidity transformation without explicit access to central bank liquidity or public sector credit guarantees”). Global shadow banks’ assets are around \$52 trillion, a 75% increase from 2010. Jeff Cox, *Shadow Banking Is Now a \$52 Trillion Industry, Posing a Big Risk to the Financial System*, CNBC (Apr. 11, 2019), <https://www.cnbc.com/2019/04/11/shadow-banking-is-now-a-52-trillion-industry-and-posing-risks.html>.

27 See Menand, *supra* note 14, at 58 (stating that “the shadow banking system has grown to displace the banking system in size and scope”); Randal K. Quarles, Vice Chair for Supervision, Fed. Rsrv., *The Financial Stability Board’s Roadmap for Addressing NBFV Vulnerabilities* (Oct. 20, 2020) (noting that globally, the nonbank financial intermediation sector accounts for about half of all financial intermediation).

28 Tarullo, *supra* note 25, at 2–3.

29 See Quarles, *supra* note 27; see also Laura E. Kodres, *Shadow Banks: Out of the Eyes of Regulators*, INT’L MONETARY FUND, <https://www.imf.org/external/pubs/ft/fandd/basics/52-shadow-banking.htm> (last visited Jan. 27, 2021) (discussing interconnections between shadow banks and traditional banks).

30 See Quarles, *supra* note 27.

31 See Donald L. Kohn, Vice Chairman, Bd. of Governors of the U.S. Fed. Rsrv. Sys., *Money Markets and Financial Stability* (May 29, 2008).

32 Kodres, *supra* note 29.

33 Quarles, *supra* note 27.

34 Singh & Stella, *supra* note 24, at 85.

35 Singh, *supra* note 19, at 9.

The arrangement mimics the traditional banking system's use of short-term lending (via demand deposits) to fund longer-term assets. Consequently, it also has the fragile maturity mismatch between liabilities and assets at the heart of the traditional banking system that creates the risk of bank runs and financial instability.

B. The Fragility of the Shadow Banking System

However, the shadow banking system is not regulated like the traditional banking system. It is also not explicitly encompassed within the federal government's safety net for depository institutions.³⁷ Instead, this safety-net role is supposedly played by cash-like or cash-equivalent securities used as collateral, a traditional private market self-help mechanism. Due to the shadow banking system's foundational reliance on collateral, bank-like regulation originally seemed unnecessary. It was assumed that market forces would control risk taking in this system.³⁸ Hence, borrowed funds (often via repo transactions) were not—and still are not—protected by federal deposit insurance nor do shadow banks have access to the Federal Reserve's discount window, a standing liquidity facility, if their funding dries up. However, as recent crises have demonstrated, private market securities collateral often loses its "cash-like" or "cash-equivalent" status and becomes information sensitive (illiquid) in stressed markets. When this happens, a liquidity crisis, which could lead to a credit crisis, ensues.

As collateral flows are at the core of liquidity in the shadow banking system, they impact financial market stability.³⁹ Hence, the increased incidence of credit provided by securities markets challenges traditional limits of central bank collateral frameworks. To provide assistance to this system, central banks must lend to a broader array of counterparties and against a greater variety of collateral than they traditionally would. Major central banks such as the Federal Reserve have taken actions, such as large-scale asset purchases, to assist this system, now giving them a "substantial footprint" in collateral markets.⁴⁰

Financial assets act as "a storage facility for liquidity."⁴¹ However, liquidity is dynamic and valuable.⁴² When market participants have access to liquidity insurance via central bank liquidity facilities, their incentive to prudently manage their liquidity needs decreases.⁴³ If market participants lose

36 *Id.* at 7.

37 The federal safety net for banks consists of federal deposit insurance, Fedwire, and the Federal Reserve's lender of last resort function. See George G. Kaufman & Peter J. Wallison, *The New Safety Net*, REGULATION, Summer 2001, at 28.

38 Singh & Stella, *supra* note 24, at 82.

39 See *id.*

40 BANK FOR INT'L SETTLEMENTS, *supra* note 20, at iii.

41 Nyborg, *supra* note 1, at 4.

42 Baker, *supra* note 17, at 78–79 (discussing the underpricing of liquidity risk by financial markets).

43 Kohn, *supra* note 31.

confidence in the quality of private securities collateral and only lend against the safest collateral (U.S. Treasuries), regardless of counterparty considerations, market liquidity will dry up and trouble ensues. For example, in the financial crisis, market participants lost confidence in highly rated, asset-backed securities based on subprime collateral.⁴⁴ When this happens, a “classic adverse feedback loop” is triggered,⁴⁵ with a dynamic resembling that of a traditional bank run. However, instead of withdrawing bank deposits, wholesale depositors or liquidity providers either stop lending against such securities collateral or demand steep haircuts (discounts).⁴⁶ Either path creates the dynamic of a bank-like run because both reduce the amount of funding a shadow bank, such as a Lehman Brothers or a Bear Stearns, is able to borrow against its securities assets.

In sum, securities collateral enables the market-based credit system and can have a stabilizing effect on financial markets. Yet when markets suddenly view collateral formerly judged as cash-like and “good” to now be information-sensitive and “bad,” then securities collateral can have a systemically destabilizing effect. In stressed markets, having securities collateral viewed as “good” instead of “bad” is critical.⁴⁷ Just ask the former executives of Lehman Brothers.

In the financial crisis, credit creation plummeted when the market for collateral roughly halved from \$10 trillion to about \$5 trillion.⁴⁸ To prevent the shadow banking system from collapsing, central banks engaged in asset swaps⁴⁹ of “good” collateral for “bad” collateral and expanded the monetary base.⁵⁰ Indeed, in such moments, market participants are likely to hold onto “good” collateral and exchange their “trashy collateral” with central banks.⁵¹ Central banks injected liquidity into the shadow banking system via this collateral exchange.⁵² In essence, the flexibility of central bank collateral frameworks is the public elasticity that has supported money creation in the shadow banking system.⁵³

However, “bad” or “trashy” collateral is riskier for a central bank’s balance sheet than “good” collateral. Collateral swaps can also involve fiscal

44 *Id.*

45 See Tarullo, *supra* note 25, at 3.

46 See Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo*, 104 J. FIN. ECON. 425 (2012) (explaining the bank-like runs in the repo markets at the heart of the financial crisis).

