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IS THE DODD-FRANK ACT'S CLEARING MANDATE OBSOLETE?

STUART J. KASWELL

Has new financial technology, such as blockchain, made portions of the Dodd-Frank Act obsolete? Should Congress amend this legislation to replace the clearing mandates for swaps and security-based swaps with a requirement that market participants meet specified goals by whatever means they choose? This article examines why I believe Congress should replace the clearing mandates with standards-based requirements.

Summary

Congress should amend the clearing mandates for swaps and security-based swaps in the Commodity Exchange Act (CEA) and the Securities Exchange Act of 1934 (Exchange Act), respectively. Congress mandated a specific solution to address the need for greater regulatory supervision, improved transparency, and less systemic risk with respect to the trillion-dollar derivatives markets. Innovators are seeking to replace existing methods for trading and settling financial products with developments, such as blockchain or distributed ledger technology. These innovations may make the technology-specific mandates in the Dodd-Frank Wall Street and Consumer Protection Act of 2010 (Dodd-Frank Act)[1] obsolete. To foster innovation and to ensure that regulators have the means for proper oversight, Congress should replace the technology-specific mandate of clearing, and instead, identify goals and standards for the derivatives markets.

Background

Although thoughtful people will differ[2] over the causes of the Great Recession of 2008, most observers agree that the federal government's failure to regulate the trillion-dollar derivatives market was a significant precipitating factor.[3] For example, U.S. financial regulators, along with many other observers at the time, feared that if American International Group Inc. (AIG) and its enormous derivatives portfolio failed, it would trigger cascading failures across the country.[4] Accordingly, the Federal Reserve and U.S. Treasury loaned money or purchased securities from AIG in a bailout worth $141.8 billion by April 2009.[5]

In the wake of the Great Recession of 2008, Congress enacted the Dodd-Frank Act. Among its key provisions was Title VII, which imposed specific new requirements on the over-the-counter (OTC) derivatives market and divided regulatory oversight of derivatives market participants among the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and the federal banking agencies. Under Title VII, Congress also bifurcated regulatory authority over derivatives products by charging the CFTC with regulating swaps activity and charging the SEC with regulating security-based swaps activity.[6]

These congressional mandates included requiring market participants to clear many swaps or security-based swaps,[7] subject to certain limited exceptions. Congress imposed the clearing obligation as its preferred approach for addressing risk and improving transparency in the derivatives markets. As Rep. Paul Kanjorski (D-Pa.), chairman of the House Subcommittee on Capital Markets, noted during House consideration of the conference agreement:

> This conference agreement finally addresses the utter lack of regulation in this enormous market by mandating the clearing of most derivative contracts on exchanges so that we have more transparency. For those derivatives that are not cleared, the bill's reporting and disclosure requirements ensure that information on the transaction is maintained.[8]

This mandate was consistent with the G-20 Leaders Statement from the 2009 Pittsburgh Summit. Included in the framework for strengthening the international financial regulatory system was a commitment to clearing derivatives:

> *Improving over-the-counter derivatives markets*: All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements. We ask the [Financial Stability Board (FSB)] and its relevant members to assess regularly implementation and whether it is sufficient to improve transparency in the derivatives markets, mitigate systemic risk, and protect against market abuse.[9]

Clearing is an old approach[10] to managing risk among those who trade securities, futures, or other financial products. The key idea is that:

> Clearinghouses maintain market integrity and capital protections by standing in the middle of each trade—the buyer to every seller's clearing member and the seller to every buyer's clearing member. Once a trade has been matched, the clearinghouse becomes the central counterparty to the trade, thereby guaranteeing financial performance of the contract. This robust counterparty risk intermediation is critical to supporting the availability of efficient and liquid markets.[11]

Derivatives clearing organizations also "compress" or pair off a participant's trades. The clearing organization nets a participant's trades within its portfolio "that have economically compatible characteristics with one another."[12]

Clearing offers definite benefits by reducing counterparty risk and acting as guarantor of transactions. By centralizing risk, central clearing parties (CCPs) have strong incentives to manage risk effectively. Critics observe that centralizing risk means that the failure of a few organizations could cause a financial collapse. As then-Federal Reserve Chairman Ben Bernanke noted:

> By centralizing and standardizing specific classes of financial transactions, clearinghouses reduce the costs and operational risks of clearing and settlement among multiple market participants. In many cases they also act as a guarantor of transactions—the counterparty to every trade—thereby helping to reduce counterparty credit and liquidity risks. However, the flip side of the centralization of clearing and settlement activities in clearinghouses is the concentration of substantial financial and operational risk in a small number of organizations, a development with potentially important systemic implications.[13]

The Dodd-Frank Act included a number of qualifications and exceptions from the clearing requirements it established.[14] During Congress' debate on the legislation, many members expressed the view that it was not appropriate to extend the clearing mandate to all parties to a derivative without exception. In particular, some members thought that the legislation should not subject end-users to clearing. For example, Rep. Gary Peters (D-Mich.) noted during floor consideration: "Commercial end users, who are those who use derivatives to hedge legitimate business risks, do not pose systemic risk and because they solely use these contracts as a way to provide consumers with lower cost goods, they are exempted from clearing and margin requirements."[15] Rep. Collin Peterson (D-Minn.), chairman of the House Committee on Agriculture, further explained that:

> It was the Agriculture Committee, on a bipartisan basis, that embraced mandatory clearing well before the idea became popular. Clearing is not only a means to bring greater transparency to the derivative markets, but it also should reduce the risk that was prevalent throughout the over-the-counter market. The conference report closely follows the House approach to mandatory clearing. In crafting the House bill and the conference report, we focused on creating a regulatory approach that permits the so-called end users to continue using derivatives to hedge risks associated with their underlying businesses, whether it is energy exploration, manufacturing, or commercial activities.

Chairman Peterson further explained that the exemptions for end users do not apply to major swap participants and swap dealers.[16]

The CFTC has used its authority to exempt from clearing in accordance with its understanding of the congressional mandate.[17] The Dodd-Frank Act's preferred approach for addressing risk and improving transparency in the derivatives markets is to impose a clearing obligation on market participants as far as practicable. Regulators probably would be abusing their discretion if they granted broad exemptions from clearing, even if the regulators were trying to accommodate blockchain or some other new technology.

The Problem

Although Congress acted with good intentions, it is increasingly apparent that the CCP model may not always be the best solution to settle financial transactions and to manage risk. Indeed, someday clearing may become obsolete—and that "someday" may be sooner, rather than later.

