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Working Paper

The Limits of Private Ordering Within Modern Financial Markets

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ABSTRACT:

From standardized contracts for loans, repurchase agreements, and derivatives, to stock exchanges and alternative trading platforms, to benchmark interest and foreign exchange rates, private market structures play a number of important roles within modern financial markets. These market structures hold out a number of significant benefits. Specifically, by harnessing the powerful incentives of market participants, these market structures can help lower information, agency, coordination, and other transaction costs, enhance the process of price discovery, and promote greater market liquidity. Simultaneously, however, successful market structures are the source of significant and often overlooked market distortions. These distortions—or limits of private ordering—stem from positive network externalities, path dependency, and power imbalances between market participants at the core of these market structures and those at the periphery. Somewhat paradoxically, these limits can erect substantial barriers to entry, insulate incumbents from vigorous competition, and undermine the emergence of new and potentially more desirable substitutes, thus entrenching less efficient market structures. Using the London Interbank Offered Rate (“Libor”) and the International Swaps and Derivatives Association determination committee (“DC”) mechanism as case studies, this Article seeks to better understand the limits of private ordering. It also explores how relatively modest changes to the public regulatory regimes governing these market structures could, in some cases, yield significant improvements.

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DAN AWREY*

Abstract

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I. Introduction

Imagine we permitted referees to place bets on the sporting events they officiated.¹ On one level, this would almost certainly offend our sense of fair play.² On another level, however, we might ultimately view this as unproblematic insofar as teams were able to freely contract with those referees willing to make credible commitments not to exploit the inherent conflicts of interest, and so long as compliance with these contracts was relatively easy to monitor and enforce. Imagine now, however, that there exists a limited number of qualified referees, that these referees coordinate in the development of a standardized contract that does not prohibit betting on games, and that they collectively enjoy sufficient market power to ensure that these contracts receive widespread adoption. Imagine further that the costs of determining whether a referee had in fact wagered on a game are extremely high

¹ In conducting research for this Article I discovered that the journalists at FT Alphaville beat me to the punch in utilizing this metaphor. See Lisa Pollack, *The Conflicted Isda Committee*, FT ALPHAVILLE (Dec. 14, 2011, 4:55 PM), <http://ftalphaville.ft.com/2011/12/14/799341/the-conflicted-isda-committee/>.

² *Id.*

and, as a corollary, that there exists little or no credible threat of either private contractual enforcement or market-based reputational sanctions. Given these additional facts, we might be of the view that this state of affairs is likely to undermine confidence in the integrity of the game. Indeed, it is precisely for this reason that professional sports leagues prohibit referees from wagering on games.³ It seems remarkable, therefore, that we permit this type of activity in the most high stakes game of all: finance.⁴

Conventional economic theory views market participants as possessing high powered incentives to invest in the development of private market structures—e.g. contracts, rules, and other governance mechanisms—which enable them to make credible commitments.⁵ These incentives, it is argued, can be seen as driving both the creation and structure of markets in a wide variety of contexts: from physical marketplaces such as the Pike Place Fish Market or Aalsmeer Flower Auction, to virtual ones such as eBay, StubHub, and Etsy.⁶ These incentives are a product of the fact that it is the market participants themselves who stand to capture the majority of the benefits generated by these innovations. These benefits flow principally from the reduction of information, agency, coordination, and other transaction costs. Through the reduction of these costs, successful market structures can be understood as creating a virtuous circle: lower transaction costs attract more market participants; more market participants result in

³ The rules of the National Basketball Association, National Football League, and Major League Baseball, for example, prohibit referees from betting on games. Indeed, referees have even gone to prison for betting on games. *See, e.g.,* Howard Beck & Michael S. Schmidt, *Former N.B.A. Referee Pleads Guilty*, N.Y. TIMES, Aug. 16, 2007, at D1.

⁴ *See* Pollack, *supra* note 1 (“Isda picks the members of a committee that determines who has won and lost in the game of credit derivatives by selecting those who have the greatest potential to be conflicted.”).

⁵ *See* DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE 57–58 (1990); *see also* Avner Greif, *Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders’ Coalition*, 83 AM. ECON. REV. 525, 535 (1993); Paul R. Milgrom et al., *The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs*, 2 ECON. & POL. 1, 5 (1990); Oliver E. Williamson, *Credible Commitments: Using Hostages to Support Exchange*, 73 AM. ECON. REV. 519, 519 (1983); Oliver E. Williamson, *The New Institutional Economics: Taking Stock, Looking Ahead*, 38 J. ECON. LITERATURE 595, 601–02 (2000).

⁶ *See infra* text accompanying notes 28–30.

more transactions; more transactions generate valuable price and other information; and more and better information lowers transaction costs, thereby attracting even more market participants.⁷ In effect, these market structures constitute an important part of what Douglass North characterized as the “rules of the game,” which give market participants confidence in the integrity of the marketplace.⁸

Private market structures play a number of particularly important roles within modern financial markets. For example, standardized contracts for loans, repurchase agreements, and derivatives reduce legal uncertainty, lower negotiation and drafting costs, facilitate the aggregation and dissemination of new learning about best market practices, and promote greater market liquidity.⁹ Stock, commodity, and derivatives exchanges match buyers and sellers and ensure the dissemination of valuable price and trading information, thereby lowering information and search costs, enhancing the process of price discovery, and—once again—promoting greater market liquidity.¹⁰ Benchmark interest rates, foreign exchange rates, and commodity prices lower information, negotiation, and coordination costs within the decentralized, opaque, and relatively less liquid markets for loans, over-the-counter (“OTC”) derivatives, and other sophisticated financial instruments.¹¹ In each case, market participants developed these market structures, at least in part, with a view to capturing the gains from trade stemming from the cheaper, deeper, and more liquid markets which these structures helped to make possible.

Simultaneously, however, successful market structures are also the source of significant and often overlooked market distortions. These distortions stem from positive network externalities, path dependency, and pronounced power imbalances between the market participants at the core of these market structures and those at the periphery.¹² In many

⁷ See *infra* text accompanying notes 43–47.

⁸ North, *supra* note 5, at 3.

⁹ See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 144 (8th ed. 2011); Marcel Kahan & Michael Klausner, *Standardization and Innovation in Corporate Contracting (or “The Economics of Boilerplate”)*, 83 VA. L. REV. 713, 719–29 (1997).

¹⁰ See LARRY HARRIS, *TRADING AND EXCHANGES* 94 (2003); Daniel R. Fischel & Sanford J. Grossman, *Customer Protection in Futures and Securities Markets*, 4 J. FUTURES MKTS. 273, 292 (1984); J. Harold Mulherin et al., *Prices are Property: The Organization of Financial Exchanges from a Transaction Cost Perspective*, 34 J.L. & ECON. 591, 593 (1991).

¹¹ See *infra* text accompanying notes 120–21, 239–40.

¹² See *infra* Part II.

cases, these distortions are exacerbated by market opacity, thus undermining the credible threat of either effective contractual enforcement or market-based reputational sanctions. Collectively, these distortions can erect substantial barriers to entry, insulate incumbents from vigorous competition, and undermine the emergence of new and potentially more desirable substitutes, thus entrenching less efficient market structures. Somewhat paradoxically, then, the success of these market structures may ultimately make them more prone to opportunistic behavior, thereby undermining efficient private contracting, welfare enhancing innovation, and market confidence. These distortions thus represent important *limits* on the desirability of private ordering as a means of structuring financial and other markets.

The limits of private ordering are likely to be most problematic where a core group of market participants not only *writes* the rules of the game, but is also responsible for *interpreting* and *enforcing* them. In such cases, these core market participants play a role analogous to that of the hypothetical referees: determining issues in which they may have an important and undisclosed stake.¹³ In the absence of the credible threat of effective private contractual enforcement or market-based reputational sanctions, these core market participants may be able to exploit this privileged position without risking widespread defection by those at the periphery. This, in turn, provides a potentially powerful justification for some form of public regulatory intervention designed to constrain the scope for opportunistic behavior.

The objective of this Article is to better understand the limits of private ordering within modern financial markets. It examines these limits through the lens of two case studies. The first case study is the so-called “Big Bang” Protocol developed by the International Swaps and Derivatives Association (“ISDA”).¹⁴ More specifically, this Article examines the determination committee (“DC”) mechanism introduced by the Big Bang Protocol in order to facilitate the adjudication of certain contractual issues arising in connection with ISDA’s widely used credit default swap (“CDS”) documentation. The Big Bang Protocol has brought much needed standardization and predictability to what was often a chaotic process for settling many CDS contracts upon the occurrence of bankruptcy, restructuring, and other events involving the issuers of the underlying credit instruments.¹⁵ On the other hand, however, the parties responsible for resolving contractual issues under

¹³ See *supra* text accompanying notes 1–3.

¹⁴ See *infra* Part III.b.

¹⁵ See *infra* text accompanying notes 205–10.

the DC mechanism—principally global derivatives dealers—are also counterparties to the vast majority of these contracts.¹⁶ These same dealers also play an influential role in the governance of ISDA.¹⁷ This market structure gives rise to hardwired conflicts of interest, putting dealers in essentially the same position as the hypothetical referees.¹⁸ As we shall see, these conflicts are not adequately addressed by ISDA’s existing contractual documentation or governance arrangements.¹⁹ Moreover, given the relative opacity of both CDS markets and dealer balance sheets, it is unrealistic to rely on the threat of market-based sanctions to fully constrain dealer opportunism.²⁰

In order to shed further light on the problems embedded within this market structure, as well as why private ordering is unlikely to effectively address them, this Article draws a number of significant parallels between the DC mechanism and a second case study: the now infamous London Interbank Offered Rate (“Libor”).²¹ Developed by the British Bankers’ Association (“BBA”), Libor is a set of benchmark interest rates which notionally reflect the price at which a selection of panel banks are able to raise funds from other banks in the London money market.²² Like the DC mechanism, Libor has played an important role in the standardization of derivatives, credit, and a great many other markets.²³ Simultaneously, however, Libor panel banks are important participants within these markets.²⁴ This, combined with the opacity of many of the markets in which Libor is utilized as a benchmark, opens the door to potential opportunistic behavior.²⁵ Moreover, the governance of Libor—which until recently was overseen by the BBA and relied on the unverified submissions of panel banks—has historically done very little to constrain the prospect of opportunism.²⁶ At the same time, the success of Libor has generated positive network externalities and path dependencies, which—despite longstanding concerns about Libor’s integrity—make it costly for

¹⁶ See *infra* text accompanying note 211.

¹⁷ See *infra* text accompanying note 216.

¹⁸ See *infra* text accompanying notes 216–23.

¹⁹ See *infra* text accompanying notes 216–23.

²⁰ See *infra* text accompanying notes 216–20.

²¹ See *supra* Part V.

²² See *supra* Part IV.

²³ See *infra* text accompanying notes 237–42.

²⁴ See *infra* text accompanying notes 245–50.

²⁵ See *infra* text accompanying notes 245–50.

²⁶ See *infra* text accompanying notes 245–49.

market participants to create or switch to alternative benchmarks. As a result, panel banks have been able to exploit the structural weaknesses of Libor without destabilizing the prevailing equilibrium. The scale of this exploitation is perhaps most clearly reflected in the fact that, since June 2012, public regulatory authorities in the United States, United Kingdom, European Union, and elsewhere have imposed approximately \$6.3 *billion* in fines on at least ten panel banks stemming from findings of fraud and market manipulation in connection with Libor and other benchmark rates.²⁷

This Article proceeds as follows. Part II begins by briefly explaining the logic underpinning the desirability of private ordering. This logic is premised on the powerful incentives of market participants to develop innovative market structures that lower transaction costs, thereby enabling them to make more credible commitments and generate gains from trade. Part II also describes in theoretical terms the limits of private ordering: positive network externalities, path dependency, and power imbalances. These limits—both on their own, but especially in combination—can impede the market-driven process of innovation from which the prospective benefits of private ordering flow. Part III then shifts the focus to our first case study: the Big Bang Protocol and, more specifically, the DC mechanism. It begins by describing the role played by ISDA in developing standardized legal documentation, coordinating international law reform, and spearheading other initiatives on behalf of the global OTC derivatives industry. It then examines in greater detail the mechanics of both the Big Bang Protocol and the DC mechanism, along with their prospective transaction cost benefits, latent costs, and the potential for opportunistic behavior. Part IV then examines the origin and basic mechanics of Libor, before briefly chronicling the ongoing scandal stemming from investigations by public regulatory authorities in several jurisdictions that uncovered widespread fraud and market manipulation. Drawing on the insights from these parallel examinations, Part V then returns to the limits of private ordering and examines how positive network externalities, path dependency, and the core/periphery structure associated with ostensibly successful market structures such as Libor and the DC mechanism can also render them uniquely susceptible to abuse. Part VI then canvasses a small number of relatively modest,

²⁷ See *infra* text accompanying notes 270–72 for a more detailed breakdown of these fines, the institutions on which they were imposed, and the regulators that imposed them.

straightforward policy prescriptions that might be employed to limit the scope for such abuse. Part VII concludes.

There are two principal insights at the heart of this Article. First, the parallels between Libor and the DC mechanism—the key players, privileged market positions, prevailing incentive structures, and the absence of strong internal and external governance mechanisms—collectively suggest that the DC mechanism is vulnerable to the same type of opportunistic behavior which has undermined market confidence in the integrity of Libor. Second, and more broadly, while market participants may often possess powerful incentives to invest in the development of private market structures, they may also possess equally powerful countervailing incentives. Therefore, when evaluating the most desirable role for both private ordering and public regulatory intervention, we must first seek to understand how and why specific markets work—and sometimes don't—in practice.

II. *The Logic and Limits of Private Ordering*

We use private market structures on almost a daily basis.²⁸ Whenever one buys fresh strawberries at a farmers market, purchases a used coffee table on eBay, or compares the prices of package vacations on Expedia, he or she is using a private market structure. The benefits of these market structures flow principally from the reduction of information, agency, coordination, and other transaction costs.²⁹ eBay's "Top Rated Seller" certification, for example, provides prospective buyers with useful information about the historical trading behavior of otherwise anonymous counterparties.³⁰ Expedia and other price comparison websites, meanwhile, aggregate information from different suppliers, thereby enabling consumers to compare different products and thus be more confident that they are getting a good deal.

²⁸ As employed in this Article, the term "market structure" can be understood as a subspecies of what Douglass North describes as "institutions." See Douglass C. North, *Institutions*, 5 J. ECON. PERSP. 97, 97 (1991). The defining feature of market structures as "institutions" is thus that their purpose is to facilitate *market* interactions. See *id.*

²⁹ R.H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386, 392 (1937).

³⁰ See Daniel W. Elfenbein et al., *Market Structure, Reputation, and the Value of Quality Certification* 11 (Nat'l Bureau of Econ. Research, Working Paper No. 20074, 2014), available at <http://www.nber.org/papers/w20074.pdf>, archived at <http://perma.cc/4ZER-S8RU>.

The strengths of these market structures as a form of economic organization reflect the strengths of private ordering more generally and, ultimately, of free markets themselves. These strengths flow from the incentives of economic actors to invest in the acquisition of information and expertise, reduce transaction costs, and make credible commitments with the objective of capturing the resulting gains from trade.³¹ First, under competitive conditions, we would expect private ordering to result in product differentiation, with the supply of market structures reflecting the range of consumer demand.³² Second, the market-based nature of private ordering arguably makes these market structures both sensitive and, importantly, responsive to changing information and circumstances.³³ We would thus expect to observe an ongoing process of experimentation and updating with new information, changing market dynamics, or technological advancements, for example, spurring the development of new and progressively more desirable market structures. Put simply, we would expect market structures to continually evolve in order to minimize transaction costs.³⁴ For these reasons, private ordering is often viewed

³¹ See *supra* note 5 and accompanying text. Conversely, where the market anticipates that a market participant will be unable to make credible commitments, we would expect this market participant to bear the wealth effects stemming from this failure. See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 341 (1976).

³² An analogous argument has been made with respect to the provision of private regulation. Cf. Gillian Hadfield & Eric Talley, *On Public Versus Private Provision of Corporate Law*, 22 J.L. ECON. & ORG. 414, 417 (2006); David V. Snyder, *Private Lawmaking*, 64 OHIO ST. L.J. 371, 442 (2003); Paul G. Mahoney, *The Exchange As Regulator*, 83 VA. L. REV. 1453, 1454 (1997).

³³ See ROBERT BALDWIN & MARTIN CAVE, UNDERSTANDING REGULATION 65 (1999); Bruce L. Benson, *The Spontaneous Evolution of Commercial Law*, 55 S. ECON. J. 644, 650 (1989); Cally Jordan & Pamela Hughes, *Which Way for Market Institutions: The Fundamental Question of Self-Regulation*, 4 BERKELEY BUS. L.J. 205, 211 (2007); Snyder, *supra* note 32, at 422–24. But see Eric A. Posner, *Law, Economics, and Inefficient Norms*, 144 U. PA. L. REV. 1697, 1711–25 (1996).

³⁴ For a survey of scholarly work examining this hypothesis, see generally Jeffrey T. Macher & Barak D. Richman, *Transaction Cost Economics: An Assessment of Empirical Research in the Social Sciences*, 10 BUS. & POL. 1 (2008).

as enhancing choice, innovation, and efficiency relative to other forms of economic organization.³⁵

Many market structures are developed by entrepreneurs looking to satisfy the pent-up demand of market participants.³⁶ Others, however, are developed by market participants themselves. In theory, market participants possess powerful incentives to invest in the development of market structures. Sellers of high quality goods and services understandably want to find ways of signaling this quality to potential buyers, whether through the production of information, contractual terms, or reputational mechanisms.³⁷ Typically, they also want to make these goods and services available to as many potential buyers as possible.³⁸ Buyers, for their part, want access to information about sellers, the goods and services they are selling, and prevailing market prices.³⁹ Buyers also want access to markets populated with multiple potential sellers, thereby enabling them to compare different products and prices.⁴⁰ Simultaneously, they may want access to different products and services from the same seller or marketplace. More broadly, both buyers and sellers want to economize on the information, search, negotiation, drafting, and other transaction costs necessary to consummate transactions.⁴¹

Almost by definition, a “successful” market structure would be one that satisfies these demands, enabling market participants to reduce transaction costs and make more credible commitments to one

³⁵ See, e.g., Niva Elkin-Koren, *Copyrights in Cyberspace—Rights Without Laws?*, 73 CHI.-KENT. L. REV. 1155, 1161–62 (1998) (“[Private ordering] significantly reduces the costs of communicating and collecting information regarding individuals’ preferences. It also facilitates fast and cost-effective information processing that allows real-time feedback on public preferences and choices.”).