47 Singh, *supra* note 19, at 14.

48 *Id.* at 11.

49 “Asset swaps” is a term used in BANK FOR INT’L SETTLEMENTS, *supra* note 20, at 1.

50 Singh & Stella, *supra* note 24, at 86–87.

51 See Izabella Kaminska, Opinion, *A Tale of Two Collateral Markets*, FIN. TIMES (Dec. 19, 2011), <https://www.ft.com/content/a8197def-f586-34f1-bbfd-f6de6053c27a> (commenting on market participants’ collateral swaps with the European Central Bank).

52 See Singh & Stella, *supra* note 24, at 87–91.

53 See Menand, *supra* note 14, at 58 (explaining that “the Fed was designed specifically to address the fact that private money creation requires public elasticity when asset prices fall”).

considerations, an arena traditionally outside the remit of central banks.⁵⁴ Although the Federal Reserve provided extensive emergency assistance to the shadow banking system in the financial crisis,⁵⁵ the reforms that followed fell short of addressing the system's fragility and vulnerability to bank-like runs. In particular, securities financing transactions, collateral-centered transactions whose benefits include increasing the liquidity of collateral in normal markets and endowing more private market assets with money-like features,⁵⁶ remain highly vulnerable to runs.⁵⁷ In March 2020, as the adverse economic impact of the COVID-19 pandemic escalated, the Federal Reserve once again provided extensive assistance to the shadow banking system.⁵⁸

It may be appropriate for central banks such as the Federal Reserve to "do whatever it takes"⁵⁹ to prevent credit markets from collapsing in the midst of a financial crisis. As a practical matter, history suggests that this is the path that will be followed. However, private market asset creation, the market for collateral, and market participants' management of liquidity risk is not independent of central bank collateral frameworks in times of normal, and especially distressed, markets. Hence, it is critical that these frameworks balance the credit creation needs of an economy with the risk of subsidizing private markets for trashy collateral. The next Part examines central bank collateral frameworks. It then demonstrates that through these frameworks, central banks act in and are acted upon by private markets.

II. CENTRAL BANK LIQUIDITY PROVISION AND COLLATERAL FRAMEWORKS

A. Central Bank Liquidity Provision

Central bank money (liquidity) is at the heart of modern economies.⁶⁰ It acts as a "binding constraint" on banks, being necessary for meeting reserve requirements, deposit withdrawals, and transaction settlements.⁶¹ Central bank collateral frameworks impact its allocation throughout an economy⁶² because central bank money is issued against collateral on terms defined by these frameworks.⁶³

54 See Singh & Stella, *supra* note 24, at 88.

55 See Pozsar et al., *supra* note 26, at 3 (detailing liquidity provision by the Federal Reserve to the shadow banking system during the financial crisis).

56 Jeremy C. Stein, Member, Bd. of Governors of the Fed. Rsv. Sys., *The Fire-Sales Problem and Securities Financing Transactions* (Nov. 7, 2013).

57 See Tarullo, *supra* note 25, at 8.

58 See Menand, *supra* note 14, at 12–18; see also Rajdeep Sengupta & Fei Xue, *The Global Pandemic and Run on Shadow Banks*, *kCFED ECON. BULL.*, May 11, 2020, at 1, 3–4.

59 In July 2012, Mario Draghi, then the head of the European Central Bank, famously remarked that the central bank would "do whatever it takes" to preserve the Euro. See Dan McCrum, *Mario Draghi's 'Whatever It Takes' Outcome in 3 Charts*, *FIN. TIMES* (July 25, 2017), <https://www.ft.com/content/82c95514-707d-11e7-93ff-99f383b09ff9>.

60 Nyborg, *supra* note 1, at 1.

61 *Id.* at 4.

62 *Id.* at 5.

63 *Id.* at 1.

During periods of normal market functioning, central banks generally conduct open market operations (OMO) with eligible counterparties and have standing liquidity facilities for eligible counterparties.⁶⁴ For example, the Federal Reserve engages in permanent⁶⁵ and temporary⁶⁶ OMO.⁶⁷ The former consists of purchases and sales of securities, while the latter consists of repurchase agreements.⁶⁸ Eligible collateral in permanent OMO is generally narrow, for example, U.S. Treasury securities, agency securities, and agency mortgage-backed securities (MBS).⁶⁹ Collateral for temporary OMO also generally consists of U.S. Treasury securities, agency debt, and agency MBS.⁷⁰

The Federal Reserve provides lending assistance largely⁷¹ to depository institutions via its standing liquidity facility, the discount window.⁷² Here, there has traditionally been a wider range of collateral eligibility than in OMO.⁷³ However, depository institutions are highly regulated, supervised, and restricted in the types and amounts of securities assets they are permitted to hold. Hence, there are bounds on the type of collateral a depository institution would have available to secure loans from the central bank. The Fed-

64 See BANK FOR INT'L SETTLEMENTS, CENTRAL BANK COLLATERAL FRAMEWORKS AND PRACTICES 4 (2013).

65 *Permanent Open Market Operations*, FED. RSRV. BANK OF N.Y., https://www.newyorkfed.org/markets/pomo_landing.html (last visited Jan. 28, 2021).

66 *Repo and Reverse Repo Agreements*, FED. RSRV. BANK OF N.Y., <https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/repo-reverse-repo-agreements> (last visited Jan. 28, 2021).