Cryptocurrency grabbed headlines when the price of one such cryptocurrency, Bitcoin, spiked in price.[18] But the bigger story in the long run may not be cryptocurrencies, even though they may become an important part of the financial landscape. In my view, the bigger story is the development of blockchain, an electronic ledger system that keeps track of any type of transaction. All users of the system have a copy of the ledger—there is no central, master ledger. Blockchain operates using consensus protocols to ensure that when one person makes a change to the ledger, a majority of the users in that network must agree to the change for the ledger to accept the change. "Those transactions can in principle represent anything. They could be actual exchanges of money, as they are on the blockchains that underlie cryptocurrencies like Bitcoin. They could mark exchanges of other assets, such as digital stock certificates."[19] Because of its inherent protections, blockchain allows parties who may not know or trust each other to transact business without relying on a central record-keeper.[20] The absence of a central record-keeper may make blockchain less vulnerable to thieves, such as hackers, who wish to steal or manipulate the data.[21]

Blockchain is the antithesis of a centrally cleared system that depends on a central party to authenticate transactions.[22] It is an entirely different mechanism for sharing transactional data, including financial transactions.[23] Blockchain is in its infancy and may not be suitable for all settings. For example, it does not allow users to alter prior entries even when they are erroneous. Further, blockchain may make it difficult to transfer data to a new system.[24] By comparison, the current CCP model allows for "multiple versions of the truth," meaning that different record-keeping systems may have differing records of the same transaction. Current CCP systems are vulnerable to cyber-attack and are very complex.[25]

The FSB and other standard setting bodies note that "central clearing of standardised OTC derivatives is a pillar of the G-20 leaders' commitments to reform OTC derivatives markets in response to the financial crisis."[26] The FSB reports that many countries have honored their commitments to clear derivatives.[27] Changing that system would involve abandoning significant legal and infrastructure at considerable cost. Finally, regulators have established protocols for examining CCPs.

CCPs have an enviable record of performance. For example, in 2017, DTCC processed $1.6 quadrillion in securities transactions.[28] DTCC's CCP "daily volume averages over 100 million individual trades. DTCC has tested its system performance to handle well over 800 million trades, which is just over twice its historical peak volume."[29] The current CCP model has advantages, such as low costs and netting. DTCC notes that "it is even … difficult to begin a long, expensive replacement process [for a CCP-based system] without a clear risk and cost reduction benefit."[30]

But as successful as CCPs have been, it would be foolish to assume that no one will be able to develop anything better. DTCC itself has undertaken a study that demonstrates that "distributed ledger technology (DLT) is capable of supporting average daily trading volumes of more than 100 million shares per day."[31] As DTCC notes, DLT is similar to blockchain.[32]

In my opinion, Congress should not require clearing and the CCP model as an end in and of itself. Congress imposed derivatives clearing because it reasonably deemed clearing as the most efficient way to reduce systemic risk and to improve transparency in the derivatives market. However, if newer technologies provide even greater public benefit at lower cost, shouldn't Congress permit the financial services industry, and the customers they serve, to use those newer technologies? Indeed, legal prohibitions protecting the CCP model may discourage innovators from seeking to perfect blockchain or other alternatives for the financial services sector. Again, my point is that Congress should allow the marketplace to determine which approach works best, not mandate a specific approach by statute.

History as Analogue

Congress should replace the prescriptive derivatives clearing requirement in the Dodd-Frank Act with a more flexible standards-based framework. Congress and regulators have taken this more flexible approach in other contexts and it has worked remarkably well. This article discusses some examples below. The article also discusses one example when regulators specified that regulated entities use a specific technology that did not have a good result.

Legislative Examples

Paperwork Crisis

During the late 1960s and 1970s, the securities industry encountered the "Paperwork Crisis." As trading volumes expanded, broker-dealers and exchanges were unable to process the paperwork associated with the trades. Securities trades often settled by the exchange of physical certificates, rather than by book-entry. The securities industry and the exchanges failed to modernize their systems for processing securities trading. The crisis became so severe that the exchanges reduced trading hours and even closed one day per week in an effort to resolve these problems. Many broker-dealers failed and the New York Stock Exchange's Trust Fund compensated many customers for the losses that they suffered from those failures. Congress directed the SEC to study and document the problems. In 1971, the SEC prepared a "Study of Unsafe and Unsound Practices of Brokers and Dealers."[33] Among the remedies that the report urged was improving securities clearing. [34]

Congress enacted the Securities Acts Amendments of 1975[35] to address the Paperwork Crisis and otherwise to modernize the federal securities laws. In that legislation, Congress did not mandate a specific securities processing methodology to address the Paperwork Crisis. Congress added § 17A to the Exchange Act, directing the SEC to create a national system for the clearance and settlement of securities transactions (NSCSST). In particular, § 17A(a)(2)(A) provides:

> The [SEC] is directed, therefore, having due regard for the public interest, the protection of investors, the safeguarding of securities and funds, and maintenance of fair competition among brokers and dealers, clearing agencies, and transfer agents, to use its authority under this chapter to facilitate the establishment of a national system for the prompt and accurate clearance and settlement of transactions in securities (other than exempted securities)….[36]

Congress added other provisions for the registration and regulation of clearing agencies and transfer agents. In particular, it required entities performing clearing to register as clearing agencies under the Securities Exchange Act and to meet specified requirements.[37] But most significantly, the statute itself does not command the SEC or its regulatees to clear any class of securities transactions. Instead, rules of FINRA, NYSE, OCC, and other self-regulatory organizations (SROs) impose clearing obligations on clearing firms and introducing broker-dealers.[38] Although in 1990, Congress amended this portion of §17A of the Exchange Act, it did not alter the structure of the statutory mandates for the NSCSST. In particular, that legislation did not impose specific clearing requirements on any class of securities.[39]

The NSCSST has employed CCPs, among other things, to address the problems of the Paperwork Crisis and to absorb geometrically larger trading volumes that broker-dealers have executed for their customers since then. Nonetheless, in my view, Congress wisely did not dictate clearing as the only solution to address the policy concerns that it identified.