³⁶ See, e.g., *Hardening All Round*, 6 ECON. & POL. WKLY. 1368 (1971).

³⁷ See George A. Akerlof, *The Market for “Lemons”: Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488, 495 (1970).

³⁸ Cf. Martin Grieger, *Electronic Marketplaces: A Literature Review and a Call for Supply Chain Management Research*, 144 EUR. J. OPERATIONAL RES. 280, 287 (2003).

³⁹ See, e.g., Bruce M. Owen, *Kickbacks, Specialization, Price Fixing, and Efficiency in Residential Real Estate Markets*, 29 STAN. L. REV. 931, 933 (1977).

⁴⁰ Indeed, sellers may want this as well as it makes it less costly for them to determine the products and prices offered by their competitors. See Grieger, *supra* note 38, at 87.

⁴¹ See *supra* notes 9–11 and accompanying text.

another.⁴² We would expect these market structures to attract a large number of market participants, increasing both the depth and volume of trade.⁴³ More buyers and sellers completing more transactions would then serve to enhance the process of price discovery,⁴⁴ thereby reducing the difference (or “spread”) between bid and asking prices,⁴⁵ and generating greater market liquidity.⁴⁶ Greater liquidity, in turn, would attract even more market participants, thus further enhancing price discovery, reducing spreads, and generating even more liquidity. For this reason, it is often said that “liquidity begets more liquidity.”⁴⁷ The incentives of market participants to develop and use these market structures thus flow from their desire to extract some of the potential gains from trade associated with this virtuous circle, as illustrated in Figure 1.⁴⁸

⁴² See Matthew Bennett et al., *What Does Behavioral Economics Mean for Competition Policy?*, COMPETITION POL’Y INT’L, Spring 2010, at 111, 114.

⁴³ The “depth” of trade refers to the number of buyers and sellers in the marketplace. The “volume” of trade, in contrast, refers to the number of completed transactions.

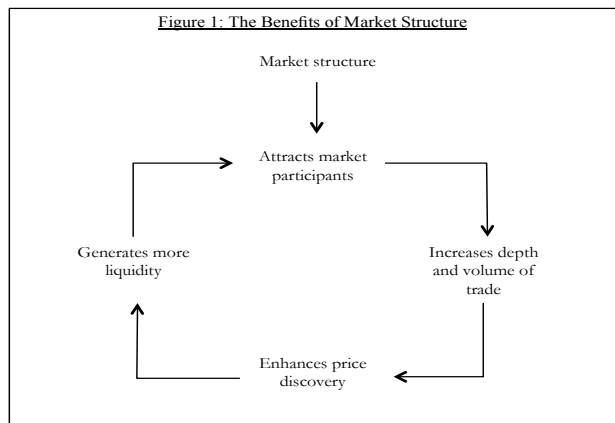
⁴⁴ Distilled to its essence, price discovery is the process by which buyers and sellers determine the price of an asset in the marketplace. See HARRIS, *supra* note 10, at 94.

⁴⁵ *Id.* The “bid price” represents the maximum price that a buyer is willing to pay for an asset. “*Bid*” Price, SEC. EXCH. COMM’N, <http://www.sec.gov/answers/bid.htm>, archived at <http://perma.cc/59BU-ZBWT>. The “ask price” represents the minimum price that a seller is willing to sell it for. *Id.*

⁴⁶ The concept of liquidity is very abstract and, thus, difficult to define. See generally Sanford J. Grossman and Merton H. Miller, *Liquidity and Market Structure*, 43 J. FIN. 617 (1988). At a very basic level, however, it can be understood as a measure of a market participant’s ability to trade rapidly and with minimal price impact. See *id.* at 618. It is thus a function of both the amount of *time* it takes to buy or sell an asset and the effect of the transaction on its *price*. See *id.*

⁴⁷ John Armour, Dan Awrey, Paul Davies, Jeff Gordon, Colin Mayer & Jennifer Payne, *Principles of Financial Regulation* (2014) (unpublished manuscript) (on file with author).

⁴⁸ See Bennett, *supra* note 42, at 114.



For all their benefits, however, successful market structures are also the source of significant and often overlooked market distortions. The remainder of this section examines three of the most important of these distortions: positive network externalities, path dependency, and power imbalances between the market participants at the core of these market structures and those at the periphery.

A. Positive Network Externalities

The virtuous circle described above is the source of potentially significant positive network externalities.⁴⁹ Positive network externalities arise wherever the addition of *new* users—or market participants in our case—generate benefits for *existing* users.⁵⁰ The telephone and credit cards are both good examples, as are social networks such as Facebook. Where there is only one user, these “network goods”⁵¹ possess little value (imagine how valuable a telephone would be if you were the only person amongst your friends and family who used one). As we increase the number of new users, however, some of the value thereby generated accrues to earlier

⁴⁹ Richard S. Whitt & Stephen J. Schultze, *The New “Emergence Economics” of Innovation and Growth, and What It Means for Communications Policy*, 7 J. ON TELECOMM. & HIGH TECH. L. 217, 221 (2009).

⁵⁰ See Paul Klemperer, *Network Goods (Theory)*, in 5 THE NEW PALGRAVE DICTIONARY OF ECONOMICS 915, 915 (Steven N. Durlauf & Lawrence E. Blume eds., 2nd ed. 2008).

⁵¹ *Id.*

adopters.⁵² This has a number of implications. First, once the number of users reaches a certain critical mass, network goods start to generate their own gravity: with new users attracted not only by the inherent quality of the good itself, but also (and perhaps even *only*) by the fact that it is widely used.⁵³ This, in turn, generates an acute coordination problem, rendering it extremely difficult for new and potentially more desirable substitutes to emerge and take hold in the marketplace.⁵⁴ Second, while from a *static* perspective the existence of strong positive network externalities might suggest that aggregate welfare would be maximized under monopolistic market conditions (again, imagine if all your friends and family were on the same phone network),⁵⁵ from a *dynamic* perspective these externalities represent potential barriers to welfare enhancing innovation.⁵⁶ There exists a considerable body of scholarship examining the impact of network externalities in different contexts.⁵⁷ Most notably for our present purposes, several scholars have examined whether network externalities result in the “lock-in” of suboptimal contractual terms in standardized contracts.⁵⁸ Stephen Choi

⁵² *See id.*

⁵³ *See id.* (“[N]etwork effects create incentives to ‘herd’ with others. . . . [A] network that looks like [it is] succeeding will *as a result* do so.”).

⁵⁴ *Id.* at 916. Facebook users will be familiar with this coordination problem. While privacy concerns or advertisements might motivate us to switch to a different social network, this strategy entails significant private costs unless a sufficiently large proportion of our friends and family also switch to the same alternative network at the same time. There is thus a distinct first-mover *disadvantage* that disincentivizes us from switching networks. Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93, 108 (1994).

⁵⁵ This assumption sets aside the obvious distributional implications.

⁵⁶ *See* Klemperer, *supra* note 50, at 915.

⁵⁷ *See generally* Paul A. David, *Clio and the Economics of QWERTY*, 75 AM. ECON. REV. 332 (1985); Joseph Farrell & Garth Saloner, *Standardization, Compatibility, and Innovation*, 16 RAND J. ECON. 70 (1985); Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424 (1985); Katz & Shapiro, *supra* note 54; S.J. Liebowitz & Stephen E. Margolis, *Network Externality: An Uncommon Tragedy*, 8 J. ECON. PERSP. 133 (1994); S.J. Liebowitz & Stephen E. Margolis, *The Fable of the Keys*, 33 J.L. & ECON. 1 (1990). For a discussion of the role of law in overcoming network effects, see Robert B. Ahdieh, *Making Markets: Network Effects and the Role of Law in the Creation of Strong Securities Markets*, 76 S. CAL. L. REV. 277, 322–48 (2003).

⁵⁸ *See* Charles J. Goetz & Robert E. Scott, *The Limits of Expanded Choice: An Analysis of the Interactions Between Express and Implied Contract Terms*, 73

and Mitu Gulati, for example, using a dataset of sovereign bond issuances between 1994 and 2003, trace the migration from so-called “unanimous action” clauses to “collective action” clauses following Ecuador’s and Uruguay’s successful use of exit consents in 2000 to restructure its outstanding sovereign debt.⁵⁹ The authors find that, absent an “interpretive shock,” network externalities play a role in locking in potentially suboptimal terms such as universal action clauses.⁶⁰ Indeed, even after the interpretive shock generated by these countries’ successful use of exit consents, the authors document that the

CAL. L. REV. 261, 263–64 (1985); Marcel Kahan, *Rethinking Corporate Bonds: The Trade-off Between Individual and Collective Rights*, 77 N.Y.U. L. REV. 1040, 1079–80 (2002); Kahan & Klausner, *supra* note 9, at 762; Michael Klausner, *Corporations, Corporate Law, and Networks of Contracts*, 81 VA. L. REV. 757, 808–12 (1995); *see also* Marcel Kahan & Michael Klausner, *Antitakeover Provisions in Bonds: Bondholder Protection or Management Entrenchment?*, 40 UCLA L. REV. 931, 973–74 (1993).

⁵⁹ *See generally* Stephen J. Choi & G. Mitu Gulati, *Innovation in Boilerplate Contracts: An Empirical Examination of Sovereign Bonds*, 53 EMORY L.J. 929 (2004); *see also* Stephen J. Choi, Mitu Gulati & Eric A. Posner, *The Dynamics of Contract Evolution*, 88 N.Y.U. L. REV. 1, 4 (2013); Stephen J. Choi, Mitu Gulati & Eric A. Posner, *The Evolution of Contractual Terms in Sovereign Bonds*, 4 J. LEGAL ANALYSIS 131, 140–43 (2012). Very briefly, unanimous action clauses require the unanimous consent of all bondholders to any restructuring of payment terms, while collective action clauses simply require the consent of a specified majority or supermajority. *See* FED. RESERVE BANK OF S.F., FRBSF ECONOMIC LETTER NO. 2004–06, RESOLVING SOVEREIGN DEBT CRISES WITH COLLECTIVE ACTION CLAUSES 1 (2004). An exit consent, meanwhile, enables bondholders to exchange their existing bonds for new bonds. *Id.* at 2–3. In order to participate in the exchange, however, bondholders must agree to vote in favor of a resolution amending the existing bonds in a way that greatly diminishes their value. *Id.* at 2–3.

⁶⁰ Choi & Gulati, *supra* note 59, at 993. The argument that unanimous action clauses are suboptimal is rooted in the inherent hold-up problems generated by the requirement of unanimity. *See id.* at 932. These hold-up problems undermine the ability of issuers and bondholders to restructure the debt of sovereigns in financial distress. *Id.* However, there exists an opposing argument that—for precisely the same reason—unanimous action clauses send a signal to prospective bondholders that the issuer believes there is a low probability that the bonds will need to be restructured. INT’L MONETARY FUND, COLLECTIVE ACTION CLAUSES IN SOVEREIGN BOND CONTRACTS—ENCOURAGING GREATER USE 10 (2002), *available at* <https://www.imf.org/external/np/psi/2002/eng/060602a.pdf>, *archived at* <http://perma.cc/XJ4E-4TP3>.

shift toward collective action clauses was slow and uneven.⁶¹ Accordingly, while empirical research examining the impact of network externalities on financial contracting and innovation is still relatively scarce,⁶² Choi and Gulati's findings are consistent with the hypothesis that these externalities can impede the process of innovation that we would otherwise expect to observe under competitive market conditions.⁶³

B. Path Dependency

A second, if somewhat related, source of potential market distortions is path dependency. While the concept of path dependence has been used in a number of different ways and in a number of different contexts,⁶⁴ in general terms it can be understood as encapsulating the idea that prior states of the world shape its current state, and that the current state of the world will shape future states.⁶⁵ Accordingly, in a world with many possible outcomes (or equilibriums), *earlier* choices will have a disproportionate impact on which of these equilibriums is ultimately observed.⁶⁶ As employed in this Article, path dependence refers to the possibility that market structures may exhibit a form of "stickiness," preventing market participants currently using one market structure from migrating to alternative structures in response to new information, changing market dynamics, or technological advancements.⁶⁷ The primary source of this stickiness is switching costs.⁶⁸ Specifically, where the costs of switching from one market structure to another exceed the expected

⁶¹ Choi & Gulati, *supra* note 59, at 993–96.

⁶² See W. Scott Frame & Lawrence J. White, *Empirical Studies of Financial Innovation: Lots of Talk, Little Action?*, 42 J. ECON. LITERATURE 116, 121 (2004).

⁶³ See *supra* text accompanying notes 54–58.

⁶⁴ See Scott E. Page, *Path Dependence*, 1 Q.J. POL. SCI. 87, 91 (2006).

⁶⁵ See NORTH, *supra* note 5, at 94; DOUGLASS C. NORTH, UNDERSTANDING THE PROCESS OF ECONOMIC CHANGE 51–52 (2005).

⁶⁶ Klemperer, *supra* note 50, at 916.

⁶⁷ See Jenna Bednar & Scott Page, *Can Game(s) Theory Explain Culture?: The Emergence of Cultural Behavior Within Multiple Games*, 19 RATIONALITY & SOC'Y 65, 69 (2007).

⁶⁸ Herd behavior and cognitive biases may also play an important complementary role. See Marcel Kahan & Michael Klausner, *Path Dependence in Corporate Contracting: Increasing Returns, Herd Behavior and Cognitive Biases*, 74 WASH. U. L.Q. 347, 366 (1996).

benefits associated with the new structure, market participants may rationally decide not to switch—even if the new structure is, relatively speaking, more desirable.⁶⁹ As a result, path dependence can be seen as promoting “stable but inefficient . . . equilibrium[s],” steering markets off the welfare-maximizing course.⁷⁰

C. Power Imbalances

The third source of market distortions is power imbalances between market participants. Economists tend to think of market power in terms of the ability of market participants to influence the price at which goods and services are bought and sold.⁷¹ They thus draw a distinction between competitive markets in which all buyers and sellers are “price takers,” and markets in which one or more market participants—owing to their ability to influence supply, demand, or both—are “price makers.”⁷² Power, however, can also manifest itself in far more subtle and sophisticated ways. Using examples from the real estate, brokerage, mutual fund, and derivatives industries, for example, Kathryn Judge examines how intermediaries can influence the process by which market structures and other institutional arrangements evolve over time.⁷³ Through this influence, market power can be used to shape market structure in ways that serve these intermediaries’ narrow self-interest.⁷⁴ Importantly, this influence can also be used to undermine the

⁶⁹ See Jody S. Kraus, *Legal Design and the Evolution of Commercial Norms*, 26 J. LEGAL STUD. 377, 378 (1997).

⁷⁰ Stephen M. Bainbridge, *Mandatory Disclosure: A Behavioral Analysis*, 68 U. CIN. L. REV. 1023, 1045–46 (2000).

⁷¹ See, e.g., JOHN M. CONNOR, GLOBAL PRICE FIXING: OUR CUSTOMERS ARE THE ENEMY 49 (2001).

⁷² Christopher R. Leslie, *Cutting Through Tying Theory with Occam’s Razor: A Simple Explanation of Tying Arrangements*, 78 TUL. L. REV. 727, 730 (2004).

⁷³ See Kathryn Judge, *Intermediary Influence*, 82 U. CHI. L. REV. (forthcoming 2015) (manuscript at 16–38), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2430163. For a discussion of these influences in the context of stock and commodity exchanges, see Craig Pirrong, *A Theory of Financial Exchange Organization*, 43 J.L. & ECON. 437, 460–61 (2000); Stephen Craig Pirrong, *The Self-Regulation of Commodity Exchanges: The Case of Market Manipulation*, 38 J.L. & ECON. 141, 156–57 (1995).

⁷⁴ See Judge, *supra* note 73 (manuscript at 44).

emergence and adoption of disruptive technologies that represent a threat to this power.⁷⁵

There are many different sources of market power: monopolistic or oligopolistic competition, network effects, technological superiority, or advantages in information or expertise, for example. Two important sources of market power for the present purposes are *market position* and *bundling*. In terms of market position, Katharina Pistor draws a useful distinction between market participants at the core, or “apex,” of a market and those at the “periphery.”⁷⁶ In the present context, market participants at the core can be understood as those either involved in the creation and governance of a market structure, or whose participation in the market structure represents a significant source of liquidity.⁷⁷ Bundling, meanwhile, refers to the circumstance where a market participant possesses market power in respect of two or more different but ultimately complementary products.⁷⁸ As observed by Barry Nalebuff, bundling makes it difficult for competitors offering only one of these products to successfully enter the marketplace and attract market share.⁷⁹ As we shall see, the market position of some financial intermediaries enables them to bundle their most important product—liquidity—with other complementary products such as Libor and ISDA’s CDS documentation. This, in turn, puts these intermediaries in an advantageous position to influence the evolution of these market structures in ways that enable them to extract rents from those at the periphery, such as institutional investors, corporate borrowers, and other counterparties.⁸⁰

The common theme connecting each of these market distortions is that they impede the process of innovation from which the benefits of private ordering are thought to flow, thus potentially resulting in the entrenchment of less efficient market structures. While each of these distortions can individually influence the development of market structures, we would expect their impact to be strongest when

⁷⁵ *Id.* (manuscript at 50).

⁷⁶ Katharina Pistor, *A Legal Theory of Finance*, 41 J. COMP. ECON. 315, 316 (2013).

⁷⁷ *Id.* at 319.

⁷⁸ David S. Evans & Michael Salinger, *Why Do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law*, 22 YALE J. ON REG. 37, 38 (2005).

⁷⁹ Barry Nalebuff, *Bundling as an Entry Barrier*, 119 Q.J. ECON. 159, 159 (2004).

⁸⁰ *See infra* notes 318–19.

acting in combination. In the next section, we examine their potential impact in the context of two important market structures at the heart of modern financial markets.

III. ISDA, the Big Bang Protocol, and the Limits of Private Ordering Within OTC Derivatives Markets

There are few case studies that illustrate the importance of market structure more than the multi-trillion dollar market for OTC derivatives and, specifically, swaps. This section examines the central role of financial intermediaries—and specifically global swaps dealers—in providing liquidity to this market, along with the role of ISDA in developing standardized legal documentation, promoting international law reform, and addressing ongoing legal, operational, and technical challenges. This section then puts a relatively new, largely unexamined, and yet extremely important component of this market structure under the microscope: the mechanics, prospective benefits, and potential vulnerabilities of ISDA’s Big Bang Protocol.