67 "Open market" is arguably a misnomer because these transactions are limited to a select group of institutions, "primary dealers," rather than all market participants. *Id.*

68 *Credit and Liquidity Programs and the Balance Sheet: Open Market Operations*, Bd. OF GOVERNORS OF THE FED. RSRV. SYS., https://www.federalreserve.gov/monetarypolicy/bst_openmarketops.htm (last updated Aug. 13, 2019).

69 See *id.*

70 *Repurchase and Reverse Repurchase Transactions*, FED. RSRV. BANK OF N.Y., <https://www.newyorkfed.org/aboutthefed/fedpoint/fed04.html> (Aug. 2007).

71 I use the word "largely" because I have argued elsewhere that as Dodd-Frank's Title VIII liquidity authority uses the disjunctive phrase "unusual or exigent" rather than the conjunctive "unusual and exigent" as in the case of the Federal Reserve's section 13(3) emergency authority, this liquidity authority is arguably a standing facility, and it is to be provided under the same statutory provision as discount window lending, a standing facility. It allows for the provision of liquidity assistance to designated financial market utilities in merely "unusual" times if all other statutory requirements are met. Banks do not use the discount window in usual times. See Baker, *supra* note 17, at 110.

72 Scholars have argued that the discount window is a regulatory mechanism. See Peter Conti-Brown, *The Mythology of Walter Bagehot: Part I of II*, YALE J. ON REGUL.: NOTICE & COMMENT (Oct. 15, 2014), <https://www.yalejreg.com/nc/the-mythology-of-walter-bagehot-part-i-of-ii-by-peter-conti-brown/>.

73 See *Pledging Collateral*, FED. RSRV. DISCOUNT WINDOW, <https://www.frbdiscountwindow.org/RightNavPages/Pledging-Collateral.aspx> (last visited Jan. 28, 2021). Regulation A states that "[s]atisfactory collateral generally includes United States government and federal-agency securities, and, if of acceptable quality, mortgage notes covering one-to four-family residences, state and local government securities, and business, consumer, and other customer notes." 12 C.F.R. § 201.3(a)(2) (2020).

eral Reserve also has standing foreign currency swap lines, which enable it to enter currency swaps with foreign central banks.⁷⁴ In these transactions, a foreign central bank borrows dollars and collateralizes the loan with a deposit of its own currency in an account for the Federal Reserve at the foreign central bank.⁷⁵ While these are standing liquidity facilities, the swap lines can be characterized as a hybrid standing/emergency facility as the Federal Reserve has expanded the number of eligible foreign central bank counterparties in crises.⁷⁶

Central banks also play a last resort lending role in financial market crises to a more expansive set of market participants and against a broader array of collateral. The Federal Reserve's statutory emergency lending authorities are its section 13(3) authority⁷⁷ and its liquidity authority for designated financial market utilities (FMUs) in Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank").⁷⁸ Both are discussed in more detail in the next Part.

Prior to the financial crisis, the Federal Reserve's collateral framework was narrow in comparison to that of central banks such as the European Central Bank.⁷⁹ However, in the financial crisis and in the COVID-19 pandemic, the Federal Reserve greatly expanded both the types of counterparties

74 *Central Bank Liquidity Swaps*, BD. OF GOVERNORS OF THE FED. RESRV. SYS., <https://www.federalreserve.gov/monetarypolicy/central-bank-liquidity-swaps.htm> (last updated July 29, 2020); see also Colleen Baker, *The Federal Reserve's Use of International Swap Lines*, 55 ARIZ. L. REV. 603, 618–28 (2013). The Federal Reserve made its swap lines a permanent standing facility in October 2013. Jeff Black, *Central Banks Make Swaps Permanent as Crisis Backstop*, BLOOMBERG (Oct. 31, 2013), <https://www.bloomberg.com/news/articles/2013-10-31/ecb-makes-crisis-cash-lines-at-central-banks-permanent>.

75 Baker, *supra* note 74. In theory, the Federal Reserve could also borrow the foreign currency and collateralize the loan with U.S. dollars.

76 In the coronavirus pandemic, the Federal Reserve has expanded the number of its swap-line counterparties. See Serena Ng & Nick Timiraos, *COVID Boosts Fed as Global Lender—Foreign Loans Mark Significant Expansion of Power and Cement the Dollar's Dominance*, WALL ST. J., Aug. 4, 2020, at A1.

77 12 U.S.C. § 343 (2018); see also Baker, *supra* note 17; Parinitha Sastry, *The Political Origins of Section 13(3) of the Federal Reserve Act*, FED. RESRV. BANK N.Y. ECON. POL'Y REV., Sept. 2018, at 1, 1–2.

78 12 U.S.C. § 5465(b) (2018). It is unclear that this is a true emergency liquidity authority. The statutory language uses the phrase "in unusual or exigent circumstances" rather than "in unusual and exigent circumstances" as in the Federal Reserve's longstanding section 13(3) emergency authority. Baker, *supra* note 17, at 110.

79 SAMUEL CHEUN, ISABEL VON KÖPPEN-MERTES & BENEDICT WELLER, EUR. CENT. BANK, THE COLLATERAL FRAMEWORKS OF THE EUROSYSTEM, THE FEDERAL RESERVE SYSTEM AND THE BANK OF ENGLAND AND THE FINANCIAL MARKET TURMOIL 11 (2009).

and the collateral eligible to secure its liquidity assistance.⁸⁰ These decisions have at times been controversial.⁸¹

B. Central Bank Collateral Frameworks

Professor Kjell Nyborg states that “monetary and financial systems are fundamentally built on top of the collateral that central banks choose to accept in exchange for central bank money. To understand money and the broader financial system, it is therefore necessary to understand central bank collateral frameworks.”⁸² A number of considerations shape the contours of central bank collateral frameworks and influence their evolution, including central bank legislation, central bank policy and expertise, operational requirements, and a country’s financial market structure.⁸³ Post-financial crisis, collateral frameworks have generally broadened asset eligibility and refined their haircut (initial margin) policies.⁸⁴