National Market System

Congress added § 11A in the 1975 Acts Amendments to create a national market system. Section 11A(a)(2) of the Exchange Act provides:

> The [SEC] is directed, therefore, having due regard for the public interest, the protection of investors, and the maintenance of fair and orderly markets, to use its authority under this title to facilitate the establishment of a national market system for securities (which may include subsystems for particular types of securities with unique trading characteristics).[40]

Congress did not attempt to micromanage the characteristics of the national market system. It has used this authority in the intervening years to encourage greater competition among equity markets. The SEC has been increasingly aggressive in requiring change. For example, in 1980 the SEC adopted Exchange Act Rule 19c-3, which amended the rules of national securities exchanges to eliminate exchange rules that prohibited members of those exchanges from trading listed stocks otherwise than on those exchanges.[41] However, the rule grandfathered existing listings. In 2000, the SEC approved a proposal from the New York Stock Exchange to remove the remaining off-board trading restrictions in its Rule 390.[42] The SEC took bolder action in 2005 when it adopted the Regulation National Market System (Reg NMS). Reg NMS required greater market access among and between trading centers, which had the effect of improving investors' access to better prices at lower cost.[43]

Congress wisely did not attempt to dictate a specific market structure, and the SEC has used its authority to further that vision. Most importantly, neither Congress nor the SEC sought to impose a specific market structure, such as the creation of a central limit order book that imposes price/time priority on orders.

Insider Trading

Congress enacted the Insider Trading and Securities Fraud Enforcement Act of 1988 (ITSFEA) to address concerns about insider trading and to increase broker-dealers' liability for certain actions of their associated persons.[44] Among other things, ITSFEA requires registered brokers and dealers and specified investment advisers to establish, maintain, and enforce written policies and procedures reasonably designed to prevent insider trading.[45] ITSFEA does not prescribe specific policies that broker-dealers or investment advisers must adopt; instead, ITSFEA places the burden on those entities to develop workable policies and procedures that will satisfy the statutory requirement.

When Congress establishes a goal-based supervisory requirement, it imposes a more rigorous requirement than if it set out specific requirements. Broker-dealers and investment advisers must review and revise their policies and procedures on a periodic basis to ensure that they meet the standard. That is a more demanding requirement than a "check the box" approach.[46]

Regulatory Examples

SEC and SRO rules often impose standards-based requirements on regulated entities. Examples include:

Investment Adviser Compliance

Rule 206(4)-7 under the Advisers Act requires registered investment advisers to adopt and implement policies and procedures reasonably designed to prevent the adviser and its supervised persons from violating the Advisers Act. It also requires the adviser to appoint a chief compliance officer.[47]

Broker-Dealer Compliance

FINRA's 3000[48] rule series requires each member to establish and maintain a supervisory system. For example:

> FINRA Rule 3110(a) requires each member to "establish and maintain a system to supervise the activities of each associated person that is reasonably designed to achieve compliance with applicable securities laws and regulations, and with applicable FINRA rules."

FINRA Rule 3130(b) requires each member's chief executive officer to certify annually that the member has in place (1) processes to establish, maintain, review, test, and modify written compliance policies; and (2) written supervisory procedures reasonably designed to achieve compliance with applicable FINRA rules, Municipal Securities Rulemaking Board rules, and federal securities laws and regulations. It further requires that each member shall have its chief executive officer certify annually that he/she has conducted one or more meetings with the chief compliance officer in the preceding 12 months to discuss such processes.

Although FINRA's rules are detailed, they impose on the member the responsibility to design and enforce their own supervisory system. As FINRA Rule 3110(a) notes, "final responsibility for proper supervision shall rest with the member."

Broker-Dealer Record-Keeping

By contrast, the SEC's record-keeping rules require broker-dealers to use a specific technology. Rule 17a-4(f)(2)(ii) (17 CFR§240.17a-4(f)(2)(ii)) requires broker-dealers using electronic storage media to use "write once/read many" or "WORM" storage. The securities industry objected to the rule's technological specificity.[49] When the CFTC adopted a similar rule for its regulated entities,[50] its regulatees objected to the rule's technological mandate, which was essentially unworkable. In 2017, the CFTC amended its rule to "modernize and make technology neutral the form and manner in which regulatory records must be kept."[51]

Although the SEC adopted its rule to prevent bad actors from tampering with a broker-dealer's records, it is unwise to impose a rule that relies on a specific technology. WORM technology may have been the best option available to the SEC in 1997, but broker-dealers continue to struggle with an unworkable rule. Indeed, blockchain might present a much more secure and less expensive alternative to Rule 17a-4(f)(2)(ii), but it is unclear as to whether blockchain would satisfy the rule.

Recommendations

Congress should amend the clearing requirements in §§ 723 and 763 of the Dodd-Frank Act and delete the specific clearing mandates. Instead, Congress should replace these specific mandates with the goals that Congress intended clearing to provide. Congress should require market participants[52] to trade and settle derivatives in a system that:

- Manages and mitigates risks;
- Reduces the likelihood of failed trades;
- Ensures prudent limitations on margin and leverage; and
- Fosters price transparency and market access.

Congress should be more concerned about addressing the problems in the derivatives markets that contributed to the Great Recession than with prescribing clearing as the specific remedy to those problems. Certainly, clearing should be *a* solution, but it need not be the *only* solution.

Could the SEC and CFTC accommodate blockchain and other technologies by using the exemptive authority that Congress granted? Perhaps—but if they did so, the agencies would be substituting their judgment for that of Congress. Although the Dodd-Frank Act delegated a substantial amount of discretion to these and other agencies in other areas, those agencies should not ignore Congress' instruction when it spoke with such precision.

For the same reason, Congress should not replace the specific clearing directive with a blockchain or DLT directive. Blockchain is an evolutionary technology and may not prove to be as promising as its promoters hope. More importantly, specifying any technology would simply repeat the same mistake as specifying clearing as the solution. Innovators may develop *eka*-blockchain (i.e., blockchain 2.0) or something else entirely, or they may not.

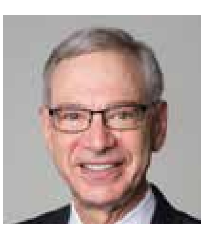
These recommendations are not a recipe for going back to the pre-Dodd-Frank days; anyone who suggests that this proposal is a not-so-clever suggestion to deregulate derivatives markets is missing the point. Instead, Congress should establish standards and then charge the SEC and CFTC, as well as their regulatees, with meeting those standards. As technology and competition cause trading and settlement mechanism to evolve and improve, so should the regulators and the regulated adopt those technologies to better achieve Congress' goals. Alternatives to CCPs would need to include mechanism to ensure effective regulatory oversight.