A. Swaps Dealers, ISDA, and the Development of OTC Derivatives Markets.

In its simplest form, a swap is a series of mutual forward obligations whereby two counterparties agree to periodically exchange (or “swap”) cash flows over a specified period of time.⁸¹ Perhaps the most straightforward example is an interest rate swap pursuant to which one counterparty—e.g. a borrower with fixed rate obligations—agrees to make payments at a fixed interest rate to another counterparty who in turn agrees to pay the borrower a variable (or “floating”) rate.⁸² The fixed rate borrower receiving the floating rate thus stands to benefit from any subsequent increase in interest rates, whereas its counterparty receiving the fixed rate will benefit from any decline.⁸³ The periodic payments due under a swap are calculated with reference to what is known as the “notional amount.”⁸⁴ The resulting obligations are then

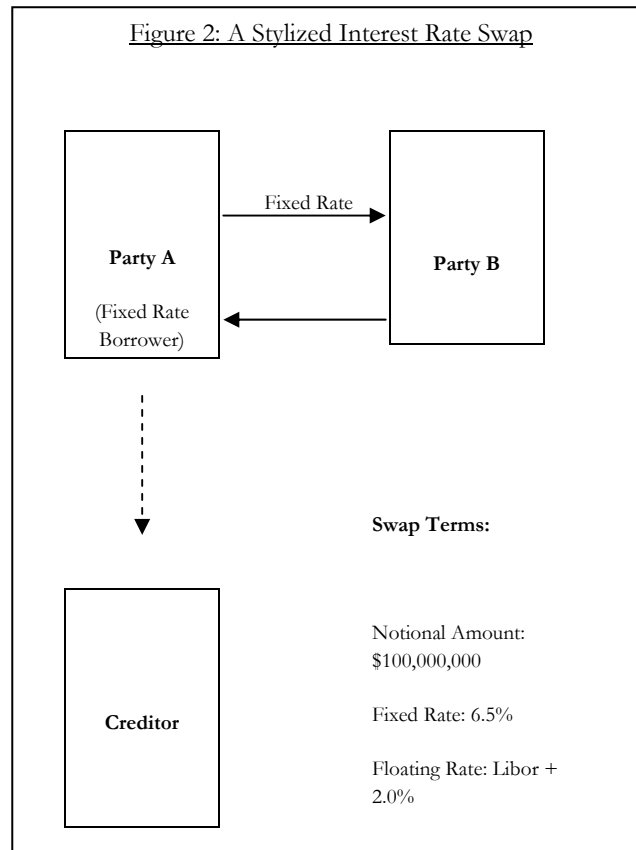
⁸¹ See Christopher J. Redd, *Treatment of Securities and Derivatives Transactions in Bankruptcy: Part I*, AM. BANKR. INST. J., Jul.–Aug. 2005, at 36, 36.

⁸² *Id.*

⁸³ See *id.*

⁸⁴ While the notional amount provides a conventional measure of the *size* of OTC derivatives markets, it does not capture the attendant *risks*. Karsten von

netted out against one another so that only one counterparty is required to make payment in any given period.⁸⁵ Figure 2 depicts a stylized interest rate swap transaction.⁸⁶



Kleist & Carlos Mallo, *OTC Derivatives Market Activity in the Second Half of 2009*, BANK FOR INT'L SETTLEMENTS, 4 (May 2010), http://www.bis.org/publ/otc_hy1005.pdf, archived at <http://perma.cc/L2TS-G2Z8>. A more useful measure of size is “gross market value,” which reflects the current exposures of counterparties under open contracts assuming that these contracts were all settled immediately. *Id.* Where possible, therefore, gross market values are provided along with notional amounts. *See id.*

⁸⁵ Redd, *supra* note 81, at 36.

⁸⁶ This depiction of an interest rate swap is stylized in several respects. Perhaps most importantly, as described below, the counterparties to a typical swap will not contract directly with one another but, rather, will enter into separate swaps with a single financial intermediary. *See infra* text accompanying note 87.

Historically, swaps and other OTC derivatives have been executed within relatively opaque, quote-driven markets in which financial intermediaries—so-called “dealers”—“perform an explicit market-making role: structuring derivatives instruments and marketing them to clients, on the basis that they are willing to take either side of the transaction.”⁸⁷ These dealers then typically look to hedge the resulting exposures by seeking out and entering into offsetting transactions with other clients or, in many cases, other dealers.⁸⁸ In theory, dealers thus seek to maintain a “matched” or neutral trading book: making money not by taking a view on the future direction of the market, but by charging each counterparty a fee—either explicitly, or embedded in their quoted bid-ask spread—for their willingness to stand on the opposite side of the trade.⁸⁹

In order to better understand the economic function and importance of swaps dealers, it may be useful to take a step back and examine the origins of swaps markets within the post-World War II international financial system.⁹⁰ Established in 1944, the Bretton Woods system of monetary and exchange rate management contemplated strict capital controls designed to prevent the flight of capital from jurisdictions pursuing relatively tight monetary and macroeconomic policies to jurisdictions pursuing more accommodating policies.⁹¹ In effect, these capital controls restricted the amount of

⁸⁷ Dan Awrey, *Complexity, Innovation, and the Regulation of Modern Financial Markets*, 2 HARV. BUS. L. REV. 235, 268 (2012).

⁸⁸ See DEUTSCHE BÖRSE GROUP, *THE GLOBAL DERIVATIVES MARKET: AN INTRODUCTION* 17 (2008), available at http://deutsche-boerse.com/dbg/dispatch/en/binary/gdb_content_pool/imported_files/public_files/10_downloads/11_about_us/Public_Affairs/The_Global_Derivatives_Market_0508.pdf, archived at <http://perma.cc/BHG3-2BNB>.

⁸⁹ See William O. Fisher, *Predicting a Heart Attack: The Fundamental Opacity of Extreme Liquidity Risk*, 86 TEMP. L. REV. 465, 479 (2014).

⁹⁰ For a more detailed history, see PERRY MEHLING, *THE NEW LOMBARD STREET: HOW THE FED BECAME THE DEALER OF LAST RESORT* 71–79 (2011).

⁹¹ *Id.* at 71–72. The rationale for this was that, in the absence of such controls, capital would flow to whatever jurisdictions offered the best investment prospects as measured by future growth potential and the cost of capital. *See id.* at 72. While in a floating exchange rate regime we might expect such international capital flows to be reflected in prevailing exchange rates, the Bretton Woods’ pegged currency regime prevented currencies from adjusting to fully reflect these flows. *See* Richard Myrus, Note, *From Bretton Woods to Brussels: A Legal Analysis of the Exchange-Rate Arrangements of the*

money that could move across international borders.⁹² So-called “parallel loans”—the predecessor to modern swaps—arose as a means of circumventing these controls.⁹³ Parallel loans worked as follows.⁹⁴ Imagine a firm domiciled in Germany required renminbi in order to finance the expansion of a manufacturing facility owned by its Chinese subsidiary. Under the Bretton Woods system, the German firm would be prevented from making this capital injection directly. If it could find a Chinese firm who needed Deutsche marks, however, it could arrange for two *parallel* loans: one from the Chinese firm to the German firm’s Chinese subsidiary (denominated in renminbi), and another from the German firm to the Chinese firm’s German subsidiary (denominated in Deutsche marks).⁹⁵ No money would cross international borders, thus ensuring that the letter of Bretton Woods—although certainly not the spirit—was strictly observed.

Dealers performed two important economic functions within the market for parallel loans. First, dealers would use their client networks in each jurisdiction to assist firms in identifying potential counterparties.⁹⁶ Second, in our example, the foreign subsidiaries of both the German and Chinese firms are extremely vulnerable to counterparty credit risk.⁹⁷ Were their counterparties to become insolvent, for example, or if these counterparties were to opportunistically seek to prematurely terminate the relevant loan, the subsidiaries would be left struggling to find a replacement counterparty before they ran out of Deutsche mark or renminbi liquidity.⁹⁸ One way to address this problem is by interposing a dealer between the two firms.⁹⁹ While the dealer would still be exposed to counterparty credit

International Monetary Fund and the European Community, 62 *FORDHAM L. REV.* 2095, 2097–99 (1994).

⁹² See *supra* note 91.

⁹³ See Graham Rowbotham, *Can Banks Secure Their Own Deposits?*, 6 *INT’L FIN. L. REV.* 18, 19 (1987).

⁹⁴ For an example of parallel loans similar to the one that follows, see Charles R.P. Pouncy, *Contemporary Financial Innovation: Orthodoxy and Alternatives*, 51 *SMU. L. REV.* 505, 528 (1998).

⁹⁵ In reality, the funds for these loans would typically be borrowed by the parent firm from a financial institution located in the relevant jurisdiction.

⁹⁶ See David E. Van Zandt, *The Market as a Property Institution: Rules for the Trading of Financial Assets*, 32 *B.C. L. REV.* 967, 996 (1991).

⁹⁷ See MEHRLING, *supra* note 90, at 73.

⁹⁸ See *id.*

⁹⁹ See *id.* at 74.

risk, its balance sheet was also likely to be more diversified.¹⁰⁰ Dealers were also likely to have access to more sources of liquidity and be better positioned to hedge any residual exposures.¹⁰¹ Simultaneously, their status as repeat players in the marketplace arguably made dealers less likely to engage in opportunistic behavior. Accordingly, in addition to their often considerable informational advantages, these dealers were generally better positioned to manage the exchange rate, counterparty credit, liquidity, and other risks associated with the use of parallel loans.¹⁰²

The Bretton Woods system was dismantled during the 1970s.¹⁰³ The innovation it spawned, however, would eventually evolve into modern day currency swaps.¹⁰⁴ Like their twentieth century forbearers, twenty-first century swaps dealers are central to the operation of modern swaps markets, “representing . . . the primary source of market access, [trading] information and liquidity.”¹⁰⁵ Indeed, in this respect, dealers can themselves be understood as important market structures.¹⁰⁶ This importance “is reflected in the concentration of trading activity within these markets. As of June 2010, for example, the fourteen largest OTC derivatives dealers (the so-called ‘G14’)” were counterparties to swaps representing approximately eighty-two

¹⁰⁰ *See id.*

¹⁰¹ *See id.* at 74–75.

¹⁰² *See id.*

¹⁰³ *The End of the Bretton Woods System (1972–81)*, INT’L MONETARY FUND, <https://www.imf.org/external/about/histend.htm>, archived at <http://perma.cc/ESG8-D4AS>.

¹⁰⁴ *See supra* note 90. Once the Bretton Woods capital controls were removed, parallel loans were no longer required in order to capitalize foreign subsidiaries. *See supra* note 103. At the same time, however, the dismantling of the Bretton Woods pegged exchange rate regime meant that many currencies now floated against one another on the basis of market forces. *Id.* Accordingly, firms needed to manage the foreign exchange risk associated with their foreign operations. By eliminating the requirement to make the actual loan—which had always been costly for dealers because they had to keep it on their books—and focusing instead on exchanging cash flows on the basis of fluctuations in the two currencies, parallel loans thus evolved into the first currency swaps. *See MEHLING, supra* note 90, at 72–75.

¹⁰⁵ *See Awrey, supra* note 87, at 268.

¹⁰⁶ This fact, as examined in greater detail below, potentially generates considerable positive network externalities, path dependence, and power imbalances in the context of market structures such as the Big Bang Protocol. *See infra* Part V.

percent of the global notional amount outstanding.¹⁰⁷ Collectively, these dealers have thus played a pivotal role in the emergence and development of OTC derivatives markets.

Dealers have had an important ally in the development of global swaps markets: the International Swaps and Derivatives Association. Originally named the International Swaps *Dealers* Association, ISDA is the de facto trade association of the global OTC derivatives industry, representing some 800 member dealers, institutional investors, governments, and other major counterparties.¹⁰⁸ Established in 1985, ISDA's core mandate is to encourage the prudent and efficient development of OTC derivatives markets through the promotion of, among other things, practices conducive to the efficient conduct of business, sound risk management practices, and high standards of commercial conduct.¹⁰⁹ By at least one measure, ISDA has been extremely successful in its pursuit of this mandate. As of December 31, 2013, the Bank for International Settlements ("BIS") estimated the total outstanding notional amount of all OTC derivatives to be approximately \$710 trillion¹¹⁰—up from \$3.45 trillion in 1990.¹¹¹ Simultaneously, whereas an authoritative desk reference in 1985 (had one existed) might have identified a universe of perhaps a dozen or so relatively basic derivatives, today there are hundreds—if not thousands—of different species of OTC options, forwards, swaps, and structured investment products.¹¹²

ISDA's contribution toward the development of OTC derivatives markets can be observed across at least three dimensions.

¹⁰⁷ Awrey, *supra* note 87, at 268 (citing David Mengle, *Concentration of OTC Derivatives among Major Dealers*, ISDA RESEARCH NOTES, 3 (2010), http://www.isda.org/researchnotes/pdf/ConcentrationRN_4-10.pdf, archived at <http://perma.cc/CL72-8UXY>).

¹⁰⁸ *About ISDA*, INT'L SWAPS & DERIVATIVES ASS'N, www2.isda.org/about-ISDA (last visited Nov. 17, 2014), archived at <http://perma.cc/BF4E-TV9X>.

¹⁰⁹ *Id.*

¹¹⁰ *OTC Derivatives Statistics at End-December 2013*, BANK FOR INT'L SETTLEMENTS, 2 (May 2014), http://www.bis.org/publ/otc_hy1405.pdf, archived at <http://perma.cc/8XQZ-4VPH>.

¹¹¹ *International Banking and Financial Market Developments*, BANK FOR INT'L SETTLEMENTS, 35 (August 1996), http://www.bis.org/publ/r_qt9608.pdf, archived at <http://perma.cc/R8GK-CJ45>.

¹¹² For a comprehensive—if increasingly dated—taxonomy of OTC derivatives, see generally RICHARD FLAVELL, *SWAPS AND OTHER DERIVATIVES* (2d ed. 2011). See also SATYAJIT DAS, *DERIVATIVES PRODUCTS & PRICING* 81–140 (2006).

First, ISDA has been the driving force behind the development of standardized legal documentation for use in connection with OTC derivatives transactions.¹¹³ Prior to the intervention of ISDA and organizations such as the BBA, the majority of OTC derivatives were documented in ad hoc agreements negotiated on a transaction-by-transaction basis.¹¹⁴ The absence of standardized legal documentation understandably represented a significant barrier to the growth of OTC derivatives markets.¹¹⁵ Stepping into this breach, ISDA published its Code of Standard Wording, Assumptions, and Provisions for Swaps (the “ISDA Swaps Code”) in 1985.¹¹⁶ The ISDA Swaps Code was, in effect, “a glossary of [standard] terms that reflected the [then existing] practices” within the nascent U.S. interest rate swap market.¹¹⁷

In the eyes of many, however, ISDA’s defining moment would come in 1987 with the publication of its first standardized “master” agreements for U.S. dollar and multi-currency interest rate swaps and currency swaps.¹¹⁸ ISDA master agreements incorporate multiple future transactions between two counterparties under the umbrella of a single legal relationship, contemplating only the preparation of a brief trade confirmation for individual transactions.¹¹⁹ Master agreements thus serve to reduce the drafting, negotiation, and other transaction costs which would otherwise be incurred in connection with the preparation of legal documentation for individual trades.¹²⁰ The standardization of legal terms and terminology also results in greater *commoditization*, thereby lowering the information and hedging costs associated with these contracts.¹²¹

Over time, the scope of ISDA master agreements has been expanded to include a broad range of transactions, including OTC equity, commodity, and credit derivatives.¹²² ISDA has developed standardized ancillary documentation—e.g. definitions, schedules, credit support agreements, and trade confirmations—for use in

¹¹³ See *infra* text accompanying notes 116–17.

¹¹⁴ Norman Meacham Feder, *Deconstructing Over-the-Counter Derivatives*, 2002 COLUM. BUS. L. REV. 677, 736 (2002).

¹¹⁵ *Id.*

¹¹⁶ *Id.* at 737.

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.* at 738–39.

¹²⁰ See *id.*

¹²¹ See Thomas R. McLean, *Telemedicine and the Commoditization of Medical Services*, 10 DEPAUL J. HEALTH CARE L. 131, 132 (2007).

¹²² See Feder, *supra* note 114, at 737–39.

connection with these agreements.¹²³ It has also developed a series of protocols which facilitate the ex post amendment of existing master agreements with a view to, among other things, responding to jurisprudential developments, implementing new advancements, rectifying perceived technical deficiencies and, ultimately, standardizing market practice.¹²⁴ All ISDA master agreements, ancillary documentation, and protocols are reviewed periodically and amended as necessary by ISDA technical committees.¹²⁵ These technical committees are staffed by representatives drawn from ISDA's membership with assistance from external legal and other advisors.¹²⁶ Reflecting this wealth of expertise, ISDA documentation is widely regarded as the gold standard within OTC derivatives markets—and in particular global swaps markets.¹²⁷

Second, ISDA has taken the lead in promoting international law reform in areas vital to the development of OTC derivatives markets. Perhaps most significantly, ISDA has produced a Model Netting Act and supplemental guidance for legislators with a view to assisting them in enacting legislation designed to ensure the enforceability of close-out netting and related financial collateral arrangements upon the occurrence of a termination event or event of default—e.g. the commencement of insolvency proceedings involving a swap counterparty—as defined under ISDA's contractual documentation.¹²⁸ In effect, the Model Netting Act is designed to

¹²³ See *id.* at 739.

¹²⁴ See *About ISDA Protocols*, INT'L SWAPS & DERIVATIVES ASS'N, <http://www2.isda.org/functional-areas/protocol-management/about-isda-protocols/> (last visited Nov. 17, 2014), archived at <http://perma.cc/74K6-EFRU>.

¹²⁵ See Gabriel V. Rauterberg & Andrew Verstein, *Assessing Transnational Private Regulation of the OTC Derivatives Market: ISDA, the BBA, and the Future of Financial Reform*, 54 VA. J. INT'L L. 9, 21 (2013).

¹²⁶ For a list of these committees, see *Committees*, INT'L SWAPS & DERIVATIVES ASS'N, <http://www2.isda.org/committees/> (last visited Nov. 17, 2014), archived at <http://perma.cc/5ZRD-QRSB>.