The main institutional design features of collateral frameworks are collateral eligibility, haircut policy, counterparty eligibility, and various operational parameters.⁸⁵ Collateral frameworks can be broad or narrow and include discretionary components.⁸⁶ The broader a framework, the greater the potential for adding risk to the central bank’s balance sheet. Collateral frameworks can be uniform, having the same standards for standing liquidity

80 Some of these expansions were at the direction of Congress, while others were not. In the financial crisis, more than half of the collateral backing Federal Reserve lending facility liquidity consisted of corporate loans, residential home loans, and consumer loans. *Id.* at 29. It also included significant amounts of private market asset-backed securities (including MBS) and agency MBS. *See id.* For overviews of Federal Reserve liquidity assistance in the financial crisis, see generally MICHAEL J. FLEMING, FED. RSRV. BANK OF N.Y. STAFF REPS., FEDERAL RESERVE LIQUIDITY PROVISION DURING THE FINANCIAL CRISIS OF 2007–2009 (2012); MARC LABONTE, CONG. RSCH. SERV., R44185, FEDERAL RESERVE: EMERGENCY LENDING (2020); and, in the COVID-19 pandemic, see Menand, *supra* note 14.

81 The Federal Reserve accepted risky securities collateral (speculative-grade and equities) from Goldman Sachs and Morgan Stanley that Lehman Brothers had in significant amounts. *See* Ball, *supra* note 6, at 13; *see also* Gabilondo, *supra* note 17, at 737 (noting “the Fed lent against seemingly dubious collateral” in the crisis); Matthew Leising, *Fed Let Brokers Turn Junk to Cash at Height of Financial Crisis*, BLOOMBERG (Apr. 1, 2011), <https://www.bloomberg.com/news/articles/2011-03-31/fed-accepted-more-defaulted-debt-than-treasuries-as-rescue-loan-collateral>; The Editorial Board, Opinion, *Fed’s Junk Bond Purchases Should Be Short-Term*, FIN. TIMES (Apr. 17, 2020), <https://www.ft.com/content/d53d77d8-7fe0-11ea-8fdb-7ec06edeef84>.

82 Nyborg, *supra* note 1, at 34.

83 *See* BANK FOR INT’L SETTLEMENTS, *supra* note 64, at 3, 33. The Federal Reserve’s collateral framework has evolved since its creation. For example, the Real Bills doctrine held a prominent place in its early history. *See* Judge, *supra* note 4, at 70; Sastry, *supra* note 77, at 7. An account of this history is beyond the scope of this Essay.

84 BANK FOR INT’L SETTLEMENTS, *supra* note 64, at 1 (collecting data on the collateral frameworks of twelve central banks at different points in time).

85 Operational parameters refer to operation size, transaction term, and allocation method. BANK FOR INT’L SETTLEMENTS, *supra* note 20, § 3.4, at 31.

86 BANK FOR INT’L SETTLEMENTS, *supra* note 64, at 5.

facilities and OMOs, or differentiated on the basis of these functions.⁸⁷ If the latter, standing facilities tend to have a broader range of eligible assets,⁸⁸ as in the case of the Federal Reserve. Central banks manage collateral via pooling (linking loans to a pool of collateral), earmarking (linking loans to specific collateral), or a mixture of these arrangements.⁸⁹

An asset's "collateral value" is based upon the haircut (if any) to the market or model (theoretical) value of an eligible asset.⁹⁰ Central banks rely upon markets, economic models, and third parties, such as credit rating agencies, to price eligible assets. Both haircuts and any limits on the concentration of collateral are a critical part of central bank collateral frameworks and risk management.⁹¹ Accurate haircutting of eligible assets is tremendously important, especially in the case of illiquid assets. The pricing of illiquid assets is likely to be based upon economic models and will impact its "degree of pledgeability,"⁹² which in turn should impact its supply and demand. Prudent haircutting practices protect not only the central bank, but also avoid providing markets with incentives to overinvest in such assets, public subsidies to trashy collateral, and implicit rescue to insolvent entities.⁹³

The Bank for International Settlements (BIS) states there is a "complex interrelationship between operational frameworks of central banks and markets for collateral,"⁹⁴ that central banks act on collateral markets "intentionally and unintentionally,"⁹⁵ and that their actions have two primary channels of impact: one of scarcity and one of structure.⁹⁶ The former, illustrated in Figure 1 below, results "from the impact of central bank operations on the prices, rates, and price volatility of collateral assets arising from changes in the availability of collateral, or the collateral composition of the market," and the latter "include[s] effects from the designation of eligible securities, as well as changes in clearing and settlement systems and other infrastructure support."⁹⁷

87 *Id.*

88 *Id.*

89 *See id.*

90 *See* Nyborg, *supra* note 1, at 19.

91 *See* BANK FOR INT'L SETTLEMENTS, *supra* note 64, at 11.

92 *See* BANK FOR INT'L SETTLEMENTS, *supra* note 20, § 3.2, at 24.

93 *See* Nyborg, *supra* note 1, at 12, 15–16.

94 BANK FOR INT'L SETTLEMENTS, *supra* note 20, at iii.

95 *Id.* at 1. The three main ways in which central banks can impact collateral markets are through monetary policy operations, promoting financial stability, and providing/supporting financial market infrastructure. *Id.* at 6.