Regulators will need to come to terms with blockchain, DLT, and other innovations. It is an unfortunate fact of life that fraudsters often seek to cheat investors by invoking the latest fad. The SEC's *Investor Spotlight* has sought to warn investors about frauds that purport to be initial coin offerings and digital assets.[53] The SEC also has brought actions against individuals selling initial coin offerings that the SEC believes are unregistered securities.[54]

On a more positive note, the SEC recently established a new strategic hub for innovation and financial technology[55] and appointed a new associate director in the Division of Corporation Finance for digital assets.[56] These developments seem to indicate that the SEC is looking to help honest innovators find a way to comply with the relevant federal securities laws. Similarly, the CFTC launched LabCFTC "to promote responsible FinTech innovation and fair competition for the benefit of the American public."[57] The CFTC also issued a request for input to better inform its understanding of the technology, mechanics, and markets for virtual currencies beyond Bitcoin, namely Ether and its use on the Ethereum Network.[58]

Conclusion

Clearing has conferred enormous public benefit on investors and the American economy. In my view, the specific mandates in the Dodd-Frank Act have been beneficial in the intervening years. But as technology evolves, it would be unwise to handicap American markets by preventing them from adopting the best technology available, provided that the new technology more effectively achieves the public policy benefits that Congress sought. ⦿



Stuart J. Kaswell is an experienced financial services attorney who has worked on clearance and settlement issues and derivatives regulatory issues for many years. The views he expresses are entirely his own and do not reflect the views of any of his prior employers, former colleagues, or clients. *The author wishes to thank Faith Colish for her encouragement and review of the article. He extends a special thanks to Carlotta D. King for her wise comments, extensive suggestions, and detailed review. He also wishes to thank Stephen Blumenthal and Andris Vizbaras for their reviews and suggestions. Of course, any errors are the author's alone.*

Endnotes

[1]P.L. No. 111–203

[2]*See, e.g.*, Peter J. Wallison, Dissent from the Majority Report of the Financial Crisis Inquiry Commission 5-6 (2011), http://www.aei.org/wp-content/uploads/2011/01/Wallisondissent.pdf.

[3]*See, e.g.*, Financial Crisis Inquiry Commission, The Financial Crisis Inquiry Report xxiv to xxv (2011), https://www.govinfo.gov/content/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf; Anthony Randazzo & Carson Young, *What Caused the Meltdown: A Financial Crisis FAQ*, Question 11, Reason Found. (Jan. 25, 2010), https://reason.org/faq/what-caused-the-meltdown-a-fin/#faq11.

[4]*See, e.g.,* Dealbook, *AIG's $85 Billion Government Bailout*, N.Y. Times (Sept. 17, 2008, 7:08 AM), https://dealbook.nytimes.com/2008/09/17/aigs-85-billion-government-bailout.

[5]*See* Baird Webel, Cong. Res. Serv., Government Assistance for AIG: Summary and Cost Report 3 (Oct. 13, 2017), https://fas.org/sgp/crs/misc/R42953.pdf; *see also* Javier E. David, *AIG Makes Final Repayment to Government for Bailout*, CNBC (Mar. 1, 2013, 5:30 PM), https://www.cnbc.com/id/100397698 (stating that AIG paid back its $182 billion loan and repurchased its securities from the U.S. government, resulting in profit of $22.7 million total).

[6]*See, e.g.,* §§ 3(a)(68), 3(a)(69), 3B, and 3C of the Securities Exchange Act of 1934, Pub. L. No. 73-291, 48 Stat. 881 (enacted June 6, 1934) (codified at 15 U.S.C. § 78a et seq.) and §§ 2(a)(1)(A) and 2(c)(2)(A)(ii) of the Commodity Exchange Act, 49 Stat. 1491, ch. 545 (enacted June 15, 1936). *See also* SEC Spotlight: Derivatives, https://www.sec.gov/spotlight/dodd-frank/derivatives.shtml, where the SEC noted:

> The Dodd-Frank Act divides regulatory authority over swap agreements between the CFTC and SEC (though the prudential regulators, such as the Federal Reserve Board, also have an important role in setting capital and margin for swap entities that are banks). The SEC has regulatory authority over "security-based swaps," which are defined as swaps based on a single security or loan or a narrow-based group or index of securities (including any interest therein or the value thereof), or events relating to a single issuer or issuers of securities in a narrow-based security index. Security-based swaps are included within the definition of "security" under the Securities Exchange Act of 1934 and the Securities Act of 1933.
>
> The CFTC has primary regulatory authority over all other swaps, such as energy and agricultural swaps. The CFTC and SEC share authority over "mixed swaps," which are security-based swaps that also have a commodity component.
>
> In addition, the SEC has anti-fraud enforcement authority over swaps that are related to securities but that do not come within the definition of "security-based swap."

These are called "security-based swap agreements." The Dodd-Frank Act provides the SEC with access to information relating to security-based swap agreement in the possession of the CFTC and certain CFTC-regulated entities, such as derivatives clearing organizations, designated contract markets, and swap data repositories.

[7]Congress enacted two nearly identical provisions to the Dodd-Frank Act for clearing swaps and security-based swaps. Section 723 added § 2(h)(1)(A) to the CEA to provide that: "It shall be unlawful for any person to engage in a swap unless that person submits such swap for clearing to a derivatives clearing organization that is registered under this chapter or a derivatives clearing organization that is exempt from registration under this chapter if the swap is required to be cleared." Congress also enacted § 763, which added § 3C(a)(1) to the Exchange Act. That amendment provides that: "It shall be unlawful for any person to engage in a security-based swap unless that person submits such security-based swap for clearing to a clearing agency that is registered under this act or a clearing agency that is exempt from registration under this act if the security-based swap is required to be cleared."

[8]Conference Report on H.R. 4173, Dodd-Frank Wall Street Reform and Consumer Protection Act H5235 (June 30, 2010), https://www.govinfo.gov/content/pkg/CREC-2010-06-30/html/CREC-2010-06-30-pt1-PgH5233.htm [hereinafter Conference Report H.R. 4173].

[9]*G20 Leaders Statement: The Pittsburgh Summit, September 24-25, 2009*, Univ. of Toronto, http://www.g20.utoronto.ca/2009/2009communique0925.html (last visited Apr. 5, 2019).