¹²⁷ See Rauterberg & Verstein, *supra* note 125, at 21 (“[T]he ISDA Master Agreement is used in more than ninety percent of OTC derivative transactions.”).

¹²⁸ See *Opinions*, INT'L SWAPS & DERIVATIVES ASS'N, www2.isda.org/functional-areas/legal-and-documentation/opinions (last visited Nov. 17, 2014), archived at <http://perma.cc/P265-TMVW> (providing links to the “2006 ISDA Model Netting Act—Version 2” and the “Memorandum on the Implementation of the Model Netting Act”).

ensure that OTC derivatives enjoy a carve-out from any automatic stay or fraudulent preference provisions imposed under applicable insolvency laws.¹²⁹ As of November 17, 2014, netting legislation based on this guidance has been adopted in at least forty jurisdictions including the U.S., U.K., E.U., Japan, and Canada.¹³⁰ More broadly, ISDA has played an active role in influencing public policy and financial law reform—including the design and implementation of post-crisis reforms targeting OTC derivatives markets such as Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank Act”) and the European Market Infrastructure Regulation (“EMIR”).¹³¹ Whether or not one views the Model Netting Act and other reforms as desirable from a broader societal perspective, there is little doubt that they have helped pave the way for the spectacular growth of OTC derivatives markets in recent decades.¹³²

Finally, ISDA has helped coordinate ad hoc responses to industry-wide legal, operational, and technical challenges. From 2005 to 2006, for example, ISDA joined with the Federal Reserve Bank of

¹²⁹ See Memorandum on the Implementation of Netting Legislation, Int’l Swaps & Derivatives Ass’n 5 (2006), available at <http://www2.isda.org/functional-areas/legal-and-documentation/opinions>, archived at <http://perma.cc/P265-TMVW>. ISDA has also commissioned legal opinions in many jurisdictions to provide market participants with enhanced transactional certainty. See *Opinions*, supra note 128.

¹³⁰ *Netting Legislation—Status*, INT’L SWAPS & DERIVATIVES ASS’N, http://www.isda.org/docproj/stat_of_net_leg.html (last visited Nov. 17, 2014), archived at <http://perma.cc/3JRJ-T6FG>.

¹³¹ See *ISDA Focus: Dodd-Frank*, INT’L SWAPS & DERIVATIVES ASS’N, <http://www2.isda.org/dodd-frank> (last visited Nov. 17, 2014), archived at <http://perma.cc/7P5L-ADV9>; *ISDA Focus: European Market Infrastructure Regulation (EMIR)*, INT’L SWAPS & DERIVATIVES ASS’N, <http://www2.isda.org/emir> (last visited Nov. 17, 2014), archived at <http://perma.cc/6W4S-Y687>. For a more complete account of the ISDA’s public policy initiatives around the world, see *Public Policy*, INT’L SWAPS & DERIVATIVES ASS’N, www2.isda.org/functional-areas/public-policy (last visited Nov. 17, 2014), archived at <http://perma.cc/9344-KSJU>.

¹³² For a discussion of the potential moral hazard and other problems stemming from the carve-outs for OTC derivatives under U.S. bankruptcy law, see Franklin R. Edwards & Edward R. Morrison, *Derivatives and the Bankruptcy Code: Why the Special Treatment?*, 22 YALE J. ON REG. 91, 119 n.4 (2005); Frank Partnoy & David A. Skeel, Jr., *The Promise and Perils of Credit Derivatives*, 75 U. CIN. L. REV. 1019, 1048–50 (2007); Mark J. Roe, *The Derivative Market’s Payment Priorities as Financial Crisis Accelerator*, 63 STAN. L. REV. 539, 555–68 (2011).

New York to help resolve a massive backlog of unconfirmed trades.¹³³ ISDA has also been one of the catalysts behind the development and adoption of Financial Products Mark-up Language (“FpML”) as the standard for electronic dealing and processing of OTC derivatives transactions.¹³⁴ More recently, ISDA has also worked to create a detailed taxonomy of OTC derivatives as the first step toward the development of unique product identifiers (“UPIs”).¹³⁵ Together with Legal Entity Identifiers (“LEIs”), UPIs will eventually enable market participants and regulatory authorities to construct more accurate and complete maps of the complex interconnections within and between financial markets and institutions and, thus, better understand the location, nature, and extent of the potential risks lurking within the global financial system.¹³⁶

ISDA has thus played an important role in the development of the market structures—master agreements, netting legislation, and FpML—which collectively form the institutional backbone of OTC derivatives markets. Crucially, the benefits of these market structures can be understood as flowing largely from the same source: *standardization*. Master agreements standardize legal terms and terminology,¹³⁷ protocols ensure consistency between historical and future contracts,¹³⁸ netting legislation ensures equivalent treatment of closeout netting and financial collateral arrangements across jurisdictions,¹³⁹ and FpML ensures uniform back office processes.¹⁴⁰

¹³³ See Press Release, Int’l Swaps & Derivatives Ass’n, Industry Groups Urge Continued Focus on Credit Derivative Efforts; Confirmation Backlog Reduction Exceeds Target (July 19, 2006), available at <http://www.isda.org/press/press071906.html>, archived at <http://perma.cc/VW3H-28P9>; Press Release, Int’l Swaps & Derivatives Ass’n, ISDA Launches Protocol to Ease Transfer of Derivatives Trades; Advances Association’s Effort to Increase Operational Efficiency (Sept. 13, 2005), available at <http://www.isda.org/press/press091305.html>, archived at <http://perma.cc/TL43-VRQ2>.

¹³⁴ See Andrew Parry, *ISDA/FpML for Financial Derivatives*, 22 J. INT’L BANKING L. & REG. 495, 496 (2007).

¹³⁵ See *ISDA Focus: Identifiers and OTC Taxonomies*, INT’L SWAPS & DERIVATIVES ASS’N, <http://www2.isda.org/identifiers-and-otc-taxonomies/page/2> (last visited Oct. 14, 2014), archived at <http://perma.cc/R9WS-9ZUQ>.

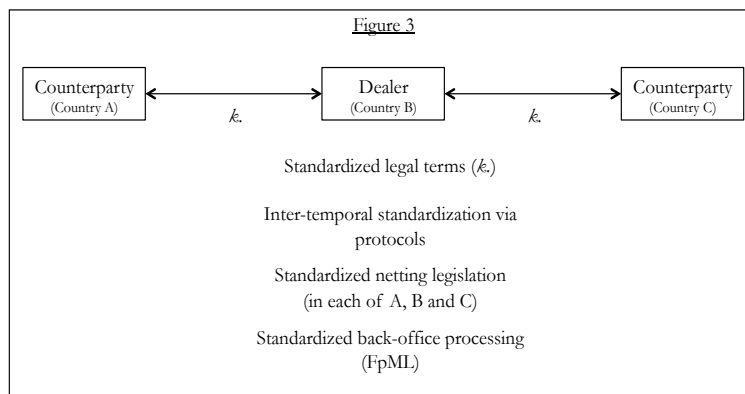
¹³⁶ For an overview of the fledgling LEI/UPI project, see Armour et al. *supra* note 47.

¹³⁷ See *supra* text accompanying notes 118–21.

¹³⁸ See *supra* text accompanying note 124.

¹³⁹ See *supra* text accompanying notes 128–30.

This standardization makes swaps and other OTC derivatives easier to write and understand. The standardization of non-economic terms also makes it easier for counterparties—and dealers in particular—to effectively hedge their exposures.¹⁴¹



In order to understand why contractual, legislative, and other forms of standardization are so important to dealers, imagine a dealer standing between two clients on opposite sides of a trade as in Figure 3. Imagine also that the dealer and each of the counterparties were domiciled in and subject to the laws of different jurisdictions. The dealer, as we have already seen, would theoretically prefer to maintain a matched book and simply collect its fee for bringing the counterparties together and assuming the resulting counterparty credit and other risks (which, of course, it may also offload via subsequent trades).¹⁴² What would happen, however, if the courts in one jurisdiction (Country A) issued an interpretation of a term of ISDA's master agreement which was materially inconsistent with the interpretation in another jurisdiction (Country C)? Alternatively, what if applicable insolvency laws in Country A contained carve-outs from any automatic stay and fraudulent preference provisions, thereby enabling counterparties to closeout their positions and seize collateral upon another counterparty's bankruptcy—but Country C's insolvency legislation did not?

Dealers can largely resolve the first problem by ensuring that the contracts are both governed by the laws of a single jurisdiction: in

¹⁴⁰ See *supra* text accompanying note 134.

¹⁴¹ See *supra* text accompanying note 101.

¹⁴² See *supra* note 89 and accompanying text.

practice, typically the United States or United Kingdom.¹⁴³ The second problem, however, is far more difficult to resolve. At the very least, this differential treatment would make it more complex—and thus more costly—for the dealer to effectively hedge its exposures under the two swaps. *In extremis*, the resulting risks might even undermine the incentives of the dealer to enter into swaps and other OTC derivatives with counterparties subject to the insolvency laws of other jurisdictions, thereby undermining the *global* nature of these markets. From the dealer's perspective, therefore, standardization is not only a means of reducing drafting, negotiating, back office processing, and other transaction costs, but an important means of minimizing the legal and economic differences between the two sides of a trade, commonly referred to as "basis risk."¹⁴⁴ From the perspective of other market participants, meanwhile, this standardization—along with the benefits it generates for dealers—contributes to greater market liquidity.¹⁴⁵

Both swaps dealers and ISDA's standardized contractual documentation can thus be understood as highly successful market structures. As we shall see, however, the benefits generated by these market structures are also the source of significant positive network externalities, path dependency, and power imbalances.¹⁴⁶ Before examining the potential impact of these market distortions, however, we first turn our attention to one of the most significant changes to

¹⁴³ As of April 2010, it is estimated that these two jurisdictions accounted for approximately seventy percent of the global turnover in OTC interest rate derivatives, and fifty-five percent of the global turnover in foreign exchange derivatives. See BANK FOR INT'L SETTLEMENTS, TRIENNIAL CENTRAL BANK SURVEY: FOREIGN EXCHANGE AND DERIVATIVES MARKET ACTIVITY IN APRIL 2010 5–6 (2010), available at <http://www.bis.org/publ/rpfx10.pdf>, archived at <http://perma.cc/KDL7-M5NW>. Unfortunately, the triennial survey in 2013 did not provide an update of these estimates. See *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2013*, BANK FOR INT'L SETTLEMENTS, <http://www.bis.org/publ/rpfx13.htm> (last updated Dec. 8, 2013), archived at <http://perma.cc/3CEW-JC7V>.

¹⁴⁴ See Gina-Gail S. Fletcher, *Hazardous Hedging: The (Unacknowledged) Risks of Hedging with Credit Derivatives*, 33 REV. BANKING & FIN. L. 813, 871–73 (2014).

¹⁴⁵ See *supra* note 101 and accompanying text. These non-dealer counterparties may also benefit from a reduction in legal and other forms of basis risk insofar as they, too, are entering into multiple (potentially offsetting) swaps with multiple counterparties.

¹⁴⁶ See *infra* Part V.

ISDA's standard documentation in recent years: the introduction of the Big Bang Protocol.

B. Derivatives Market Structure Under the Microscope: ISDA's Big Bang Protocol

There is a good chance that you have never heard of the Big Bang Protocol. If you were following events in the Eurozone in the early months of 2012, however, you would have undoubtedly observed that all of Europe—and seemingly the entire financial world—was gripped by a single question: *had Greece defaulted?* More precisely, the question was whether Greece's unilateral move to insert collective action clauses into its domestically denominated debt—essentially to facilitate a massive restructuring—constituted an event of default, which would be the first sovereign default by a Eurozone country since the introduction of the Euro in 1999.¹⁴⁷ The answer to this question would not come from a court, or parliament, or even the so-called “Troika,” comprised of the International Monetary Fund, European Commission, and European Central Bank and charged with responsibility for sorting out Greece's crumbling finances. Rather, the answer would come from a committee comprised of fifteen private individuals representing some of the world's largest and most powerful financial institutions.¹⁴⁸ It is the Big Bang Protocol that bestows this committee with such an important responsibility.¹⁴⁹

To understand the origin and significance of the Big Bang Protocol one must first understand the basic mechanics of credit default swaps. A credit default swap (“CDS”) is a derivative contract whereby one counterparty—often referred to as the “credit protection seller”—

¹⁴⁷ The answer, ultimately, was that the exercise of the collective action clauses by Greece to amend the terms of its domestically denominated debt did constitute an event of default. *See* Press Release, Int'l Swaps & Derivatives Ass'n, ISDA EMEA Determinations Committee: Restructuring Credit Event Has Occurred with Respect to the Hellenic Republic (Mar. 9, 2012), *available at* <http://www2.isda.org/news/isda-emea-determinations-committee-restructuring-credit-event-has-occurred-with-respect-to-the-hellenic-republic>, *archived at* <http://perma.cc/BN4D-HKC5>.

¹⁴⁸ *See id.*

¹⁴⁹ *See* Press Release, Int'l Swaps & Derivatives Ass'n, ISDA Announces Successful Implementation of 'Big Bang' CDS Protocol; Determinations Committees and Auction Settlement Changes Take Effect (Apr. 8, 2009), *available at* <http://www.isda.org/press/press040809.html>, *archived at* <http://perma.cc/EQL8-95EQ>.

agrees to compensate another counterparty—the “credit protection buyer”—upon the occurrence of certain prescribed events of default (or “credit events”) in connection with the debt obligations of one or more underlying “reference” entities.¹⁵⁰ The economic effect of a CDS is thus to transfer some or all of the credit risk associated with the underlying debt (or “reference”) obligations from the credit protection buyer, who may or may not be holding this instrument, to the credit protection seller.¹⁵¹ Triggering credit events typically include: a reference entity’s insolvency or failure to pay its debts when due (“*bankruptcy*”), a sovereign issuer’s failure to pay its debts when due (“*failure to pay*”¹⁵²), and any number of circumstances in which creditors agree to amend the terms of the relevant reference obligations in order to avoid bankruptcy or failure to pay (“*restructuring*”).¹⁵³ Reference entities can include corporate and sovereign debt issuers, baskets of debt instruments, or financial indices.¹⁵⁴ Reference obligations, meanwhile, can include bonds, loans, or virtually any other form of debt instrument.¹⁵⁵ As of December 31, 2013, the BIS estimated the total outstanding notional amount of single-name, multiple-name, and index CDS to be approximately \$21 trillion.¹⁵⁶ Like other swap markets, the vast

¹⁵⁰ See, e.g., Houman B. Shadab, *Counterparty Regulation and Its Limits: The Evolution of the Credit Default Swaps Market*, 54 N.Y.L. SCH. L. REV. 689, 690 (2009–2010). The credit protection seller provides this protection in exchange for a periodic fee—putting them in a similar position to the fixed rate borrower under the stylized swap depicted in Figure 2. *Id.*

¹⁵¹ See *id.*

¹⁵² A distinct “failure to pay” credit event is necessary in connection with sovereign CDS because there is no mechanism whereby sovereign states can declare (or be put into) bankruptcy. See *CDS on US Sovereign Debt—FAQ*, INT’L SWAPS & DERIVATIVES ASS’N, 1, <http://www2.isda.org/attachment/NTk3Ng==/CDS%20on%20US%20Sovereign%20Debt%20FAQ%202013-10-09.pdf> (last updated Oct. 9, 2013), archived at <http://perma.cc/ZB3M-TKH5>.

¹⁵³ See Shadab, *supra* note 150, at 690; *CDS on US Sovereign Debt—FAQ*, *supra* note 152, at 1.

¹⁵⁴ See Robert F. Schwartz, *Risk Distribution in the Capital Markets: Credit Default Swaps, Insurance and a Theory of Demarcation*, 12 FORDHAM J. CORP. & FIN. L. 167, 176 (2007).

¹⁵⁵ See Shadab, *supra* note 150, at 690.

¹⁵⁶ *OTC Derivatives Statistics at End-December 2013*, *supra* note 110, at 5.

majority of CDS contracts are entered into using ISDA's credit derivatives documentation.¹⁵⁷

Most early CDS contracts contemplated "physical" settlement upon the occurrence of a credit event.¹⁵⁸ Physical settlement requires credit protection buyers to deliver the underlying reference obligations—e.g. the actual bonds—to the credit protection seller as a condition of payment.¹⁵⁹ Following the rapid expansion of CDS markets between 2000 and 2008,¹⁶⁰ however, the aggregate notional amount outstanding of CDS contracts written on many reference obligations came to exceed the aggregate face value of the reference obligations themselves.¹⁶¹ Just prior to its 2005 bankruptcy, for example, CDS contracts written on the debt of Delphi Automotive PLC exceeded the par value of the underlying debt by nearly 13:1.¹⁶² This disconnect between the CDS market and the supply of available reference obligations impeded the physical settlement process.¹⁶³ Perhaps most importantly, it introduced the possibility of a bond "squeeze": a "mad scramble" among credit protection buyers to acquire

¹⁵⁷ See Dan Wielsch, *Global Law's Toolbox: Private Regulation by Standards*, 60 AM. J. COMP. L. 1075, 1085 (2012).

¹⁵⁸ See Houman B. Shadab, *Guilty by Association? Regulating Credit Default Swaps*, 4 ENTREPRENEURIAL BUS. L.J. 407, 432 (2010).

¹⁵⁹ *Id.*

¹⁶⁰ While reliable evidence from the early part of the decade is scarce, the BIS estimates that between December 2004 and June 2008 the notional amount outstanding grew from approximately \$6 trillion to \$58 trillion. See Fabio Fornari et al., *OTC Derivatives Market Activity in the Second Half of 2004*, BANK FOR INT'L SETTLEMENTS, 3 (May 2005), http://www.bis.org/publ/otc_hy0505.pdf, archived at <http://perma.cc/SFZ5-G78D> (reporting notional amount outstanding of CDSs to be \$6.4 trillion); Jacob Gyntelberg & Carlos Mallo, *OTC Derivatives Market Activity in the Second Half of 2008*, BANK FOR INT'L SETTLEMENTS, 10 (May 2009), http://www.bis.org/publ/otc_hy0905.pdf, archived at <http://perma.cc/S577-VXXJ> (reporting notional amount outstanding of CDSs in June 2008 to be \$57.325 trillion).