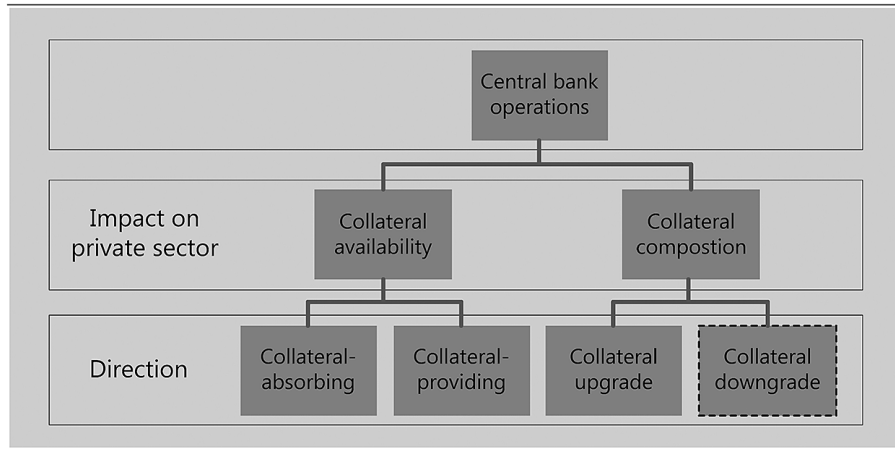
96 *Id.* at 10.

97 *Id.* at 10–11.

FIGURE 1⁹⁸

The scarcity channel and central bank operations

Graph 2



Collateral frameworks can harness market discipline, but they can also circumvent it.⁹⁹ This is potentially troublesome. These frameworks have a tremendous impact on markets and on market discipline in a number of ways as Figure 2 below suggests. First, eligible collateral is inherently more liquid in markets and will trade at a premium in comparison to ineligible collateral.¹⁰⁰ Second, collateral frameworks can be used to improve bank balance sheet liquidity by making illiquid collateral eligible and subject to minimal haircuts.¹⁰¹ Third, collateral frameworks can incentivize banks to hold less liquid collateral and relax bank incentives to monitor debtors.¹⁰² Fourth, collateral frameworks can incorporate political considerations, for example, by favorably treating government guaranteed or politically preferred assets,¹⁰³ or even treating disadvantageously politically disfavored assets.¹⁰⁴

98 *Id.* at 13 fig.2.

99 See Nyborg, *supra* note 1, at 26, 29. Nyborg argues that the Eurosystem's collateral framework relies minimally on markets, that "it appears that many features of the framework are designed to circumvent market discipline," and that it is "biased towards . . . lower quality collateral." *Id.* Furthermore, "[t]here appears to be a preference, or bias, towards the usage of more illiquid and risky collateral that has increased over time. The production of lower quality collateral has increased as well." *Id.* at 29.

100 See Nyborg, *supra* note 12.

101 *Id.*

102 Nyborg, *supra* note 1, at 15.

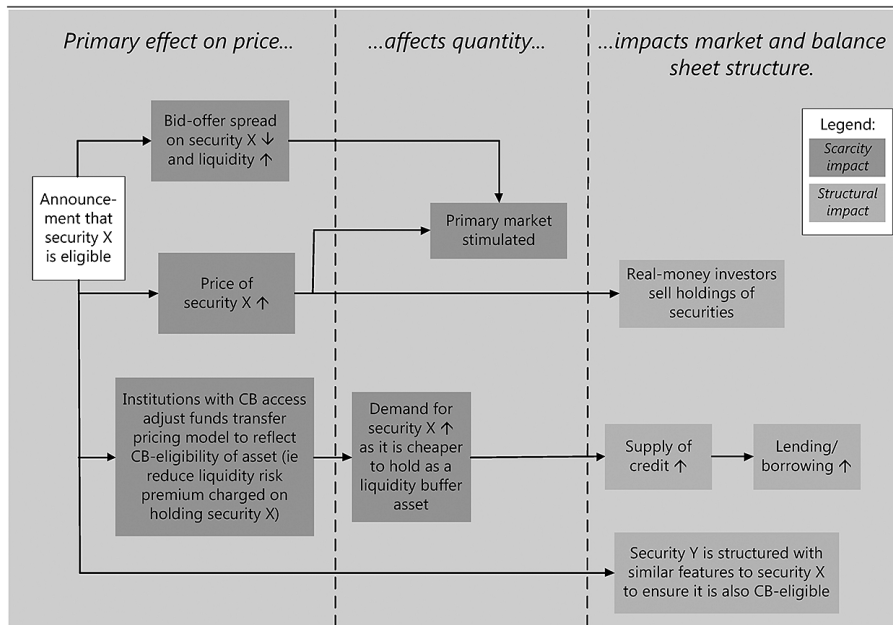
103 Nyborg, *supra* note 12.

104 This possibility is suggested by recent instances in which politically favored/disfavored businesses arguably received disparate treatment by various actors in the banking system. See, e.g., Colleen M. Baker, *Entrepreneurial Regulatory Legal Strategy: The Case of Cannabis*, 57 AM. BUS. L.J. 911 (2021); Julie Andersen Hill, *Regulating Bank Reputation Risk*, 54 GA. L. REV. 523, 533 (2020); Brian Knight & Trace Mitchell, *Private Policies and Public Power: When Banks Act as Regulators Within a Regime of Privilege* 3–4 (Oct. 2019)

As a central bank’s balance sheet increases, so will its risk and the opportunity for political pressures to shape it, which could pose a risk to the central bank’s reputation and independence.¹⁰⁵ Fifth, collateral frameworks can provide arbitrage opportunities to banks by impacting the cost of pledging different assets.¹⁰⁶ Lastly, collateral frameworks can affect indirect bailouts of financial institutions or sovereigns.¹⁰⁷

FIGURE 2¹⁰⁸

Transmission map – possible impacts of making a new asset central bank-eligible Graph 4



In sum, “collateral frameworks may have distortive effects on financial markets and the wider economy.”¹⁰⁹ The less liquid an eligible asset, the more a central bank will rely on model (theoretical) pricing. This discretion risks price distortion, which ultimately risks providing a generous pricing floor for and incentivizing overinvestment in junk securities. This is problematic. Mispriced risk is at the core of financial crises. Hence, collateral frameworks can support financial market stability, but they can also ul-

(unpublished manuscript) (<https://www.mercatus.org/system/files/knight-banks-as-regulators-mercatus-working-paper-v1.pdf>).