[10]U.S. exchanges began using clearing to net transactions beginning in the 19th century. *See, e.g.*, Ben S. Bernanke, Chairman, Bd. of Gov. of the Fed. Reserve Sys., Clearinghouses, Financial Stability, and Financial Reform, Address at the 2011 Financial Markets Conference (Apr. 4, 2011) [hereinafter Bernanke Remarks], https://www.federalreserve.gov/newsevents/speech/bernanke20110404a.htm. In 1870, "the Philadelphia Stock Exchange established the first clearinghouse in the United States." Historical Soc'y of Phila., Philadelphia Stock Exchange Papers, 1764-2005 at 5 (2006), https://hsp.org/sites/default/files/legacy_files/migrated/findingaid3070phlx.pdf.

[11]Intercontinental Exch. Inc., How Clearing Works (2016), https://www.theice.com/publicdocs/How_Clearing_Works.pdf.

[12]Equity clearing works similarly, but nets trades every day. *Compression*, LCH, https://www.lch.com/services/swapclear/enhancements/compression (last visited Apr. 5, 2019); *see also Overview*, DTCC, http://www.dtcc.com/clearing-services/equities-clearing-services/cns (last visited Apr. 5, 2019), which states that, in the Continuous Net Settlement (CNS) System, the National Securities Clearing Corporation (NSCC) operates:

> Regardless of volume, CNS nets Members' security obligations on a daily basis to one net long and short position in each issue, minimizing security movements and associated costs.
>
> Through CNS, NSCC becomes the contra-party to each trade and guarantees each transaction under NSCC's Rules.
>
> Closing fail positions are marked-to-market daily and re-netted with new transactions, which reduces risk.
>
> On settlement date, all trades due to settle are netted by issue to a net long (buy) or a net short (sell) position, and then are further netted with any new miscellaneous activities … and open positions from the previous day.

[13]Bernanke Remarks, *supra* note 11.

[14]*See, e.g.*, CEA, § 2 (h)(2), which grants the CFTC authority to determine to exempt or postpone imposing the clearing requirement on a specific contract.

[15]Rep. Peters then discusses a specific amendment. *See* Conference Report H.R. 4173, at H5244-5.

[16]*See id.*

[17]*See, e.g.*, 17 C.F.R. § 50.52 Exemption for Swaps Between Affiliates, adopted at 78 Fed. Reg. 21750 (Apr. 11, 2013); 17 C.F.R. § 39.6 Exceptions to the Clearing Requirement [for End Users under certain conditions], adopted at 77 Fed. Reg. 42560 (July 19, 2012).

[18]Bitcoin's value in 2009 was essentially zero, but by Jan. 1, 2018, a Bitcoin was worth $13,412.44. On Jan. 1, 2019, a Bitcoin traded at $3,869.47. Bitcoin Historical Prices, Official Data Found., http://www.in2013dollars.com/bitcoin-price (last visited Apr. 5, 2019).

[19]Michael J. Casey & Paul Vigna, *In Blockchain We Trust*, MIT Tech. Rev. 12 (Apr. 9, 2018), https://www.technologyreview.com/s/610781/in-blockchain-we-trust.

[20]*See* Cong. Res. Serv., Blockchain: Background and Policy Issues (Feb. 28, 2018), https://crsreports.congress.gov/product/pdf/R/R45116 [hereinafter CRS Blockchain Report].

[21]Ethereum, a public blockchain network, suggests that "by removing the central controls, many of the traditional problems like data failures and outages, security and privacy breaches and high user costs can be avoided. Users also gain control over their data." *Ethereum White Paper Made Simple*, Blockchain Rev. 26 (Mar. 2, 2018) (on file with author).

[22]*See* DTCC, Embracing Disruption, Tapping the Potential of Distributed Ledgers to Improve the Post-Trade Landscape 1 (Jan. 2016), [hereinafter DTCC White Paper], http://hub.digitalasset.com/hubfs/Industry%20Reports/dtcc-embracing-disruption.pdf, which states:

> The premise of the Bitcoin platform—a decentralized, trust-less, replicated ledger of transactions—is the virtual opposite of the centralized, trusted, guarded, model of modern securities processing, which has long relied upon DTCC, among others, as a central authority. The trust model, along with the economies of scale of centralizing common back-office processes and the strict controls and regulatory oversight of DTCC, has ensured the safety and soundness of securities trade processing through periods of extreme volumes and systemic market shocks. It has also created the most cost efficient post-trade processing infrastructure in the world.

The DTCC White Paper is a very thoughtful analysis of the pros and cons of distributed ledger as compared with the current CCP system.

[23]Blockchain and distributed ledger technology (DLT) are similar, but not identical. Blockchain is a less centralized system than DLT. A DLT system is decentralized, but the "implementer" has significant control over the structure and functioning of the network. DLT will not necessarily construct a chain of block. By comparison. "blockchain is in fact a form of distributed ledger with a very specific technological underpinning. As we all know, it's one that creates an unchangeable ledger of records that is maintained by a decentralised network, where all records are approved by consensus." Matthew Beedham, *Here's the Difference Between Blockchain and Distributed Ledger Technology*, Next Web (July 27, 2018), https://thenextweb.com/hardfork/2018/07/27/distributed-ledger-technology-blockchain. Another commentator noted: "Every

blockchain is a distributed ledger, but not every distributed ledger is a blockchain. Each of these concepts requires decentralization and consensus among nodes. However, the blockchain organizes data in blocks, and updates the entries using an append-only structure." Shaan Ray, *The Difference Between Blockchains & Distributed Ledger Technology*, Towards Data Sci. (Feb. 19, 2018) https://towardsdatascience.com/the-difference-between-blockchains-distributed-ledger-technology-42715a0fa92.

[24]CRS Blockchain Report, *supra* note 20, at 8; *see also A Practical Introduction to Smart Contracts and Their Technology*, N.Y.C. Bar (Oct. 4, 2018), https://www.nycbar.org/cle-offerings/a-practical-introduction-to-smart-contracts-and-their-technology.

[25]DTCC White Paper, *supra* note 22, at 5.

[26]Financial Stability Board (FSB), Incentives to Centrally Clear Over-the-Counter (OTC) Derivative (Nov. 19, 2018), http://www.fsb.org/wp-content/uploads/R191118-1-1.pdf. The other standard-setting bodies include: the Basel Committee on Banking Supervision, the Committee on Payments and Market Infrastructures, the FSB, and the International Organization of Securities Commissions.