¹⁶¹ Mikhail Chernov et al., *CDS Auctions 2* (July 20, 2012) (unpublished working paper), available at http://faculty.london.edu/imakarov/index_files/CDSauctions.pdf, archived at <http://perma.cc/4TA6-LY98>.

¹⁶² See Lily Tijoe, Note, *Credit Derivatives: Regulatory Challenges in an Exploding Industry*, 26 ANN. REV. BANKING & FIN. L. 387, 400 (2007).

¹⁶³ JEAN HELWEGE ET AL., FED. RESERVE BANK OF N.Y., STAFF REPORT NO. 372, *CREDIT DEFAULT SWAP AUCTIONS 2* (2009), available at http://www.newyorkfed.org/research/staff_reports/sr372.pdf, archived at <http://perma.cc/BC9C-QEQY>.

the reference obligations upon the occurrence of a credit event.¹⁶⁴ This squeeze, in turn, could artificially inflate the price of the reference obligations—driving a wedge between market and recovery value.¹⁶⁵

As an alternative to physical settlement, CDS contracts may also be subject to “cash” settlement.¹⁶⁶ Cash settlement relieves credit protection buyers from the requirement to deliver the underlying reference obligations.¹⁶⁷ Instead, credit protection buyers receive cash from sellers equal to the notional amount of the CDS multiplied by the loss in value experienced by the reference obligations.¹⁶⁸ On a CDS with a notional amount of \$10 million where the reference obligation was trading at 70 cents on the dollar, for example, the credit protection buyer would receive \$3 million (10 million x [1.00-0.70]).¹⁶⁹ Cash settlement thus resolves the bond squeeze problem.¹⁷⁰ Simultaneously, though, it requires counterparties to fix a current price for the relevant reference obligations.¹⁷¹ This, however, can be highly problematic in the context of relatively opaque and illiquid markets for bonds, loans, and other reference obligations¹⁷²—a problem often exacerbated by the sort of market dislocation often observed in connection with a credit event.¹⁷³

To resolve the problems associated with physical and cash settlement, ISDA developed a number of ad hoc auction settlement protocols to deal with specific credit events. The first such protocol for single-name CDS contracts was employed in connection with the 2006 bankruptcy of Dura Operating Corp.¹⁷⁴ The auctions held pursuant to these protocols established a single market price for the relevant reference obligations, thereby facilitating the smooth operation of the

¹⁶⁴ *Id.* at 2, 4. Trading volumes in the debt of Delphi, for example, were several times higher than their historical averages in the first weeks following its bankruptcy. *See id.* at 19.

¹⁶⁵ *See id.* at 2.

¹⁶⁶ *Id.* at 4.

¹⁶⁷ *See id.* at 4–5.

¹⁶⁸ *See* Shadab, *supra* note 158, at 432.

¹⁶⁹ For a similar example, see HELWEGE ET AL., *supra* note 163, at 5.

¹⁷⁰ *Id.* at 6.

¹⁷¹ *Id.* at 5.

¹⁷² HELWEGE ET AL., *supra* note 163, at 5; Armour et al., *supra* note 47; Chernov et al., *supra* note 161, at 2.

¹⁷³ HELWEGE ET AL., *supra* note 163, at 5; Chernov et al., *supra* note 161, at 1.

¹⁷⁴ *See generally* 2006 Dura CDS Protocol, INT’L SWAPS & DERIVATIVES ASS’N (Nov. 8, 2006), <http://www.isda.org/2006duracdsprot/docs/2006duraProtocol.pdf>, archived at <http://perma.cc/Y3DL-RWUX>.

cash settlement mechanism, reducing the need for physical settlement, and eliminating recovery basis risk.¹⁷⁵ Theoretically, auctions can also help tether the market price of the underlying debt to its recovery value.¹⁷⁶ Ultimately, however, these auction protocols only applied to a narrow range of reference entities and obligations and, even then, only where counterparties had mutually agreed to adhere to them.¹⁷⁷ Moreover, physical, cash, and auction settlement all required counterparties to agree that a credit event had, in fact, occurred. Predictably, this issue was often the subject of intense debate¹⁷⁸—leading to costly and duplicative third party dispute resolution.¹⁷⁹

On April 8, 2009, ISDA announced the implementation of the 2009 Credit Derivatives Determinations Committees and Auction Settlement CDS (or “Big Bang”) Protocol.¹⁸⁰ The implementation of

¹⁷⁵ For a more detailed description—and critique—of this auction mechanism, see generally HELWEGE ET AL., *supra* note 163; Chernov et al., *supra* note 161.

¹⁷⁶ Whether this is in fact the case is ultimately an empirical question. *See, e.g.*, Chernov et al., *supra* note 161, at 24 (finding that auctions undervalue bonds by an average of six percent).

¹⁷⁷ *See* HELWEGE ET AL., *supra* note 163, at 5–6.

¹⁷⁸ *See, e.g.*, Katia Porzecanski, *BofA Says Argentine Default Definition Unclear for Bonds to CDS*, BLOOMBERG (July 29, 2014, 2:09 PM), <http://www.bloomberg.com/news/2014-07-29/bofa-says-argentine-default-definition-unclear-for-bonds-to-cds.html>, *archived at* <http://perma.cc/FS5G-RK86>.

¹⁷⁹ Prior to the introduction of the Big Bang Protocol, ISDA documentation provided for this dispute resolution mechanism in the form of so-called “calculation agents.” By convention, the calculation agent was typically the dealer that intermediated the transaction. If a counterparty disagreed with the determination of the calculation agent, it could refer the matter to an independent third party. These third parties were themselves typically other dealers.

¹⁸⁰ *See* Press Release, Int’l Swaps & Derivatives Ass’n, *supra* note 149. ISDA also introduced the 2009 ISDA Credit Derivatives Determinations Committees and Auction Settlement Supplement to the 2003 Credit Derivatives Definitions. *ISDA Publishes Supplement to the 2003 ISDA Credit Derivatives Definitions and “Big Bang” Protocol*, ALLEN & OVERY (Mar. 18, 2009), <http://www.allenoverly.com/publications/en-gb/Pages/ISDA-Auction-Hardwiring.aspx> [hereinafter *ISDA Supplement and Protocol*], *archived at* <http://perma.cc/Z7TA-ZMU4>. The Credit Derivatives Definitions themselves were updated in 2014. *2014 ISDA Credit Derivatives Definitions*, INT’L SWAPS & DERIVATIVES ASS’N, <http://www2.isda.org/asset-classes/credit-derivatives/2014-isda-credit-derivatives-definitions/>, *archived at* <http://perma.cc/Q8WP-PXG4>. For ease of exposition, this Article refers to both the protocol

the Big Bang Protocol was significant in two respects. First, it hardwired the auction settlement mechanism, incorporating it into standard CDS documentation across all reference entities and obligations.¹⁸¹ Second, and more importantly for the present purposes, it established a new mechanism designed to facilitate the adjudication of certain technical issues arising in connection with ISDA's credit derivatives documentation.¹⁸² This mechanism enables counterparties to CDS contracts and other eligible transactions to request that a determinations committee ("DC") be constituted for the purpose of adjudicating a range of potential issues.¹⁸³ These issues include, among other things, whether a credit event has occurred, whether to hold an auction to determine a settlement price following the occurrence of a credit event, and the identity of the reference obligations to be valued in connection with any such auction.¹⁸⁴ Importantly, a DC's determinations are binding in respect to *all* transactions of the relevant type that incorporate the Big Bang Protocol.¹⁸⁵

The Big Bang Protocol establishes five regional DCs.¹⁸⁶ Each DC is comprised of 15 voting members: one designate each from eight global derivatives dealers, two regional dealers, and five non-dealer (or

and supplement as the "Big Bang" Protocol. Technically, however, the supplement applied prospectively to future transactions while the protocol applied to then outstanding transactions. *See ISDA Supplement and Protocol, supra*. The Big Bang Protocol was followed in July 2009 by the "Small Bang" Protocol, which extended the application of the former to certain restructuring credit events. *See Small Bang Protocol*, INT'L SWAPS & DERIVATIVES ASS'N, <http://www.isda.org/smallbang> (last visited Nov. 17, 2014), *archived at* <http://perma.cc/FN7D-7J9V>.

¹⁸¹ Press Release, Int'l Swaps & Derivatives Ass'n, *supra* note 149.

¹⁸² In addition to CDS contracts, this mechanism applies to certain credit-linked notes and synthetic collateralized debt obligations. *See ISDA Supplement and Protocol, supra* note 180.

¹⁸³ *See 2014 ISDA Credit Derivatives Determinations Committees Rules*, INT'L SWAPS & DERIVATIVES ASS'N, § 2.1(a) (Sept. 16, 2014), http://dc.isda.org/wp-content/files_mf/1414437004ICM2319997111v10DC_Rules_2014.pdf [hereinafter *DC Rules*], *archived at* <http://perma.cc/8CTP-4MLQ>.

¹⁸⁴ *Id.* § 3. *See also ISDA Supplement and Protocol, supra* note 180.

¹⁸⁵ *See ISDA Supplement and Protocol, supra* note 180. This is the case except where the counterparties "bilaterally agree . . . to disapply the relevant Determinations Committee's decision." *Id.*

¹⁸⁶ The five "regions" are (1) the Americas; (2) Europe, the Middle East and Africa; (3) Japan; (4) Australia and New Zealand, and (5) Asia (excluding Japan). *DC Rules, supra* note 183, § 6.

“buy-side”) market participants.¹⁸⁷ Dealer members are selected on the basis of their trading volumes in OTC credit derivatives.¹⁸⁸ Buy-side members, meanwhile, are selected from a pool of financial institutions meeting prescribed asset and derivatives thresholds.¹⁸⁹ ISDA itself “acts as a non-voting secretary to each DC, and endeavors to co-ordinate [the adjudication] process in a transparent and operationally efficient manner.”¹⁹⁰ Each DC must reach a supermajority, defined to be “at least 80% of those participating in a binding vote,” in connection with the most important determinations.¹⁹¹ This includes whether a credit event has occurred,¹⁹² whether to allow the substitution of a reference obligation,¹⁹³ and whether a succession event has occurred, along with the identity of any successor entity.¹⁹⁴ Other DC determinations are made by simple majority.¹⁹⁵

Where the requisite supermajority voting threshold is not reached, the DC Rules contemplate that the issue will be referred to a panel of three external reviewers selected from a pool of independent experts nominated by ISDA members and approved by a majority of the members of the relevant DC.¹⁹⁶ Notably, unlike the DC mechanism itself, the external review process includes a procedure for both the recusal and removal of potential external reviewers on the basis of

¹⁸⁷ *Id.* § 6. These rules also contemplate the involvement of non-voting consultative dealer and non-dealer members. *Id.*

¹⁸⁸ *Id.* § 1.3(a).

¹⁸⁹ *Id.* at sched. 2. Criteria for buy-side membership include \$1 billion in assets under management and single-name CDS contracts with a notional amount of \$1 billion. *Id.* If a non-dealer meets these criteria it “shall be deemed to be approved” absent a vote from two-thirds of the buy-side committee members denying such approval. *Id.*

¹⁹⁰ *Credit Derivatives Determinations Committee, INT’L SWAPS & DERIVATIVES ASS’N*, <http://dc.isda.org/> (last visited Nov. 17, 2014), archived at <http://perma.cc/5LBN-YLHU>.

¹⁹¹ *DC Rules*, *supra* note 183, § 6; *see also ISDA Supplement and Protocol*, *supra* note 180.

¹⁹² *DC Rules*, *supra* note 183, § 3.1(c).

¹⁹³ *Id.* § 3.6(a).

¹⁹⁴ *Id.* § 3.5.

¹⁹⁵ Determinations regarding whether to hold an auction, for example, are decided by simple majority. *Id.* § 3.2.

¹⁹⁶ *Id.* § 4.1(a). In effect, the external review mechanism is only available in respect of issues requiring an eighty percent supermajority. The only exception to this is a catchall category, “Other Determinations Relating to the Overall Market,” which, although only requiring a majority, can still be referred for external review. *Id.*

actual or potential conflicts of interest.¹⁹⁷ Once the panel is selected, the external reviewers review both written and oral arguments in favor of each presented position.¹⁹⁸ Each external reviewer must then select one of these positions.¹⁹⁹ Where a position originally received more than sixty percent but less than eighty percent support from the DC, the DC's decision will prevail "unless the [e]xternal [r]eviewers unanimously conclude that another [p]resented [p]osition is 'the better answer.'"²⁰⁰ Where a position received less than or equal to sixty percent support, this threshold is reduced to two-thirds of the external reviewers.²⁰¹ Decisions of the external reviewers are deemed to have been ratified by the DC from which the issue was originally referred.²⁰²

When considering an issue, DC members must "perform [their] obligations . . . in a commercially reasonable manner" and "base [their] vote[s] on information that is either public or can be published" on ISDA's website.²⁰³ Simultaneously, however, the DC rules include a disclaimer of liability for both DC members and ISDA (in its capacity as DC secretary) stipulating that they shall not "undertake any duty of care or otherwise be liable to any party . . . for any form of damages . . . that might arise in connection with . . . performance of [its] duties," other than those arising from "gross negligence, fraud or wilful misconduct."²⁰⁴

Ultimately, the Big Bang Protocol can be seen as holding out a number of potentially significant benefits for market participants. First, as described above, auction settlement reduces both the operational complexity and basis risk associated with CDS markets.²⁰⁵ By hardwiring this mechanism into standard CDS documentation—thus ensuring its widespread use—the Big Bang Protocol maximizes the extent of these benefits. Second, the DC mechanism provides an expert and a more or less real time dispute resolution mechanism for important contractual issues. The DC Rules contemplate the determination of

¹⁹⁷ *Id.* § 4.2(a), 4.3.

¹⁹⁸ *Id.* § 4.5.

¹⁹⁹ *Id.* § 4.6(d).

²⁰⁰ *Id.* § 4.6(d)(i).

²⁰¹ *Id.* § 4.6(d)(ii).

²⁰² *Id.* § 4.6(g).

²⁰³ *Id.* § 2.5(b).

²⁰⁴ *Id.* § 5.1(b).

²⁰⁵ *See supra* note 175 and accompanying text.

most issues within a matter of days²⁰⁶ (although a significant number of determinations—those involving General Motors, Fortis, Bradford & Bingley, Northwest Airlines and Mitsubishi UFJ, for example—have taken several weeks or even months to resolve).²⁰⁷ The DC mechanism also reduces the costs associated with protracted and duplicative third party dispute resolution and, importantly, eliminates the rather unsettling prospect that two adjudicators²⁰⁸ might independently arrive at different conclusions regarding, for example, whether a credit event had occurred. In these and other important respects, the benefits of both auction hardwiring and the DC mechanism can, once again, be understood as flowing largely from increased standardization as depicted in Figure 4. This standardization, in turn, makes CDS contracts more fungible and liquid—thereby facilitating the shift toward centralized clearing contemplated under both the Dodd-Frank Act and EMIR.²⁰⁹ The commoditization of many standardized CDS contracts implicit in this shift might also be expected to yield further savings for some market participants.²¹⁰

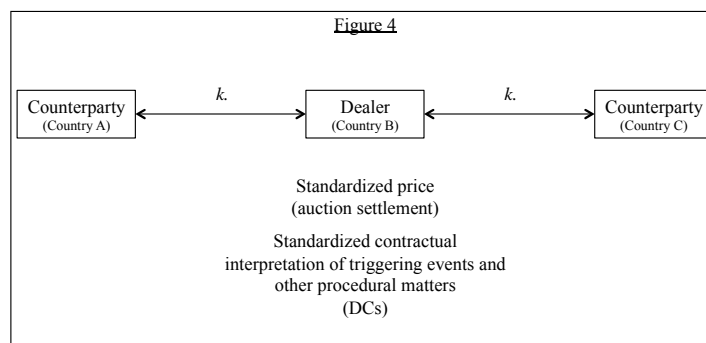
²⁰⁶ As of March 7, 2012, ISDA estimated that in connection with “the last ten [c]redit [e]vents, the average DC deliberation time . . . was one day in the Americas and three days in Europe.” *The ISDA Credit Derivatives Determination Committees*, INT’L SWAPS & DERIVATIVES ASS’N, 3 (May 2012), https://www2.isda.org/attachment/NDM1NA==/AGM%202012_DC%20anniversary_appendix_043012.pdf [hereinafter *Determination Committees*], archived at <http://perma.cc/49YQ-DSB4>.

²⁰⁷ As of November 17, 2014, the longest period elapsed between a submitted request and a determination—almost 20 months—involved the question of whether Royal Bank of Scotland N.V. had experienced a succession credit event. See *The Royal Bank of Scotland N.V.*, INT’L SWAPS & DERIVATIVES ASS’N, <http://dc.isda.org/cds/the-royal-bank-of-scotland-n-v/> (last visited Nov. 17, 2014), archived at <http://perma.cc/7NGV-HL3Q>.

²⁰⁸ The adjudicators could be courts, calculation agents, or other independent third parties.

²⁰⁹ Anupam Chandler & Randall Costa, *Clearing Credit Default Swaps: A Case Study in Global Legal Convergence*, 10 CHI. J. INT’L L. 639, 645 n.20 (2010). For this reason, regulators have been supportive of the Big Bang Protocol. See, e.g., Press Release, Fed. Reserve Bank of N.Y., New York Fed Welcomes CDS Auction Hardwiring (Mar. 12, 2009), available at <http://www.newyorkfed.org/newsevents/news/markets/2009/ma090312.html>, archived at <http://perma.cc/6WB7-L7CT>.

²¹⁰ See *supra* text accompanying note 121.



At the same time, however, the design of the DC mechanism manifests an obvious and potentially fatal structural flaw. Specifically, it fails to acknowledge or adequately constrain the acute conflicts of interest generated by the fact that DC members are permitted to wear two hats: one as a major contractual counterparty, the other as an adjudicator of issues which determine the payoffs under the very same contracts.²¹¹ At the core of this conflict is the reality that, contrary to the theoretical market-making model pursuant to which dealers seek to maintain a matched book, they may in fact take a directional position in one or more reference obligations or entities (or correlated assets).²¹² This raises the prospect that—rather than making determinations as a neutral and independent referee—DC members will vote in their self-interest on the basis of their current exposures.²¹³ Put simply, dealers might “vote their book.”²¹⁴ It also opens the door to collusion amongst DC members looking to secure an outcome in connection with one determination in exchange for future reciprocity.