105 See Nyborg, *supra* note 1, at 10 (quoting Klaas Knot, President, Neth. Bank, Central Bank Independence and Unconventional Monetary Policy—Challenges for the European Central Bank (Oct. 15, 2013)).

106 *Id.* at 30; see also Kaminska, *supra* note 51.

107 Nyborg, *supra* note 12.

108 BANK FOR INT’L SETTLEMENTS, *supra* note 20, § 3 fig.4, at 20.

109 Nyborg, *supra* note 1, at 2.

mately contribute to systemic risk and promote financial market instability as they act in and are acted upon by markets.

C. Central Banks Act in and Are Acted upon by Markets Through Collateral Frameworks

Professors Robert C. Hockett and Saule T. Omarova argue that government can assume one or more of four market actor roles in the “[m]urky [m]iddle” that exists between the poles of public (government) and private (market) activity.¹¹⁰ In these roles, “government instrumentalities act *on* markets by acting *in* them.”¹¹¹ Via their collateral frameworks, central banks assume all of these roles. As a *market maker*, government steps into the market as a counterparty or a buyer of last resort, essentially “underwriting” products, which “affords confidence to the would-be marketer of the product in question to go ahead and ‘bring it to market,’ since this seller need no longer bear the risk of non-sale.”¹¹² Economists and legal scholars have noted that the Federal Reserve acted as a market maker of last resort in the financial crisis.¹¹³ Many argue that given the structure of modern credit markets, the Federal Reserve should act as a market maker of last resort.¹¹⁴ The Federal Reserve has assumed this role in practice by the elasticity or expansion of its collateral framework, and expanding eligible assets and counterparties.

In the related role of *market preserver*, the government sustains or backstops markets that would otherwise be extinguished.¹¹⁵ Here too, a central bank’s collateral framework is the instrumentality that enables this role in practice. It empowers the central bank to make accommodative or favorable decisions regarding collateral assets in a specific market. In the *market-levering* role, the government guarantees certain assets by providing a “secondary market or higher-order risk-pooling arrangement,”¹¹⁶ or “plays a standard-setting or related coordination problem-solving role by favoring a particular standard in its own influential market acting.”¹¹⁷ Consequently, it decreases the costs of certain assets, which incentivizes their production.¹¹⁸ Collateral frameworks can advantage (subsidize) certain assets not only by making them eligible to secure liquidity assistance, but also by imposing a minimal (if any)

110 Robert C. Hockett & Saule T. Omarova, “*Private*” Means to “*Public*” Ends: Governments as Market Actors, 15 THEORETICAL INQUIRIES LAW 53, 54–56 (2014).

111 *Id.* at 76.

112 *Id.* at 58.

113 See, e.g., PERRY MEHRLING, THE NEW LOMBARD STREET: HOW THE FED BECAME THE DEALER OF LAST RESORT 2 (2011); Baker, *supra* note 17, at 71.

114 See, e.g., Willem Buiter & Anne Sibert, *The Central Bank as the Market Maker of Last Resort: From Lender of Last Resort to Market Maker of Last Resort*, VOXEU (Aug. 13, 2007), <https://voxeu.org/article/subprime-crisis-what-central-bankers-should-do-and-why>. But see Kohn, *supra* note 31 (stating “that central banks should not allocate credit or be market makers on a permanent basis”).

115 Hockett & Omarova, *supra* note 110, at 69.

116 *Id.* at 66.

117 *Id.*

118 See *id.* at 65–66.

haircut.¹¹⁹ Finally, through its *market-moving* role, the government impacts market prices.¹²⁰ An example of this is OMO by central banks.¹²¹ Here too, it is the central bank's collateral framework that will determine the collateral markets in which it acts on prices.

Professors Hockett and Omarova argue that government uses its market-actor role “for *public* rather than *private* ends”¹²² and that its actions in various roles are not necessarily indefinitely efficient.¹²³ This latter caveat is especially important for central bank collateral frameworks, a consummate example of government as market actor. This is because central bank collateral frameworks could incentivize overinvestment in bad collateral should they become viewed as a dependable lender or buyer of last resort.¹²⁴ In this way, markets act on central banks and push the boundaries of their collateral frameworks. Hence, the institutional features of specific frameworks will determine their efficiency and whether this government market-actor role ultimately promotes public rather than private ends.

III. COLLATERAL REQUIREMENTS OF THE FEDERAL RESERVE'S SECTION 13(3), DODD-FRANK TITLE VIII, AND SWAP-LINE LENDING AUTHORITIES

This Part analyzes the Federal Reserve's post-Dodd-Frank collateral frameworks in the context of its section 13(3) emergency authority, its lending authority for designated financial market utilities, and its central bank swap lines. In particular, it analyzes the current balance between legislation and central bank policy in this area and general implications of these arrangements.

Congress established the Federal Reserve's section 13(3) emergency liquidity authority in 1932, enabling it to lend to nondepository institutions in “unusual and exigent circumstances.”¹²⁵ Prior to the financial crisis, the Federal Reserve had last used this authority in the 1930s.¹²⁶ In the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), Congress made a small, but seismic, change to this power.¹²⁷ Previously, the Federal Reserve Act limited the collateral eligible for securing such loans to “the kinds and maturities made eligible for discount for member banks under other provisions of this chapter.”¹²⁸ In general, this meant government

119 See Nyborg, *supra* note 12.

120 See Hockett & Omarova, *supra* note 110, at 65.

121 *Id.*

122 *Id.* at 56.

123 *Id.* at 67.

124 Nyborg, *supra* note 1, at 12.

125 See Sastry, *supra* note 77, at 1.

126 See *id.*

127 See Federal Deposit Insurance Corporation Improvement Act of 1991, Pub. L. No. 102-242, § 473, 105 Stat. 2236, 2386 (codified as amended at 12 U.S.C. § 343 (2018)).