[27]The FSB noted in November 2018 that: Eighteen FSB member jurisdictions have in force comprehensive standards/criteria for determining when standardised OTC derivatives should be centrally cleared, an increase of one during the reporting period. Requirements to centrally clear specific derivatives products were newly adopted in two FSB member jurisdictions during the reporting period. Availability of central counterparties (CCPs) clearing OTC derivatives, and cross-border availability of CCPs, have increased. Data continues to suggest a significant share of new transactions is being centrally cleared, predominantly for interest rate and credit derivatives. FSB, OTC Derivatives Market Reforms 1 (Nov. 19, 2018), http://www.fsb.org/wp-content/uploads/P191118-5.pdf.

[28]*See* DTCC, 2017 Annual Report 5, http://www.dtcc.com/annuals/2017/static/pdfs/print-report.pdf. Although this figure probably includes transaction that it processed across its organization and may include transactions that it processed by means other than clearing, it is an astoundingly large amount.

[29]DTCC White Paper, *supra* note 23, at 15.

[30]*Id.* at 16.

[31]Manesh Samtani, *DLT Can Process Peak Equity Trading Volumes—DTCC*, Regulation Asia (Oct. 18, 2018), https://www.regulationasia.com/dlt-can-process-peak-equity-trading-volumes-dtcc; *see also* Press Release, DTCC, Regarding Proof-of-Concept for Repo Transactions Using Digital Ledger Technology (Feb. 27, 2018), http://www.dtcc.com/news/2017/february/27/dtcc-and-digital-asset-move-to-next-phase. DTCC is far from alone in exploring blockchain. *See, e.g.*, Jordan French, *Nasdaq Exec: Exchange Is "All-In" Using Blockchain Technology*, TheStreet (Apr. 23, 2018), https://www.thestreet.com/investing/nasdaq-all-in-on-blockchain-technology-14551134.

[32]*See* discussion comparing blockchain and DLT, *supra* note 24.

[33]*See* 92d. Cong., 1st Session, H. Doc. 92-231 at 5 (1971).

[34]The SEC further noted:

> What is needed now is a force to direct and accelerate the evolution of these efforts [to address the Paperwork Crisis] into a single, integrated and nationwide system of securities clearance, settlement, and delivery systems. From the individual and disparate attempts to improve the handling of the certificates and the process of clearance and settlement there have evolved the basic ingredients for such a system. The most recent increments are the [Central Certificate Service] depository developed by the NYSE, the continuous net-by-net settlement system developed by the Midwest Stock Exchange, and the net-by-net settlement system of [National Clearing Corporation] adopted by the NASD, the latter in response to the Commission's insistence that a clearing mechanism for over-the-counter transactions be created. Indeed, it was in the over-the-counter area that the major paperwork problems were generated between 1968 and 1970.

Id. at 36 (citation omitted); *see also*, Joel Seligman, The Transformation of Wall Street 450 et seq. (1982).

[35]Securities Acts Amendments of 1975, Pub. L. No. 94-29, 89 Stat. 97, https://www.govinfo.gov/content/pkg/STATUTE-89/pdf/STATUTE-89-Pg97.pdf.

[36]89 Stat. 141.

[37]*See* Securities Exchange Act, § 17A(b). The 1975 Acts Amendments required clearing agencies to register as such and helped separate them from stock exchanges.

[38]*See, e.g.*, NYSE Rule 7.14, https://www.nyse.com/publicdocs/nyse/regulation/nyse/NYSE_National_Rule_Book.pdf; *7000; Clearing, Transaction and Order Data Requirements, and Facility Charges,* FINRA http://finra.complinet.com/en/display/display_main.html?rbid=2403&element_id=4439 (last visited Apr. 5, 2019); OCC Rule 204, https://www.theocc.com/components/docs/legal/rules_and_bylaws/occ_rules.pdf.

[39]Congress enacted the Market Reform Act of 1990, H.R. 3657, (101st Cong., 2d Sess.), Pub. L. 101-432. Congress sought to improve coordination of clearance and settlement across markets, not to impose a specific clearing requirement. Section 5(a) of that legislation replaced the original language in §17A(a)(2)(A) with the following:

> (2)(A) The Commission is directed, therefore, having due regard for the public interest, the protection of investors, the safeguarding of securities and funds, and maintenance of fair competition among brokers and dealers, clearing agencies, and transfer agents, to use its authority under this title—(i) to facilitate the establishment of a national system for the prompt and accurate clearance and settlement of transactions in securities (other than exempt securities); and (ii) to facilitate the establishment of linked or coordinated facilities for clearance and settlement of transactions in securities, securities options, contracts of sale for future delivery and options thereon, and commodity options; in accordance with the findings and to carry out the objectives set forth in paragraph (1) of this subsection. (B) The Commission shall use its authority under this chapter to assure equal regulation under this chapter of registered clearing agencies and registered transfer agents. In carrying out its responsibilities set forth in subparagraph (A)(ii) of this paragraph, the Commission shall coordinate with the Commodity Futures Trading Commission and consult with the Board of Governors of the Federal Reserve System. 15 USC§78q-1.

Congress amended this portion of § 17A as part of its efforts to avoid a repetition of the October 1987 Stock Market Crash. *See* Report of the Presidential Task Force on Market Mechanisms, 59 & 64 (Jan. 1988). During floor debate on the legislation, Rep. Edward J. Markey (D-Mass.), the sponsor of the legislation and chairman of the House Subcommittee on Telecommunication and Finance of the Committee on Energy & Commerce, noted that the bill provides the SEC "with the ability to facilitate the establishment of a coordinated national system for safe and accurate clearance and settlement." 136 Cong. Rec., Part 18, September 28, 1990, House, 26629. Similarly, Rep. Matthew J. Rinaldo (R-NJ), the Ranking Republican Member of that subcommittee explained that "this legislation directs the SEC to bring about a linked and coordinated system of clearance and settlement of securities transactions." *Id* at 26631. Accordingly, the purpose of the amendment was to improve coordination of clearance and settlement across markets, not to impose a specific clearing mandate.

[40]89 Stat. 111-112.

[41]*See* SEC final rule, Off-Board Trading Restrictions, 45 Fed. Reg. 41125 (June 18, 1980), https://www.govinfo.gov/content/pkg/FR-1980-06-18/pdf/FR-1980-06-18.pdf, where the SEC noted: "The Commission announces the adoption of a rule which amends the rules of national securities exchanges which limit or condition the ability of members of those exchanges to effect transactions otherwise than on an exchange in securities which are traded on those exchanges. The adopted rule will prevent those exchange rules from applying to certain securities which were not traded on an exchange on April 26, 1979, or which were traded on an exchange on April 26, 1979, but fail to remain traded on an exchange for any period of time thereafter."