It is highly informative in this regard that DC Rules do not require DC members to establish internal governance arrangements—e.g. ethical firewalls, recusal or removal mechanisms, etc.—that might

²¹¹ Yves Quintin, *Alis ... da in Wonderland or Greek Tragedy? The Dynamics of Credit Default Swaps and the “Voluntary” Greek Debt Restructuring of 2011/2012*, 2012 INT’L BUS. L.J. 277, 281 (2012) (“A determination that a Credit Event has occurred is therefore very much controlled by the ‘sell side’ of the DC, whose interests are likely to be most affected if a Credit Event occurs: the sell side always has a majority of votes (10 out of 15) and may (assuming the ability to muster 10 votes) only be overturned by a unanimous panel of external reviewers.”).

²¹² *See id.*

²¹³ *See id.*

²¹⁴ *Id.*

ameliorate these conflicts of interest.²¹⁵ Nor does ISDA actively monitor compliance with DC Rules. Even if ISDA did monitor compliance, it is highly debatable whether this would translate into a credible threat of private enforcement.²¹⁶ Indeed, as a trade association whose reputation and financial resources are derived from the involvement of influential market participants—i.e. dealers—ISDA can be seen as possessing a powerful incentive *not* to engage in vigorous enforcement.²¹⁷ Simultaneously, despite ISDA's assertions to the contrary,²¹⁸ the complexity of both CDS markets and dealer balance sheets²¹⁹ dilute the threat of any market-based reputational sanctions.²²⁰ They also present a significant obstacle to effective supervision and enforcement by public regulatory authorities.²²¹ Taken together, these factors support the claim that the risk-adjusted costs of exploiting the conflicts of interest embedded within the DC mechanism are relatively low and, accordingly, are unlikely to represent a meaningful constraint on opportunistic behavior.²²² The result is a market structure, which, in theory at least, allows DC members to extract private benefits at the expense of other market participants.²²³

A reasonable observer might raise two objections at this point. First, is this all not just groundless speculation lacking any verifiable empirical support? This, of course, is a difficult charge to answer—especially since the information needed to test this claim is not likely to

²¹⁵ See *supra* text accompanying note 197. However, as noted below, ISDA's General Counsel David Geen has suggested that ISDA is working on a "best practice" policy. See *infra* note 328 and accompanying text.

²¹⁶ See Partnoy & Skeel, *supra* note 132, at 1037–39.

²¹⁷ *Id.*

²¹⁸ *Determination Committees*, *supra* note 206, at 3–4.

²¹⁹ For a discussion of the complexity of bank balance sheets, see HAMID MEHRAN ET AL., FED. RESERVE BANK OF N.Y., STAFF REPORT NO. 502, CORPORATE GOVERNANCE AND BANKS: WHAT HAVE WE LEARNED FROM THE FINANCIAL CRISIS? 3–5 (2011), available at http://www.newyorkfed.org/research/staff_reports/sr502.pdf, archived at <http://perma.cc/9QNA-96UQ>; Richard Herring & Jacopo Carmassi, *The Corporate Structure of International Financial Conglomerates: Complexity and Its Implications for Safety and Soundness*, in THE OXFORD HANDBOOK OF BANKING 195, 201 (Allen Berger et al. eds., 2010).

²²⁰ See Partnoy & Skeel, *supra* note 132, at 1037–39.

²²¹ See HAMID MEHRAN ET AL., *supra* note 219, at 3–5.

²²² See Andrew Verstein, *Ex Tempore Contracting*, 55 WM. & MARY L. REV. 1869, 1923–24 (2014).

²²³ See *id.*

be found in the public domain. To shed further light on this question, therefore, it is necessary to draw parallels between the DC mechanism and another case study where recent developments involving essentially the same protagonists, exploiting very similar conflicts of interest, have exposed the nature of the problem. This case study—the manipulation of Libor—is examined in the next section. The second objection that might be raised is, if this market structure is so undesirable, why does it survive in the marketplace? Why do we not observe other, more desirable, market structures emerging to take its place? The answer to this question resides in the positive network externalities and path dependency generated by this market structure, along with the power of OTC derivatives dealers as important sources of liquidity, to effectively dictate market practice. As we shall see, it is here that we find another important set of parallels between the DC mechanism and Libor.²²⁴

IV. *The BBA, Libor, and the Manipulation of Modern Financial Markets*

It has been called “the most important figure in finance.”²²⁵ Created in 1986, the London Interbank Offered Rate—or Libor—is a series of indicative interest rates which notionally reflect the rates at which a selection of panel banks are able to raise funds from other banks in the London money market.²²⁶ Libor is calculated daily across 10 different currencies (including the U.S. dollar, pound sterling, and euro) and 15 different maturities (ranging from overnight to 12 months).²²⁷ Accordingly, while it is not uncommon for Libor to be quoted as a single figure—typically 3-month U.S. dollar Libor—there are in fact 150 different Libor rates.²²⁸

Libor was developed by the British Bankers’ Association, a trade association representing approximately 240 member banks.²²⁹

²²⁴ See *infra* Part V.

²²⁵ See *The Libor Scandal: The Rotten Heart of Finance*, *ECONOMIST*, July 7, 2012, at 25, 25 [hereinafter *Rotten Heart*].

²²⁶ Michael J. De La Merced, *Q. & A.: Understanding Libor*, *N.Y. TIMES DEALBOOK* (July 10, 2012, 10:38 PM), <http://dealbook.nytimes.com/2012/07/10/q-and-a-understanding-libor/>, archived at <http://perma.cc/WD3R-J294>.

²²⁷ *Id.*

²²⁸ *Id.*

²²⁹ See *About Us*, *BRIT. BANKERS’ ASS’N*, <http://www.bba.org.uk/about-us> (last visited Nov. 17, 2014), archived at <http://perma.cc/B9PY-VN5T>.

Historically, management of the process by which Libor was set was the responsibility of BBA LIBOR Ltd., a subsidiary of the BBA.²³⁰ Every business day, at approximately 11:00 a.m. London time, a panel of between eight and eighteen banks (depending on the currency²³¹) were asked the following question: “At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11am?”²³² Panel banks were then required to submit their responses to Thomson Reuters, which collected submissions on behalf of the BBA.²³³ These responses were required to be based on each bank’s cost of borrowing unsecured cash and made without reference to the submissions of other panel banks.²³⁴ Once Thomson Reuters had received the submissions of all panel banks, it would discard the highest and lowest twenty-five percent of the panel and use the arithmetic mean of the remaining rates to calculate the official Libor rate for each currency and maturity.²³⁵ The official rates, along with the submissions of individual panel members, were then publicly disseminated by Thomson Reuters at around 11:45am London time.²³⁶

²³⁰ See *ICE Benchmark Administration: Overview*, INTERCONTINENTAL EXCHANGE, <https://www.theice.com/iba> (last visited Nov. 17, 2014), archived at <http://perma.cc/X8CM-BKD9>.

²³¹ The selection of panel banks was made by the BBA with the assistance of the Foreign Exchange and Money Markets Committee, which is itself made up predominantly of major banks. Panel banks were selected on the basis of market volume, reputation, and expertise in trading the relevant currency. See *The Basics*, BRIT. BANKERS’ ASS’N TRENT LTD., <http://www.bbalibor.com/explained/the-basics> (last visited Nov. 17, 2014), archived at <http://perma.cc/YK22-3GUH>.

²³² HM TREASURY, THE WHEATLEY REVIEW OF LIBOR: FINAL REPORT 61 (2012) (U.K.), available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191762/wheatley_review_libor_finalreport_280912.pdf, archived at <http://perma.cc/T92C-JUE9> [hereinafter WHEATLEY FINAL REPORT]. The *Wheatley Review* recommended changing this question to: “At what rate do you think inter-bank term deposits will be offered by one *prime bank* to another *prime bank* for a reasonable market size today at 11am?” *Id.* (emphasis added).

²³³ See *The Basics*, *supra* note 231.

²³⁴ *Id.*

²³⁵ *Id.* In the case of U.S. dollar Libor—where the panel includes 18 banks—the top and bottom four submissions were discarded. *Id.*

²³⁶ Jonathan Macey, *Libor: Three Scandals in One: There Is a Way to Reduce Rate Fixing*, FOREIGN AFF. (July 20, 2012), <http://www.foreignaffairs.com/articles/137789/jonathan-macey/libor-three-scandals-in-one>.

The principal benefit of Libor stems from its use as a benchmark rate of interest in connection with a wide range of financial contracts.²³⁷ The floating rate leg of the stylized interest rate swap depicted in Figure 2, for example, was calculated on the basis of a spread over Libor (i.e. Libor + 2.0%).²³⁸ The use of Libor as a benchmark thus saves counterparties the time and expense of having to formulate and agree upon a methodology for calculating a more bespoke floating rate.²³⁹ The resulting standardization also reduces the costs of managing the attendant interest rate and basis risks.²⁴⁰ Accordingly, as the payouts under more and more contracts have become linked to Libor, it has become increasingly attractive to link other contracts to Libor as well.²⁴¹ Libor has thus come to play an important role within the global financial system.²⁴² It is estimated that worldwide approximately \$165-230 trillion in interest rate swaps, \$30 trillion in exchange-traded futures and options, \$25-30 trillion in forward rate agreements, \$10 trillion in syndicated loans, and \$3 trillion in floating rate notes currently utilize Libor as a benchmark.²⁴³

Despite its widespread use, however, a perception long existed in the marketplace that the process by which Libor was set was fundamentally flawed.²⁴⁴ First, Libor rates were often not based on actual interbank transactions, but rather panel banks' estimates of their likely borrowing costs.²⁴⁵ Second, the fact that panel banks were asked to estimate the price at which they would be able to *borrow*—as opposed to *lend*—gave them an incentive to report rates below their

²³⁷ See WHEATLEY FINAL REPORT, *supra* note 232, at 38.

²³⁸ See *supra* Figure 2.

²³⁹ See Kristin N. Johnson, *Governing Financial Markets: Regulating Conflicts*, 88 WASH. L. REV. 185, 189 (2013).

²⁴⁰ See *infra* note 300 and accompanying text.

²⁴¹ See WHEATLEY FINAL REPORT, *supra* note 232, at 7.

²⁴² *Id.* at 7, 11.

²⁴³ *Id.* at 76.

²⁴⁴ See Douglas Keenan, *My Thwarted Attempt to Tell of Libor Shenanigans*, FIN. TIMES (London), July 27, 2012, at 13 (alleging that Libor has been manipulated since at least 1991); Carrick Mollenkamp et al., *Special Report: How Gaming Libor Became Business as Usual*, REUTERS (Nov. 20, 2012, 7:37 AM), <http://www.reuters.com/article/2012/11/20/us-libor-fixing-origins-idUSBRE8AJ0MH20121120>, archived at <http://perma.cc/R5RZ-FG3B> (noting that U.S. regulators were warned of Libor's susceptibility to manipulation as early as 1996).

²⁴⁵ The reason for this stems from the lack of trading volume and liquidity in a number of currencies/maturities. *The Basics*, *supra* note 231.

actual cost of debt capital.²⁴⁶ Third, and most importantly, the governance of Libor was plagued by potentially significant conflicts of interest. As an industry trade association whose governing board is dominated by panel banks,²⁴⁷ the BBA possessed relatively weak incentives to establish robust oversight mechanisms with a view to monitoring and enforcing compliance with the rate-setting process.²⁴⁸ The reliance on self-reporting by panel banks and the absence of a mechanism for verifying the accuracy of submissions against banks' true borrowing costs can both be seen as products of these incentives.²⁴⁹ At the same time, and in sharp contrast, panel banks—as counterparties to many of the contracts whose payouts are determined with reference to Libor—possess powerful incentives to manipulate the benchmark rate.²⁵⁰

The true nature and extent of these conflicts would begin to come clear on June 27, 2012, when the U.S. Department of Justice (“DOJ”), U.S. Commodities Futures Trading Commission (“CFTC”), and U.K. Financial Services Authority (“FSA”) announced that they had entered into settlement agreements with Barclays Bank PLC—a longstanding panel member—in connection with the manipulation of both Libor and its cousin the Euro Interbank Offered Rate

²⁴⁶ See Jon Eisenberg, *History Of Alleged Financial Sector Collusion: Part 1*, LAW360 (Apr. 23, 2014, 2:03 PM), <http://www.law360.com/articles/529847/history-of-alleged-financial-sector-collusion-part-1>. Imagine if your bank asked you what rate of interest they should charge you on a loan. Notably, there is a London Interbank Bid Rate (or Libid). See *London Interbank Bid Rate (LIBID)*, NASDAQ, <http://www.nasdaq.com/investing/glossary/l/london-interbank-bid-rate> (last visited Nov. 03, 2014), archived at <http://perma.cc/U3XD-WBDV>. Libid, however, has not found widespread use as a benchmark rate.

²⁴⁷ See *BBA Board*, BRIT. BANKERS' ASS'N, www.bba.org.uk/about-us/bba-board/ (last visited Oct. 24, 2014), archived at <http://perma.cc/N5XC-4JDQ>.

²⁴⁸ See HM TREASURY, *THE WHEATLEY REVIEW OF LIBOR: INITIAL DISCUSSION PAPER 16 (2012) (U.K.)*, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191763/condoc_wheatley_review.pdf, archived at <http://perma.cc/R44E-YZTD> [hereinafter WHEATLEY INITIAL DISCUSSION].

²⁴⁹ See *id.*

²⁵⁰ See *id.* at 3. Perversely, the structure of Libor may have also made it easier to manipulate. See Rosa M. Abrantes-Metz et al., *Libor Manipulation?*, 36 J. BANKING & FIN. 136, 137 (2012).

(“Euribor”).²⁵¹ The DOJ, CFTC, and FSA investigations culminating in the settlements followed on the heels of a *Wall Street Journal* (“WSJ”) investigation which suggested that Libor had diverged from other measures of risk—thus potentially rendering it an inaccurate proxy for banks’ true borrowing costs—during the early stages of the global financial crisis.²⁵² The WSJ investigation, in turn, prompted the BBA to undertake an expedited “consultation” which concluded that panel banks believed Libor to be “a fundamentally robust and accurate benchmark, with contributors inputting rates that they believe to reflect their future funding costs.”²⁵³ In effect, the BBA had asked the foxes whether they thought the henhouse was adequately protected.²⁵⁴ Allegories and inside baseball aside, the DOJ, CFTC, and FSA investigation uncovered *hundreds* of attempts by Barclays—both through its own submissions and in collusion with other financial institutions—to manipulate Libor between January 2005 and June 2009.²⁵⁵ As part of the resulting settlements, Barclays was ordered to

²⁵¹ See generally Barclays PLC, CFTC Docket No. 12-25 (June 27, 2012); Barclays Bank Plc, FSA Reference No. 122702 (June 27, 2012) (final notice) (U.K.); Press Release, Dep’t of Justice, Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \$160 Million Penalty (June 27, 2012), available at <http://www.justice.gov/opa/pr/barclays-bank-plc-admits-misconduct-related-submissions-london-interbank-offered-rate-and>, archived at <http://perma.cc/HHL3-YJX3>.

²⁵² See Carrick Mollenkamp, *LIBOR Fog: Bankers Cast Doubt On Key Rate Amid Crisis*, WALL ST. J., Apr. 16, 2008, at A1; Carrick Mollenkamp & Mark Whitehouse, *Study Casts Doubt on Key Rate: WSJ Analysis Suggests Banks May Have Reported Flawed Interest Rate Data for LIBOR*, WALL ST. J., May 29, 2008, at A1.

²⁵³ *BBA Libor Consultation Feedback Statement*, BRIT. BANKERS’ ASS’N, 3 (Aug. 5, 2008), <http://hb.betterregulation.com/external/BBA%20Libor%20Con.pdf>, archived at <http://perma.cc/W8F6-B9N3>.

²⁵⁴ Remarkably, the BBA arrived at this conclusion notwithstanding the fact that the announcement of the consultation was accompanied by a significant increase in submitted rates. See Carrick Mollenkamp, *LIBOR Surges After Scrutiny Does, Too: Banks May be Reacting as BBA Speeds Probe; Impact on Borrowers*, WALL ST. J., Apr. 18, 2008, at C1.

²⁵⁵ See Barclays PLC, CFTC Docket No. 12-25 (June 27, 2012), at 7–11; U.S. DEPT. OF JUSTICE, BARCLAYS BANK PLC NON-PROSECUTION AGREEMENT: STATEMENT OF FACTS 5–13 (June 26, 2012) [hereinafter BARCLAYS STATEMENT OF FACTS], available at <http://www.justice.gov/iso/opa/resources/9312012710173426365941.pdf>, archived at <http://perma.cc/>

pay £59.5 million in fines to the FSA, \$200 million to the CFTC, and \$160 million to the DOJ.²⁵⁶ Barclays also agreed to work with regulators to implement systems and controls designed to prevent future misconduct.²⁵⁷

The Barclays settlement agreements describe two separate species of Libor rate-rigging.²⁵⁸ First, traders sought to manipulate Libor in order to generate profits for the firm and/or its clients on the basis of their existing trading positions.²⁵⁹ Given the size of the notional value of many of the financial contracts—e.g. loans, structured finance products, and especially swaps and other OTC derivatives—linked to Libor, a relatively small un-hedged exposure to the benchmark rate could be the source of significant profits or losses.²⁶⁰ As Connan Snider and Thomas Youle explain:

If J.P. Morgan, for example, had a swap position with just a 1% net exposure to the Libor in the fourth quarter of 2008, then its cost on its contracts would be proportional to \$540 billion. If it was to succeed in modifying the Libor by 25 basis points in a quarter it would make $1/4 * 540 * .025 = 0.337$ or \$337 million in that quarter. If it had a 10 percent exposure it could make \$3.37 billion.²⁶¹

E-mails, text messages, and other communications disclosed in the settlement agreements make it clear that Barclays traders were keenly aware of the opportunities this presented and routinely attempted to exploit them.²⁶²

K2JZ-E88P; Barclays Bank Plc, FSA Reference No. 122702 (June 27, 2012) (final notice) (U.K.), at 10–14.

²⁵⁶ Press Release, Dep't of Justice, *supra* note 251.

²⁵⁷ Barclays PLC, CFTC Docket No. 12-25 (June 27, 2012), at 34–35.

²⁵⁸ See *Rotten Heart*, *supra* note 225, at 26.

²⁵⁹ *Id.*

²⁶⁰ *Id.*

²⁶¹ Connan Snider & Thomas Youle, Does the LIBOR Reflect Banks' Borrowing Costs? 10 (Apr. 2, 2010) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1569603.