128 See *id.*

securities or collateral related to commercial transactions.¹²⁹ Post FDICIA, such lending merely had to be “secured to the satisfaction of the Federal reserve bank.”¹³⁰

The Federal Reserve made extensive use of its section 13(3) emergency liquidity authority during the financial crisis.¹³¹ As legal scholars have noted, Dodd-Frank subsequently curtailed this liquidity authority.¹³² However, they have not generally focused on the collateral-related amendments. Post-Dodd-Frank, collateral-backing section 13(3) lending would have to be “sufficient to protect taxpayers from losses.”¹³³ Additionally,

[t]he policies and procedures established by the Board [of Governors of the Federal Reserve] shall require that a Federal reserve bank assign, consistent with sound risk management practices and to ensure protection for the taxpayer, a lendable value to all collateral for a loan executed by a Federal reserve bank.¹³⁴

Dodd-Frank also requires that after a two-year period, the Federal Reserve disclose “information identifying the types and amounts of collateral pledged or assets transferred in connection with participation in any credit facility or covered transaction.”¹³⁵

The Federal Reserve amended Regulation A, “Extensions of Credit by Federal Reserve Banks,” to implement Dodd-Frank’s amendments.¹³⁶ Its proposed rule received fewer than twelve comments.¹³⁷ Suggestions included limiting the types of collateral eligible for emergency lending and requiring an independent valuation of the collateral.¹³⁸ The Federal Reserve incorporated neither suggestion in the final rule. It explained that

[t]he final rule continues to emphasize the importance of ensuring that the security for emergency loans is sufficient to protect taxpayers from losses [A]ll credit extended under emergency lending programs and facilities must be indorsed or otherwise secured to the satisfaction of the lending Federal Reserve Bank.¹³⁹

129 Walker Todd, *Rewarding Bad Behavior: The Bear Stearns Bailout*, INST. FOR NEW ECON. THINKING (Mar. 12, 2018), <https://www.ineteconomics.org/perspectives/blog/rewarding-bad-behavior-the-bear-stearns-bailout>.

130 12 U.S.C. § 343 (2018); see Walker F. Todd, *FDICIA’s Emergency Liquidity Provisions*, 29 ECON. REV., no. 3, 1993, at 16, 20.

131 See Sastry, *supra* note 77, at 1–2.

132 See, e.g., Hal S. Scott, *The Federal Reserve: The Weakest Lender of Last Resort Among Its Peers*, 18 INT’L FIN. 321, 322 (2015); see also Baker, *supra* note 17.

133 12 U.S.C. § 343.

134 *Id.*

135 See Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1103(b)(1)(D), 124 Stat. 1811–12 (codified at 12 U.S.C. § 5465 (2018)). This requirement covers emergency lending, discount window lending, and OMOs. See *id.*

136 See Extensions of Credit by Federal Reserve Banks, 80 Fed. Reg. 78,959 (Dec. 18, 2015).

137 *Id.*

138 *Id.* at 78,960.

139 *Id.* at 78,962.

Furthermore, it added, “[t]he Federal Reserve Banks have long assigned a lendable value to collateral at the time credit is extended”¹⁴⁰ and “[i]n all cases, the Reserve Bank applies appropriate discounts or ‘haircuts’ to the value of the collateral,” which are available on its website.¹⁴¹ In sum, it is unclear that Dodd-Frank’s collateral-related amendments to the Federal Reserve’s section 13(3) emergency authority had much practical effect or shifted the equilibrium between legislation and central bank policy in its collateral framework for this emergency authority.

In Dodd-Frank’s Title VIII, “Payment, Clearing, and Settlement Supervision,” the Federal Reserve is granted a new liquidity authority for financial market utilities (FMUs),¹⁴² which are critical infrastructure institutions such as derivatives clearinghouses,¹⁴³ that have been designated as systemically important by the Financial Stability Oversight Council (FSOC).¹⁴⁴ This authority provides that in “unusual or exigent circumstances,” the Federal Reserve “may authorize a Federal Reserve bank” under section 10B of the Federal Reserve Act,¹⁴⁵ which addresses “Advances to individual member banks on time or demand notes; maturities; time notes secured by mortgage loans covering one-to-four family residences,” to lend to designated FMUs. However, Dodd-Frank does not contain collateral-related provisions for this new authority. Such lending must merely be “secured to the satisfaction of such Federal Reserve bank.”¹⁴⁶ Even if Dodd-Frank had included collateral-related provisions in this liquidity authority similar to those it added to the section 13(3) liquidity authority, it is unclear what (if any) impact such language would have in practice. However, the delayed collateral-disclosure requirements are likewise applicable here.¹⁴⁷

Thus far, the majority of the eight designated FMUs are clearinghouses, which have unique balance sheets. As Professor Darrell Duffie explains:

140 *Id.*

141 *Id.* The Federal Reserve’s haircut schedule for commonly pledged collateral is at *Discount Window Margins and Collateral Guidelines*, FED. RSRV. DISCOUNT WINDOW, <https://www.frbdiscountwindow.org/pages/collateral/discount%20window%20margins%20and%20collateral%20guidelines> (last updated Oct. 23, 2020).

142 Dodd-Frank Wall Street Reform and Consumer Protection Act §806(b), 12 U.S.C. § 5465 (2018). For an overview of the Federal Reserve’s Title VIII liquidity authority, see Baker, *supra* note 17, at 117.

143 Clearinghouses are critical financial market infrastructures used in the post-trade process. See Colleen M. Baker, *Incomplete Clearinghouse Mandates*, 56 AM. BUS. L.J. 507, 507 (2019). Several types exist. Derivatives clearinghouses promote transactional efficiencies, manage counterparty credit risk, and are the centerpiece of global policymakers’ framework of reforms in the over-the-counter derivative markets. *Id.* at 526–27. Dodd-Frank provided the Federal Reserve with the authority to grant accounts and services to designated FMUs. *Id.* at 518.