[42]*See* SEC, NYSE Rulemaking: Order Approving Proposed Rule Change to Rescind Exchange Rule 390, Exchange Act Rel. No. 34-42758 (May 5, 2000), https://www.sec.gov/rules/sro/ny9948o.htm.

[43]*See* SEC final rules and amendments to join industry plans, Reg. NMS, 70 Fed. Reg. 37496 (June 29, 2005), https://www.sec.gov/rules/final/34-51808fr.pdf, where the SEC noted: Regulation NMS includes new substantive rules that are designed to modernize and strengthen the regulatory structure of the U.S. equity markets. First, the "Order Protection Rule" requires trading centers to establish, maintain, and enforce written policies and procedures reasonably designed to prevent the execution of trades at prices inferior to protected quotations displayed by other trading centers, subject to an applicable exception. To be protected, a quotation must be immediately and automatically accessible. Second, the "Access Rule" requires fair and non-discriminatory access to quotations, establishes a limit on access fees to harmonize the pricing of quotations across different trading centers, and requires each national securities exchange and national securities association to adopt, maintain, and enforce written rules that prohibit their members from engaging in a pattern or practice of displaying quotations that lock or cross automated quotations.

[44]Insider Trading and Securities Fraud Enforcement Act of 1988, Pub. L. No. 100-704, https://www.govinfo.gov/content/pkg/STATUTE-102/pdf/STATUTE-102-Pg4677.pdf. *See* Report 100-910 Committee on Energy and Commerce, U.S. House of Rep. (100th Cong., 2d Sess.), https://www.congress.gov/congressional-report/110th-congress/house-report/937/1?r=6; *see also* Kaswell, *An Insider's View of the Insider Trading and Securities Fraud Enforcement Act of 1988*, as revised and reprinted *in* 3 Securities Law Administration, Litigation and Enforcement 252 (1991).

[45]Section 15(g) of the Exchange Act provides: Every registered broker or dealer shall establish, maintain, and enforce written policies and procedures reasonably designed, taking into consideration the nature of such broker's or dealer's business, to prevent the misuse in violation of this title, or the rules or regulations thereunder, of material, nonpublic information by such broker or dealer or any person associated with such broker or dealer. The Commission, as it deems necessary or appropriate in the public interest or for the protection of investors, shall adopt rules or regulations to require specific policies or procedures reasonably designed to prevent misuse in violation of this title (or the rules or regulations thereunder) of material, nonpublic information. Section 204A of the Investment Advisers Act of 1940 imposes a similar obligation on certain investment advisers.

[46]*See, e.g., In re Deerfield Mgmt. Co. L.P.,* Investment Adviser Act of 1940, Release No. 4749 (Aug. 21, 2017), https://www.sec.gov/litigation/admin/2017/ia-4749.pdf. In this settled administrative proceeding, the SEC alleged that the investment adviser failed to have adequate policies and procedures to prevent illegal insider trading. The settlement does not allege that the adviser or its associated persons traded on the basis of insider information.

[47]Advisers Act Rule 206(4)-7 provides: Compliance procedures and practices. If you are an investment adviser registered or required to be registered under section 203 of the Investment Advisers Act of 1940 (15 U.S.C. 80b-3), it shall be unlawful within the meaning of section 206 of the Act (15 U.S.C. 80b-6) for you to provide investment advice to clients unless you: (a) *Policies and procedures.* Adopt and implement written policies and procedures reasonably designed to prevent violation, by you and your supervised persons, of the Act and the rules that the Commission has adopted under the Act; (b) *Annual review.* Review, no less frequently than annually, the adequacy of the policies and procedures established pursuant to this section and the effectiveness of their implementation; and (c) *Chief compliance officer.* Designate an individual (who is a supervised person) responsible for administering the policies and procedures that you adopt under paragraph (a) of this section.

[48]FINRA Manual, *3000. Supervision and Responsibilities Relating to Associated Persons*, FINRA http://finra.complinet.com/en/display/display_main.html?rbid=2403&element_id=5664 (last visited Apr. 5, 2019).

[49]*See* SEC final rule, Reporting Requirements for Brokers or Dealers Under the Securities Exchange Act of 1934, 62 Fed. Reg. 6469 (Feb. 12, 1997), https://www.govinfo.gov/content/pkg/FR-1997-02-12/pdf/97-3426.pdf. In 2003, the SEC issued an interpretation that clarified that it was not requiring broker-dealers to use a single technology. Nonetheless, the SEC did not alter its requirement that broker-dealer records must be in a format that may not be altered in any way. *See* SEC Interpretation: Electronic Storage of Broker-Dealer Records, Exchange Act Release No. 34-47806 (May 7, 2003), https://www.sec.gov/rules/interp/34-47806.htm. In 2017, several financial trade associations filed a petition for rulemaking, asking the SEC to eliminate the WORM requirement. *See* Letter from SIFMA et al., to Brent Fields, Secretary, SEC (Nov. 14, 2017), https://www.sec.gov/rules/petitions/2017/petn4-713.pdf.

[50]17 C.F.R. § 1.31.

[51]*See* CFTC final rule, Recordkeeping, 82 Fed. Reg. 24479 (May 30, 2017), https://www.govinfo.gov/content/pkg/FR-2017-05-30/pdf/2017-

11014.pdf.

[52]It is beyond the scope of this paper to suggest a precise allocation of these responsibilities among market participants with commensurate changes to the system of regulatory oversight.

[53]*Spotlight on Initial Coin Offerings and Digital Assets*, Investor.gov, https://www.investor.gov/additional-resources/specialized-resources/spotlight-initial-coin-offerings-digital-assets (last visited Apr. 5, 2019); *see also* Press Release, SEC, *The SEC Has an Opportunity You Won't Want to Miss: Act Now!*, No. 2018-88 (May 16, 2018), https://www.sec.gov/news/press-release/2018-88; HoweyCoins, https://www.howeycoins.com/index.html (last visited Apr. 5, 2019) (the SEC's fake, but educational website about blockchain scams). The SEC documented a similar practice of using high-pressure "boiler rooms" in the seminal 1963 Special Study. The study noted that "the inexperienced, unsophisticated investor, the usual target of the boiler-room operation, is easy prey for promises of great profits from pie-in-the-sky securities. Such traditionally popular speculations as mining stocks, oil and gas promotions, and companies with new inventions are from time to time joined by issues currently in vogue in the securities markets as the favorite merchandise of these unscrupulous operations." SEC, Report of the Special Study of the Securities Markets of the Securities and Exchange Commission, 88th Cong., 1st Sess., H.R. Doc. No. 95, Pt. 1, at 265-266 (Apr. 8, 1963), http://3197d6d14b5f19f2f440-5e13d29c4c016cf96cbbfd197c579b45.r81.cf1.rackcdn.com/collection/papers/1960/1963_SSMkt_Chapter_01_1.pdf. Although fraudsters may change the names of the scams, they use the same tactics to defraud the public.