²⁶² See, e.g., BARCLAYS STATEMENT OF FACTS, *supra* note 255, at 9–11 (“We have turn exposure of 837 futures contracts. [F]or every 0.25 bps tomorrows [sic] fix is below 4.0525 we lose 154,687.50 usd [United States Dollars] . . . if tomorrows [sic] fix comes in at 4.0325 we lose 618,750 usd.”) (alterations in original) (quoting a Barclays trader).

Second, in the midst of the financial crisis, Barclays submitted artificially low rates in order to avoid media scrutiny surrounding its financial health, along with the adverse inferences which might be drawn by market participants and regulators from the fact that they were submitting rates higher than many other panel banks.²⁶³ Rather than profit, this second species of manipulation was thus motivated by the fear that if Barclays were to be perceived as having difficulty raising funds in the interbank market, this might trigger the sort of destabilizing runs that, by September 2007, had already claimed the likes of Northern Rock and would soon claim Bear Stearns.²⁶⁴ This fear resulted in the now infamous instruction from one Barclays manager to Libor submitters that the firm should not “stick its head above the parapet.”²⁶⁵ Thereafter, Barclays consistently submitted rates that fell within the mid-range of panel banks.²⁶⁶

The Barclays settlement was followed by a flurry of further announcements regarding Libor-related investigations, fines, and settlements. On December 19, 2012, Union Bank of Switzerland (“UBS”) announced that it had entered into settlement agreements totaling \$1.5 billion with the DOJ, CFTC, FSA, and Swiss Financial Markets Authority relating to the manipulation of Libor and Euribor between January 2005 and December 2010.²⁶⁷ On February 6, 2013, Royal Bank of Scotland (“RBS”) announced that it, too, had agreed to pay over \$600 million to the DOJ, CFTC, and FSA in order to settle claims of Libor manipulation.²⁶⁸ Then the European Commission got

²⁶³ Barclays Bank Plc, FSA Reference No. 122702 (June 27, 2012) (final notice) (U.K.), at 23–29.

²⁶⁴ See *Rotten Heart*, *supra* note 225, at 26.

²⁶⁵ Barclays Bank Plc, FSA Reference No. 122702 (June 27, 2012) (final notice) (U.K.), at 25.

²⁶⁶ *Id.* at 29.

²⁶⁷ See generally UBS AG, CFTC Docket No. 13-09 (Dec. 19, 2012); UBS AG, FSA Reference No. 186958 (Dec. 19, 2012) (final notice) (U.K.); Press Release, Dep’t of Justice, UBS Securities Japan Co. Ltd. to Plead Guilty to Felony Wire Fraud for Long-Running Manipulation of LIBOR Benchmark Interest Rates (Dec. 19, 2012), available at <http://www.justice.gov/opa/pr/ubs-securities-japan-co-ltd-plead-guilty-felony-wire-fraud-long-running-manipulation-libor>, archived at <http://perma.cc/B89D-5UMU>.

²⁶⁸ See Press Release, Dep’t of Justice, RBS Securities Japan Limited Agrees to Plead Guilty in Connection with Long-Running Manipulation of Libor Benchmark Interest Rates (Feb. 6, 2013), available at <http://www.justice.gov/opa/pr/rbs-securities-japan-limited-agrees-plead-guilty-connection-long-running-manipulation-libor>, archived at <http://perma.cc/7GKB-JWZS>. Since

into the act, fining Barclays, Deutsche Bank, Société Général, RBS, UBS, JP Morgan, Citigroup, and RP Martin over €1.71 billion for participating in an illegal cartel in the market for certain interest rates derivatives.²⁶⁹ To date, investigations by securities regulators, antitrust authorities, and other agencies have now been launched in the United States, the United Kingdom, the European Union, the Netherlands, Germany, Canada, Japan, Singapore, and Switzerland looking into allegations that perhaps as many as twenty banks attempted to manipulate Libor, Euribor, and other benchmark rates.²⁷⁰ Together, these authorities have thus far handed out over \$6.3 billion in fines.²⁷¹

then, both Lloyds and Rabobank have also entered into settlement agreements with the DOJ, CFTC, and the U.K. Financial Conduct Authority (the successor to the FSA). Press Release, Dep't of Justice, Lloyds Banking Group Admits Wrongdoing in LIBOR Investigation, Agrees to Pay \$86 Million Criminal Penalty (July 28, 2014), *available at* <http://www.justice.gov/opa/pr/lloyds-banking-group-admits-wrongdoing-libor-investigation-agrees-pay-86-million-criminal>, *archived at* <http://perma.cc/N3G7-GVP9>; Press Release, Dep't of Justice, Rabobank Admits Wrongdoing in Libor Investigation, Agrees to Pay \$325 Million Criminal Penalty (Oct. 29, 2013), *available at* <http://www.justice.gov/opa/pr/rabobank-admits-wrongdoing-libor-investigation-agrees-pay-325-million-criminal-penalty>, *archived at* <http://perma.cc/627N-8JHC>. Rabobank has also entered into a separate settlement agreement with the Dutch National Public Prosecutor's Office. *Rabobank pays Dutch Public Prosecutor € 70 million to Settle LIBOR-Investigation*, OPENBAAR MINISTERIE (Oct. 29, 2013), <https://www.om.nl/actueel/nieuwsberichten/@32207/rabobank-pays-dutch/> [hereinafter *Rabobank Pays Dutch*], *archived at* <http://perma.cc/ULC7-CVPZ>.

²⁶⁹ Press Release, European Comm'n, Antitrust: Commission Fines Banks € 1.71 Billion for Participating in Cartels in the Interest Rate Derivatives Industry (Dec. 4, 2013), *available at* http://europa.eu/rapid/press-release_IP-13-1208_en.htm, *archived at* <http://perma.cc/RV9-D9VD>.

²⁷⁰ See *Rotten Heart*, *supra* note 225, at 25; *Rabobank Pays Dutch*, *supra* note 268; Mark Thompson, *Singapore Raps 30 Banks for Trying to Rig Rates*, CNN MONEY (June 14, 2013, 10:30 AM), <http://money.cnn.com/2013/06/14/news/companies/singapore-banks-sibor/>, *archived at* <http://perma.cc/KY2Y-NPYP>.

²⁷¹ \$6.3 billion is the result of the Author's own calculations based on the data available to him as of August 2014. This figure includes fines, but not disgorgement or compensation, extracted from Barclays, Deutsche Bank, Société Général, Royal Bank of Scotland, UBS, JP Morgan, Citigroup, RP Martin, Lloyds, and Rabobank by the DOJ, FSA, CFTC, Swiss Financial Markets Authority, Dutch National Public Prosecutor's Office, and/or European Commission. This calculation appears entirely reasonable when considered in conjunction with a 2012 *Financial Times* article that predicted

In the final tally, however, this figure may well be considerably higher as many investigations are ongoing and a number of new investigations have recently been announced.²⁷²

The Libor scandal is remarkable in several important respects. The first is the scale of the manipulation. The UBS investigation, to take just one example, revealed thousands of attempts to manipulate Libor involving dozens of employees and at least six other firms.²⁷³ Moreover, far from being an isolated incident, it seems increasingly likely that the manipulation of Libor and other benchmark rates was a common practice amongst panel banks.²⁷⁴ Second, as *The Economist* aptly described it, the settlement agreements give a sense of “the very everydayness with which bank traders set about manipulating the most important figure in finance.”²⁷⁵ There was “at least one [Barclays] trader . . . [who] would shout across the [trading floor] to confirm that” no one held positions which might conflict with his attempts to influence Barclays’ Libor submissions.²⁷⁶ Other traders wrote diary notes to themselves, reminding them to speak with Libor submitters about manipulating the benchmark rate.²⁷⁷ Third, ostensible competitors were willing to collude with one another in the manipulation of Libor.²⁷⁸ Finally, and perhaps most importantly, despite the widespread

that banks connected to the Libor scandal could face as high as \$22 billion in fines. Brooke Masters & Alex Barker, *Banks Face \$22bn Libor Bill*, FIN. TIMES (London), July 13, 2012, at 1.

²⁷² See, e.g., Caroline Binham & Alice Ross, *Ex-Deutsche Trader Faces Euribor Probe*, FIN. TIMES (U.S.), June 7, 2014, at 8; Caroline Binham, *RBS Libor Probe to Drag on to Next Year*, FIN. TIMES (U.S.), Aug. 11, 2014, at 12 (reporting on the ongoing criminal probe into RBS’s activities); Philip Stafford, *Brussels Accuses ICAP over Yen Cartels; Broker Denies ‘Facilitating’ System*, FIN. TIMES (London), June 11, 2014, at 18; Alex Barker, *Brussels Charges Three Banks Over Euribor Fixing Cartel*, FIN. TIMES (May 20, 2014, 1:47 PM), <http://www.ft.com/intl/cms/s/0/d08b458a-e013-11e3-b709-00144feabdc0.html> (reporting that the European Commission had charged HSBC, JP Morgan, and Cr dit Agricole with participating in an illegal cartel to rig Euribor).

²⁷³ UBS AG, FSA Reference No. 186958 (Dec. 19, 2012) (final notice) (U.K.), at 2–4.

²⁷⁴ See *Rotten Heart*, *supra* note 225, at 25.

²⁷⁵ *Id.*

²⁷⁶ Barclays Bank Plc, FSA Reference No. 122702 (June 27, 2012) (final notice) (U.K.), at 10.

²⁷⁷ *Rotten Heart*, *supra* note 225, at 25.

²⁷⁸ *Id.* at 26.

perception prior to the scandal that the Libor rate-setting process was vulnerable to manipulation by panel banks, there was no serious attempt by market participants to develop alternative market structures.²⁷⁹

The Libor scandal has spurred a fundamental review of the regulation of financial benchmarks. Some of the proposed reforms—and specifically those recommended by the U.K.’s Wheatley Review—are examined below.²⁸⁰ First, however, we must ask ourselves what the Libor scandal can teach us about the conflicts of interest embedded within the Big Bang Protocol and why private ordering is unlikely to effectively address them. It is to these questions which we now turn.

V. *The Parallels Between Libor and the DC Mechanism*

There are a number of important parallels between Libor and the DC mechanism. These parallels include the identity of the key players, their privileged market position, and the opportunities this position presents for unscrupulous behavior. More importantly, in both cases, the market forces which we might otherwise expect to constrain this behavior are impeded by the very success of these market structures, along with the market power enjoyed by a small group of financial intermediaries. This is not to suggest that the two case studies are somehow identical. Libor is clearly a more important and ubiquitous component of the global financial system. It is used not only to price commercial loans, derivatives, and other sophisticated financial instruments, but also mortgages, credit cards, and other investment products offered to retail consumers.²⁸¹ Accordingly, we might expect revelations about widespread manipulation of Libor and other benchmark rates to have a more profound impact—both in distributional terms, and in terms of overall market confidence. Nevertheless, the parallels are sufficiently striking that our examination

²⁷⁹ See WHEATLEY INITIAL DISCUSSION, *supra* note 248, at 16.

²⁸⁰ See *infra* Part VI(a).

²⁸¹ See Rosa M. Abrantes-Metz et al., *Revolution in Manipulation Law: The New CFTC Rules and the Urgent Need for Economic and Empirical Analyses*, 15 U. PA. J. BUS. L. 357, 378–79 (2013). At the same time, the fact that derivatives markets are generally thought to be populated by more sophisticated market participants may be viewed by some as justifying a more laissez faire approach toward public regulatory intervention designed to constrain unscrupulous behavior. See Saul S. Cohen, *The Challenge of Derivatives*, 63 FORDHAM L. REV. 1993, 2003–06 (1995).

of Libor can arguably provide us with useful insights into the potential vulnerabilities of the DC mechanism.

The first and most basic parallel between Libor and the DC mechanism stems from the identity of the principal protagonists: DC members and Libor panel banks. Figure 5 lists the G16 group of global derivatives dealers²⁸² and indicates whether they are also panel banks for U.S. dollar Libor and DC members for the Americas region.²⁸³ As Figure 5 illustrates, the overlap between these three groups is substantial, with nine institutions falling into all three groups.²⁸⁴

<u>Figure 5: Membership of the G16 on Libor and DC panels</u> (as of April 28, 2014)		
The G16	Libor Panel Bank	DC Member (Americas)
Bank of America	✓	✓
Barclays	✓	✓
BNP Paribas	✓	✓

²⁸² The G14 group of dealers expanded in 2011 and 2012 to become the G16. Matt Cameron, *G14 Dealer Group Adds Two Members*, Risk.net (Dec. 1, 2011), <http://www.risk.net/risk-magazine/news/2127940/g14-dealer-adds>.

²⁸³ See John Biggins, *'Targeted Touchdown' and 'Partial Liftoff': Post-Crisis Dispute Resolution in the OTC Derivatives Markets and the Challenge for ISDA*, 13 GERMAN L.J. 1297, 1303–04 (2012) (listing the G16 group of global derivatives dealers); Press Release, Int'l Swaps & Derivatives Ass'n, ISDA Announces Annual Determinations Committees Outcome (Mar. 31, 2014), available at <http://www2.isda.org/news/isda-announces-annual-determinations-committees-outcome0>, archived at <http://perma.cc/HW55-3ADA> (listing the DC members); *ICE LIBOR: Panel Composition*, INTERCONTINENTAL EXCHANGE, <https://www.theice.com/iba/libor> (last visited Nov. 17, 2014), archived at <http://perma.cc/8N5F-3JA6> (listing the LIBOR panel banks for all currencies). Membership is listed at the group parent company level in Figure 5. In practice, membership on Libor panels or DCs often falls to subsidiaries or affiliates within these groups.

²⁸⁴ This sum excludes Société Générale, which acts as a consultative dealer on the DC for the Americas but does not have the right to vote on determinations. Press Release, Int'l Swaps & Derivatives Ass'n, *supra* note 283.

Citigroup	✓	✓
Crédit Agricole	✓	
Credit Suisse	✓	✓
Deutsche Bank	✓	✓
Goldman Sachs		✓
HSBC	✓	✓
JPMorgan Chase	✓	✓
Morgan Stanley		✓
Nomura Group		✓
Royal Bank of Scotland	✓	
Société Générale	✓	✓(consultative)
UBS	✓	✓
Wells Fargo		

A second and related parallel is that both Libor and the DC mechanism are structured around a core group of market participants. There are two distinguishing features of this core. First, the market participants which comprise this core often dominate the markets for the financial products and services of which Libor and the DC mechanism are simply component parts. In the United Kingdom, for example, four banks account for the lion's share of commercial lending.²⁸⁵ Each of these banks is a Libor panel member.²⁸⁶ And as we have already seen, the G16 enjoy a similar share of the global market for swaps and other OTC derivatives.²⁸⁷ Second, by virtue of market structures such as Libor and the DC mechanism, this core is in a privileged position to influence otherwise exogenous events—e.g. changes to the Libor rate, credit events, etc.—which determine the

²⁸⁵ These banks are Barclays, HSBC, Lloyds, and RBS. For a recent study of competition in the U.K. commercial banking sector, see COMPETITION & MKTS. AUTH. & FIN. CONDUCT AUTH., *BANKING SERVICES TO SMALL AND MEDIUM-SIZED ENTERPRISES: A CMA AND FCA MARKET STUDY 22* n.16 (2014), available at https://assets.digital.cabinet-office.gov.uk/media/53eb6b73ed915d188800000c/SME-report_final.pdf [hereinafter CMA & FCA], archived at <http://perma.cc/8A3A-VXJF>.

²⁸⁶ See *ICE LIBOR: Panel Composition*, *supra* note 283.

²⁸⁷ See *supra* text accompanying note 107.

payoffs under contracts to which they are themselves significant counterparties. This, in turn, gives rise to hardwired conflicts of interest between this core group and the other, peripheral, market participants.

Ultimately, of course, we might view this state of affairs as largely unproblematic so long as the *internal* governance mechanisms built into these market structures successfully constrain such conflicts of interest. Here, however, we encounter another important set of parallels. As described above, the BBA's reliance on the unverified submissions of panel banks—submissions which did not need to be based on actual interbank transactions—left Libor vulnerable to manipulation.²⁸⁸ Despite these and other widely acknowledged flaws, however, the BBA failed to vigorously monitor or enforce compliance with the Libor rate-setting process.²⁸⁹ Indeed, the BBA's failure to provide meaningful oversight continued even after the *WSJ* and others produced evidence that was, at the very least, suggestive of pervasive rate rigging.²⁹⁰

ISDA has taken an equally hands-off approach toward the monitoring and enforcement of DC Rules.²⁹¹ In effect, ISDA is ostensibly relying on the fact that DC members have entered into agreements—notably with *ISDA*, and not their counterparties—stating that they will comply with them.²⁹² Indeed, even if the leadership of ISDA or the BBA did wish to take a more proactive approach toward monitoring compliance with these rules and processes, one might reasonably question whether these organizations—as industry trade associations—would have been able to generate a critical mass of support from their membership.²⁹³ This question is particularly salient for organizations such as ISDA, where the concentrated, dealer-intermediated nature of OTC derivatives markets can be seen as giving global dealers considerable influence, if not a *de facto* veto, over the organizational agenda.²⁹⁴

Even where these internal governance mechanisms fail to constrain the conflicts of interest embedded within these market structures, we might still look to *external*, or market-based, monitoring

²⁸⁸ See *supra* text accompanying notes 244–50.

²⁸⁹ See *supra* text accompanying notes 247–49.

²⁹⁰ See *supra* note 252 and accompanying text.

²⁹¹ See *supra* text accompanying notes 215–17.

²⁹² *DC Rules*, *supra* note 183, § 1.8(b).

²⁹³ See *supra* text accompanying notes 216–17.

²⁹⁴ See Judge, *supra* note 73 (manuscript at 13–15); Partnoy & Skeel, *supra* note 132, at 1037–39.

and enforcement. That is to say that if a particular market structure is viewed by participants as being inefficient, vulnerable to manipulation, or otherwise undesirable, we would expect to observe the emergence of new, more desirable, market structures.²⁹⁵ These market structures might be developed by new entrants seeking to attract market share, or by incumbents looking to stay one step ahead of the nascent competition.²⁹⁶ Indeed, as described above, this competitive dynamic is frequently held out as one of the most important benefits of private ordering: spurring a process of experimentation and updating, which results in progressively more desirable market structures.²⁹⁷ Viewed from this perspective, however, we are left with something of a puzzle: why, despite their widely acknowledged flaws, have we not observed the emergence of any legitimate challengers to Libor or the DC mechanism? Put differently, in an industry we often think of as being characterized by fierce competition and relentless innovation, why have we not witnessed the emergence and widespread adoption of a new and improved Big Bang Protocol or Libor 2.0?²⁹⁸

One explanation might be that the designers of Libor and the DC mechanism got it right the first time around. Another might be that the market has not yet had sufficient time to effectively respond. While these possibilities cannot be completely discounted, however, both logic and recent experience suggest that it may be prudent to head out in search of other, more compelling, explanations. It is at this point that the limits of private ordering—positive network externalities, path dependency, and power imbalances—may hold significant explanatory power.