144 See *Designated Financial Market Utilities*, BD. OF GOVERNORS OF THE FED. RSRV. SYS., https://www.federalreserve.gov/paymentsystems/designated_fmu_about.htm (last updated Jan. 29, 2015).

145 12 U.S.C. § 347b (2018).

146 12 U.S.C. § 347b(a).

147 See Dodd-Frank Act § 1103.

The balance sheet of a CCP is quite different from those of other major types of systemically important financial institutions such as banks, broker-dealers, and insurance companies. . . . The bulk of the financial risk of a CCP is not represented by conventional assets and liabilities. Rather, a CCP is essentially a nexus of contracts by which its clearing members net and mutualize their counterparty default risk. In the normal course of business, the daily payment obligations of a CCP automatically sum to zero. Because of this, a CCP tends to have tiny amounts of equity and conventional debt relative to its largest potential clearing obligations. Most of the tail risk of a CCP is allocated to its clearing members.¹⁴⁸

Consequently, if the Federal Reserve were to assist a distressed clearinghouse, it is not only unclear whether substantial collateral would be available to secure such lending, but it is also unclear what type of collateral would be available. For example, if a designated credit default swap (CDS) clearinghouse were distressed due to the default of one or more members, could a portfolio of CDS secure such assistance? Is the Federal Reserve's collateral framework sufficiently elastic for CDS to be eligible collateral and should it be?¹⁴⁹ The equilibrium between legislation and central bank policy in the Federal Reserve's collateral framework for designated FMUs leans predominantly toward central bank policy.

Finally, the Federal Reserve has expanded its standing central bank swap lines to additional counterparties in crises.¹⁵⁰ Foreign central banks turn around and lend these dollars to domestic institutions.¹⁵¹ These U.S. dollar loans are collateralized by a deposit of the foreign central bank borrower's currency in an account of the Federal Reserve at that central bank. Hence, these loans are nontraditionally secured.¹⁵² Potential differences in the borrower's collateral framework could create collateral-arbitrage opportunities for global financial market participants. Commentators suggest that "[u]nless central banks act collectively to re-establish control of quality collateral—it won't make much of a difference."¹⁵³

The Federal Reserve has used its swap lines extensively. However, this liquidity facility is not based on an explicit statutory provision.¹⁵⁴ Histori-

148 Darrell Duffie, *Resolution of Failing Central Counterparties*, in MAKING FAILURE FEASIBLE: HOW BANKRUPTCY REFORM CAN END "TOO BIG TO FAIL" 87, 88 (Kenneth E. Scott, Thomas H. Jackson & John B. Taylor eds., 2015).

149 See Baker, *supra* note 17, at 103 & n.222 (arguing that in extreme circumstances, the Federal Reserve might have to essentially lend against or buy a CDS portfolio as arguably in the case of AIG).

150 See Ng & Timiraos, *supra* note 76.

151 See Baker, *supra* note 74, at 603.

152 The legal authority for the Federal Reserve's swap lines is beyond the scope of this Essay. For research on this issue, see Baker, *supra* note 74, at 622–23; Peter Conti-Brown & David Zaring, *The Foreign Affairs of the Federal Reserve*, 44 J. CORP. L. 665, 690–96 (2019); Menand, *supra* note 14.

153 Kaminska, *supra* note 51.

154 See Baker, *supra* note 74, at 628.

cally, a patchwork of statutory provisions has been used to justify this power.¹⁵⁵ Thus far, Congress has chosen not to take any legislative action in this area except to require in Dodd-Frank that were such lending used for a nongovernmental third party, that it be disclosed after two years.¹⁵⁶ Hence, the equilibrium between legislation and central bank policy in the Federal Reserve's collateral framework for its swap lines tilts almost exclusively toward central bank policy.

The normative equilibrium between legislation and central bank policy in collateral frameworks is tremendously important. Among the critical issues at stake are who primarily decides credit/fiscal policy, discipline in collateral markets, characteristics of the central bank's balance-sheet risk, and the central bank's flexibility in responding to crises. The BIS states that:

Overall, a pragmatic approach was taken [in the financial crisis] to secure credit in order to deal with the evolving situation and manage collateral scarcity. This suggests that it is difficult, *ex ante*, to establish principles about what collateral will be acceptable in all situations. This argues in favour of relatively flexible collateral frameworks. This is particularly the case in times of systemic liquidity stress, when the demand for central bank-eligible collateral increases rapidly.¹⁵⁷

Indeed, it is highly foreseeable that central banks will be incredibly pragmatic in a crisis, and that some flexibility is needed in their collateral frameworks. Yet as Donald Kohn, former Vice Chairman of the Board of Governors of the Federal Reserve, notes:

[M]arket participants must reassess their assumptions about the stability of secured funding in circumstances in which the liquidity of the markets for the underlying collateral becomes impaired. . . . [T]he existence of central bank credit facilities can so undermine incentives for maintaining liquidity buffers that institutions hold more longer-term assets than is socially desirable and thereby pose excessive risk to themselves and the financial system.¹⁵⁸

CONCLUSION

The tremendous importance of central bank collateral frameworks and of collateral securities to modern credit markets is clear. This Essay highlights the near absence of these frameworks in the legal scholarship, their general institutional features, and the equilibrium between legislation and central bank policy in the context of three of the Federal Reserve's emergency lending authorities. The author plans future research in this area designed to explore the proper normative equilibrium between legislation

155 See *id.* at 610.

156 See Baker, *supra* note 17, at 122 n.312 (explaining the statutory basis for the author's assertion of this requirement).

157 BANK FOR INT'L SETTLEMENTS, *supra* note 20, §2.2, at 9.

158 Kohn, *supra* note 31, at 3.

and central bank policy to best promote market discipline and to minimize credit allocation by central banks via their collateral frameworks.