[54]*See, e.g.*, *Cyber Enforcement Actions*, SEC, https://www.sec.gov/spotlight/cybersecurity-enforcement-actions (last visited Apr. 5, 2019); Press Release, SEC, Two ICO Issuers Settle SEC Registration Charges, Agree to Register Tokens as Securities, No. 2018-264 (Nov. 16, 2018), https://www.sec.gov/news/press-release/2018-264; SEC, Report of Investigations Pursuant to Section 21(a) of the Securities Exchange Act of 1934: the DAO, Release No. 34-81207 (July 25, 2017), https://www.sec.gov/litigation/investreport/34-81207.pdf; Public Statement, SEC, Statement on Potentially Unlawful Online Platforms for Trading Digital Assets (Mar. 7, 2018), https://www.sec.gov/news/public-statement/enforcement-tm-statement-potentially-unlawful-online-platforms-trading; *and* Public Statement, SEC, Statement on Digital asset Securities Issuance and Trading (Nov, 16, 2018), https://www.sec.gov/news/public-statement/digital-asset-securites-issuuance-and-trading.

[55]*See, e.g.*, Press Release, SEC, SEC Launches New Strategic Hub for Innovation and Financial Technology, No. 2018-240 (Oct. 18, 2018), https://www.sec.gov/news/press-release/2018-240; *FinHub*, SEC, https://www.sec.gov/finhub (last visited Apr. 5, 2019); *see also* SEC, Statement on "Framework for 'Investment Contract' Analysis of Digital Assets, Apr. 3, 2019, https://www.sec.gov/news/public-statement/statement-framework-investment-contract-analysis-digital-assets (last visited Apr. 26, 2019); SEC "Framework for "Investment Contract" Analysis of Digital Assets," https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets (last visited Apr. 26, 2019); SEC Division of Corporation Finance No-Action Letter, TurnKey Jet Inc., Apr. 3, 2019, https://www.sec.gov/divisions/corpfin/cf-noaction/2019/turnkey-jet-040219-2a1.htm (last visited Apr. 26, 2019).

[56]*See* Press Release, SEC, SEC Names Valerie A. Szczepanik Senior Advisor for Digital Assets and Innovation, No. 2018-102 (June 4, 2018), https://www.sec.gov/news/press-release/2018-102.

[57]*See CFTC LabOverview*, U.S. Commodity Futures Trading Comm'n, https://www.cftc.gov/LabCFTC/Overview/index.htm (last visited Apr. 5, 2019).

[58]CFTC, Request for Input on Crypto-Asset Mechanics and Markets, 83 Fed. Reg. 64563 (Dec. 17, 2018), https://www.cftc.gov/sites/default/files/2018-12/2018-27167a.pdf.

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25MCR (M.D. Fla. Sept. 18, 1981), Dkt. No. 1.

[10]Reportedly, Lehder was responsible for 80 percent of the Colombian cocaine smuggled into the United States. Mary T. Schmich, *Colombian is Called 'Henry Ford' of Drugs*, Chi. Trib. (May 11, 1988), http://articles.chicagotribune.com/1988-05-11/news/8803160096_1_carlos-lehder-rivas-cocaine-colombian.

[11]Barry Bearak, *Mother Delivered Drug for Trip to Disneyland, Witness Says: Odd Moments Lace Tame Lehder Cocaine Trial*, L.A. Times (Mar. 12, 1988), http://articles.latimes.com/1988-03-12/news/mn-840_1_carlos-lehder.

[12]Jean Thompson, *Prosecutor: Lehder Fostered Fledgling Drug Trade,* Sun-Sentinel (Nov. 17, 1987), http://articles.sun-sentinel.com/1987-11-17/news/8702060168_1_mr-merkle-carlos-lehder-rivas-cocaine-transportation.

[13]The partnership between Lehder and Jung is fictionalized in the Hollywood motion picture. Blow (New Line Cinema 2001).

[14]*See supra* note 11.

[15]*See supra* note 10.

[16]Order on Motion to Compel, Motion to Implement Sentence Adjustment, Motion for Appointment of Counsel, and Motion for Status Conference, *United States v. Lehder Rivas*, No. 3:81-cr-82-J-25MCR (M.D. Fla. Aug. 23, 2011), Dkt. No. 1485 n.1.

[17]*Id.*

[18]*See* Indictment, *United States v. Awan*, No. 8:88-cr-330-T-26 (M.D. Fla. Oct. 4, 1988), Dkt. No. 1.

[19]Associated Press, *Ex-Banker to Noriega is Convicted in Scheme to Aid Drug Traffickers*, N.Y. Times (July 30, 1990), http://www.nytimes.com/1990/07/30/us/ex-banker-to-noriega-is-convicted-in-scheme-to-aid-drug-traffickers.html.

[20]*Id.*

[21]*See* Robert Mazur, The Infiltrator, My Secret Life Inside the Dirty Banks Behind Pablo Escobar's Medellin Cartel 288-305 (1st ed. 2009) (describing "the takedown" from the eyes of the undercover agent).

[22]Douglas Frantz & Ronald J. Ostrow, *Bank Pleads Guilty to Handling Drug Profits: Noriega: A Luxemborg Institution Linked to Panama's Ousted Strongman Forfeits $15 Million in Assets to the U.S.*, L.A. Times (Jan. 17, 1990), http://articles.latimes.com/1990-01-17/news/mn-103_1_international-bank.

[23]The convictions were affirmed on appeal to the Eleventh Circuit, except for that of BCCI regional marketing officer Sibte Hassan. *See United States v. Awan*, 966. F.2d 1415, 1434 (11th Cir. 1992) (reversing Hassan's conviction based on insufficient evidence).

[24]*See supra* note 19.

[25]Additionally, Operation Panama Express reportedly also conducted the largest one-time seizure of cocaine when 21 tons of cocaine

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