The first potential explanation resides in the positive network externalities associated with successful market structures such as Libor and the DC mechanism. These network externalities are a natural byproduct of the benefits these market structures generate for market participants. As described above, these benefits flow principally from *standardization*. Libor is, in effect, a standardized methodology for

²⁹⁵ See *supra* text accompanying notes 32–35.

²⁹⁶ See *supra* text accompanying notes 36–37.

²⁹⁷ See *supra* text accompanying notes 32–35.

²⁹⁸ For greater clarity, the salient question here is not simply why potential substitutes did not exist—they did (e.g. the General Collateral Financing (“GCF”) Repo Index is in many respects a substitute for Libor)—but rather why they did not pose a meaningful competitive threat to these incumbent market structures. See Kristin Dooley, Development Article, *The LIBOR Scandal*, 32 REV. BANKING & FIN. L. 2, 11 (2013).

calculating benchmark interest rates.²⁹⁹ In addition to lowering negotiation and drafting costs for market participants, the widespread use of Libor in a diverse range of different financial products makes it less costly for these market participants to minimize interest rate basis risk at the portfolio level.³⁰⁰ The DC mechanism is, similarly, designed to eliminate any legal basis risk arising from divergent interpretations of certain key terms of ISDA's credit derivatives documentation.³⁰¹ Market participants thus possess powerful incentives not only to use Libor and the DC mechanism themselves, but to exert pressure on their counterparties to ensure that they use these market structures as well. Viewed in this light, the benefits of both Libor and the DC mechanism can be understood as flowing not only from their desirability per se, but also from the mere fact of their widespread adoption.

Market participants looking to mount a challenge to these incumbent market structures are thus confronted with something of a bleak calculus. If they invest in the development of new market structures to challenge the dominance of Libor or the DC mechanism, it is very likely that these structures will be unable to attract a critical mass of market participants.³⁰² If they successfully overcome the attendant coordination problems, meanwhile, other market participants will inevitably be able to free-ride off their investment.³⁰³ As a result, it may be *individually* rational for market participants to refrain from making such investments, even where they would yield what might *collectively* be viewed as a more desirable equilibrium.³⁰⁴ The net effect is a failure of the market to spur investment in welfare enhancing innovation.³⁰⁵

The second potential explanation is path dependence. In the event that market forces did spur the development of potentially viable substitutes for Libor or the DC mechanism, market participants would still have to evaluate whether the prospective benefits associated with

²⁹⁹ See *supra* text accompanying notes 237–40.

³⁰⁰ See *supra* text accompanying notes 237–40. Where different benchmarks are used for different products, in contrast, market participants will need to concern themselves with the residual economic exposures created by any differences in the methodologies for calculating these benchmarks. See WHEATLEY FINAL REPORT, *supra* note 232, at 45–46.

³⁰¹ See *supra* text accompanying note 205.

³⁰² See *supra* notes 53–54 and accompanying text.

³⁰³ See *supra* text accompanying notes 49–54.

³⁰⁴ See *supra* text accompanying notes 49–56.

³⁰⁵ See *supra* text accompanying notes 49–56.

these new market structures exceeded the costs of switching.³⁰⁶ In many cases, these costs may prove quite substantial.³⁰⁷ In addition to switching market structures going forward, of course, market participants would also very likely want to switch their *existing* transactions, thus retaining the hedging and other benefits derived from standardization.³⁰⁸ We would expect the costs of switching these existing transactions to be particularly high in the case of Libor.³⁰⁹ These costs are a function of both Libor's ubiquity as a financial benchmark, and the fact that the governance and ownership structures of many of the financial instruments in which it is embedded—e.g. syndicated loans, structured finance vehicles, and mortgages repackaged into mortgage-backed securities—may generate acute coordination problems which render switching more difficult.³¹⁰ The bilateral nature of CDS markets, in contrast, theoretically presents relatively few coordination problems. Moreover, ISDA has already developed a market structure—protocols—that facilitates such ex post switching.³¹¹ The problem in this case, however, is that the introduction of a protocol enabling market participants to switch from the DC mechanism to an alternative market structure is dependent on the incentives of ISDA, along with the global derivatives dealers it represents, to invest in its development.

This takes us squarely on to the third and final potential explanation for why private ordering may fail to effectively respond to the problems at the heart of Libor and the DC mechanism: the power imbalances between the market participants at the core of these market structures and those at the periphery. These power imbalances stem from several different sources. The first is market position.³¹² There are a number of important distinctions between Libor panel banks and DC members in terms of market position. As we have already seen, global derivatives dealers represent the primary source of market access, trading information, and liquidity within swaps and other OTC

³⁰⁶ See *supra* text accompanying note 69.

³⁰⁷ See Kraus, *supra* note 69, at 378.

³⁰⁸ See, e.g., WHEATLEY FINAL REPORT, *supra* note 232, at 46.

³⁰⁹ See *id.*

³¹⁰ For a discussion of these coordination problems, see Kathryn Judge, *Fragmentation Nodes: A Study in Financial Innovation, Complexity, and Systemic Risk*, 64 STAN. L. REV. 657, 702–03 (2012).

³¹¹ See *supra* note 124 and accompanying text.

³¹² See *supra* text accompanying notes 76–77.

derivatives markets.³¹³ Indeed, these dealers are uniquely suited to this market-making role. First, their global client networks reduce the search costs of matching counterparties on opposite sides of a trade.³¹⁴ Second, their expertise in risk management and enormous diversified balance sheets enable them to evaluate and absorb counterparty credit, market, and other risks more efficiently than other intermediaries.³¹⁵ Dealers are thus central—indeed, essential—to the smooth and efficient operation of global derivatives markets. The market position of Libor panel banks, in contrast, depends more on domestic market conditions. In the United Kingdom, for example, the position of Libor panel banks is extremely strong.³¹⁶ In the United States, in contrast, where both retail and commercial banking markets are far more fragmented, the position of Libor panel banks may not be the source of significant market power.³¹⁷

The second source of potential power imbalances stems from the ability of Libor panel banks and DC members to bundle these market structures together with other products. Derivatives dealers, for example, are able to bundle their most important product—market liquidity—together with other complementary products such as Libor and ISDA’s credit derivatives documentation. At the same time, only market participants utilizing ISDA credit derivatives documentation are permitted to adopt the Big Bang Protocol; and only those who have adopted the Big Bang Protocol can use the DC and auction settlement mechanisms.³¹⁸ In effect, this bundling enables dealers to anchor derivatives markets to incumbent market structures. As forthrightly observed by leading global law firm Ropes & Gray LLP in its assessment of the Big Bang Protocol:

If history is any guide, the dealer community will likely require that counterparties incorporate the terms of the [Big Bang Protocol] into every confirmation for future transactions. Meaning that, at least on a going-

³¹³ See *supra* text accompanying notes 87–107.

³¹⁴ See Van Zandt, *supra* note 96, at 996.

³¹⁵ See *supra* text accompanying notes 100–02.

³¹⁶ See CMA & FCA, *supra* note 285, at 41.

³¹⁷ See *Banking Brief: U.S. Banking System—Scaled to Serve*, CLEARING HOUSE (Feb. 7, 2013), <https://www.theclearinghouse.org/issues/banking-brief/bank-structure-and-consumer-protection/us-banking-system-scaled-to-serve>, archived at <http://perma.cc/3K7K-BT6K>.

³¹⁸ See *supra* text accompanying notes 177–79.

forward basis, parties wishing to transact in the CDS market will have to live with ISDA's CDS changes.³¹⁹

Put bluntly, if a market participant does not want to play by their rules, dealers can simply take their ball and go home.

The third source of potential power imbalances stems from the relative opacity of both the markets in which Libor and the DC mechanism are used and the balance sheets of Libor panel banks and derivatives dealers. While many market participants suspected that Libor panel banks were submitting inaccurate rates, for example, this was incredibly difficult to *verify*—especially since submissions were not required to reflect actual interbank transactions, but only the perceptions of panel banks.³²⁰ Along a similar vein, given their far from complete access to information regarding the trading positions of other financial institutions, market participants can generally only speculate as to whether DC members might be voting their book. This opacity is exacerbated by three factors. First, as we have seen, both Libor and the DC mechanism rely heavily on the discretion of core market participants.³²¹ By its very nature, however, second-guessing the exercise of this discretion is fraught with conceptual and evidential challenges. What is the appropriate standard for determining whether the exercise of discretion is acceptable? Does the exercise of discretion in any given case meet this standard? And, if not, was this due to an “honest” mistake or a more malevolent attempt to exploit this discretion for private gain? These are inherently difficult questions to answer without resort to the powers—and expense—of discovery and cross-examination typically associated with formal litigation.³²² Second, and relatedly, where information is in the public domain it is often

³¹⁹ *ISDA Aims for “Fungible” CDS with Auction Settlement, Big Bang Protocol, and New Standard North American CDS Terms*, ROPES & GRAY LLP, 3 (Mar. 4, 2009), <http://www.ropesgray.com/~media/Files/alerts/2009/03/isda-aims-for-fungible-cds-with-auction-settlement-big-bang-protocol-and-new-standard-north-american-cds-terms.ashx>, archived at <http://perma.cc/B63C-QGFE>. Compounding matters, market participants not adhering to the Big Bang Protocol are unable to “opt-in” to the auction settlement mechanism. See *Big Bang Protocol: Frequently Asked Questions*, INT'L SWAPS & DERIVATIVES ASS'N, http://www.isda.org/bigbangprot/bbprot_faqs.html (last visited Nov. 17, 2014), archived at <http://perma.cc/S7JZ-VKZ3>.

³²⁰ See *supra* text accompanying notes 244–49.

³²¹ See *supra* Figure 5.

³²² This also applies to an investigation by public regulatory authorities.

susceptible to multiple interpretations. A unanimous or near unanimous DC decision, for example, could be interpreted either as evidence of collusion or simply as evidence that the matter in question was a relatively straightforward one.³²³ Finally, where core market participants engage in conduct that might be considered an abuse of discretion, we might expect them to go to great lengths to conceal it from view. Indeed, if those responsible for attempting to manipulate Libor had not been so brazen as to document their skullduggery in e-mails and text messages,³²⁴ it seems highly unlikely that the full nature and extent of these activities would have ever come to light. In an environment where observable information is often scarce—and verifiable information even more so—it thus seems somewhat unlikely that external governance mechanisms would provide a meaningful constraint on opportunistic behavior.³²⁵

In the absence of effective internal or external governance mechanisms, we would expect private market structures such as Libor and the DC mechanism to be vulnerable to opportunistic behavior by core market participants. In the case of Libor, this abuse manifested itself in the form of widespread fraud and manipulation, collusion amongst panel banks, and the submission of rates which did not reflect panel banks' true borrowing costs.³²⁶ In the case of the DC mechanism, meanwhile, this behavior might manifest itself in several ways. First, as described above, DC members might simply vote their book.³²⁷ Indeed, the fact that ISDA's general counsel has floated the possibility of a best-practice policy in this area—if not actually produced one³²⁸—can be interpreted as an acknowledgement of the vulnerability of the DC mechanism to this sort of opportunistic behavior. Given the

³²³ Similarly, it would be difficult to draw any strong conclusions simply from the dispersion of Libor submissions.

³²⁴ See *supra* text accompanying note 262.

³²⁵ One potential difference between Libor and the DC mechanism in this regard may be the *salience* of the relevant decisions. Specifically, whereas the Libor rate-setting process occurs on a daily basis, DC decisions are more infrequent and highly salient to a particular group of market participants. Theoretically, this salience could translate into greater market scrutiny. See Roberta Romano, *The Political Dynamics of Derivative Securities Regulation*, 14 YALE J. ON REG. 279, 300 (1997) (explaining that “more thorough public scrutiny . . . accompanies high salience issues”).

³²⁶ See *supra* text accompanying notes 251–72.

³²⁷ See *supra* text accompanying notes 213–14.

³²⁸ See Pollack, *supra* note 1.

supermajority threshold for most important determinations,³²⁹ however, a dealer voting its book in insolation would seem somewhat less likely to yield the desired effect. This, of course, raises the prospect that DC members might collude to rig determinations. More specifically, DC members might engage in the sort of “you scratch my back” behavior in exchange for future reciprocity as exposed by the Libor scandal.³³⁰ Third, DC members might trade on the basis of insider information regarding an impending request for, or outcome of, a determination. Such insider trading could take place in both the relevant reference obligation itself or, crucially, other correlated assets.³³¹

A reasonable observer might once again raise a number of objections at this point. First, as ISDA has itself argued, the DC Rules, the identity of DC members, and the determinations themselves are all fully disclosed.³³² Indeed, as a theoretical matter, so long as contracting parties are made aware of the attendant agency costs, we might ultimately expect these costs to be reflected in the price of the relevant contract.³³³ In practice, however, disclosure of the DC Rules is not the same thing as highlighting the latent conflicts of interest which reside therein; nor, more importantly, does it provide an effective substitute for disclosing the trading positions of DC members as a means of determining the true nature and extent of any conflicts. Moreover, disclosure is of little value—and the price mechanism unlikely to function effectively—in a market characterized by positive network externalities, path dependency, and power imbalances. Second, one might argue that the presence of buy-side members on DCs serves to

³²⁹ See *supra* note 191 and accompanying text.

³³⁰ See David Enrich & Jean Eaglesham, *Clubby London Trading Scene Fostered Rate-Fixing Scandal*, WALL ST. J., May 2, 2013, at A1.

³³¹ As an empirical matter, it would be interesting to study the movement of prices in the reference obligation and other correlated assets both before and immediately following the announcement of DC decisions. However, insofar as it is often difficult to filter out other variables impacting price, the results of such empirical work would likely not be determinative. Moreover, a given observation might also be subject to multiple interpretations. For example, any “unusual” price movement in advance of an announcement could be suggestive of insider trading or, alternatively, market participants making legitimate bets on the basis of previous DC precedent.

³³² See Lisa Pollack, *More on the Conflicted Isda Committee*, FT ALPHAVILLE (Dec. 14, 2011, 5:10 PM), <http://ftalphaville.ft.com/2011/12/14/799741/more-on-the-conflicted-isda-committee/>.

³³³ See Jensen & Meckling, *supra* note 31, at 312–13.

make collusion more difficult.³³⁴ This may indeed be the case. Simultaneously, however, it must be recognized that even these non-dealer members, by virtue of their elevated status within the market structure, are part of the core group of market participants and may thus enjoy similar incentives to game the system.³³⁵ Finally, one might observe that at least some of this conduct—insider trading and collusion, for example—is against the law. While this may be true, the real question is whether the law is backed up by a credible enforcement threat. In the case of Libor, it appears that this threat was insufficiently credible.³³⁶ This was likely due in large part to the market opacity and resulting information problems described above.³³⁷ These same problems undermine the threat of both market-based reputational sanctions and public regulatory enforcement in connection with the exploitation of the conflicts of interest embedded within the DC mechanism.³³⁸

The central claim of this Article is not that global derivatives dealers are currently exploiting the conflicts of interest embedded within the DC mechanism in the same way that many of these same institutions have recently admitted to manipulating Libor. We simply do not—and arguably cannot—know on the basis of publicly available information whether or not this is indeed the case. What this Article is claiming, however, is that the parallels between Libor and the DC mechanism—the key players, their privileged market position, the opportunities for abuse, and the absence of effective internal or external governance mechanisms—collectively suggest that the DC mechanism is vulnerable to opportunistic behavior. The next section, therefore, puts forward a small number of relatively modest, straightforward

³³⁴ See *supra* notes 187, 189 and accompanying text.

³³⁵ See *supra* note 189 and accompanying text. Indeed, the buy-side/sell-side dichotomy has never been entirely apt within OTC derivatives markets. Unlike primary markets for debt and equity where these terms originated, dealers and non-dealers within secondary and OTC derivatives markets are not inherently long (i.e. buy-side) or short (i.e. sell-side). Put differently, a dealer and non-dealer may have the same exposure to a given asset, whether it is long, short, or neutral. As a result, there is no *inherent* conflict of interest.

³³⁶ See WHEATLEY INITIAL DISCUSSION, *supra* note 248, at 16 (“[I]t is not clear that the oversight function carried out by the Oversight subcommittee has either the capacity—in terms of resource and expertise—or the appropriate sanctions to detect, investigate and enforce against misconduct effectively.”).

³³⁷ See *supra* text accompanying notes 320–25.

³³⁸ See *supra* notes 220–21 and accompanying text.

prescriptions designed to limit the scope for such behavior. In this as in all things, an ounce of prevention may be worth a pound of cure.

VI. *Pushing the Limits: Regulatory and Governance Strategies*

How can we push the limits of private ordering? Put differently, how can we better balance the trade-offs between the costs and benefits generated by successful market structures? Ultimately, these trade-offs are inherently case-specific. What is most important, then, is recognizing where these limits exist, understanding their impact on the incentives of market participants, and weighing the inevitable trade-offs. Only then can potential regulatory or governance strategies be identified. This section identifies potential governance and regulatory strategies which might be used to reduce the information, agency, and other costs embedded within Libor and the DC mechanism, along with a preliminary assessment of their attendant trade-offs. Notably, each of the strategies canvassed in this section envisions some form of public regulatory intervention. Such intervention is arguably necessary in order to overcome the inertia generated by the limits of private ordering. At the same time, however, once this intervention takes place, the changes to these market structures necessary in order to ameliorate the underlying problems are in many cases relatively straightforward, modest, and easy to implement.³³⁹

A. Libor

At the heart of the Libor scandal was the failure of the BBA to vigorously monitor and enforce compliance with the rate-setting process.³⁴⁰ Most importantly, the BBA failed to verify the accuracy and independence of the rates submitted by panel banks.³⁴¹ This failure has spurred public regulatory authorities in several jurisdictions to fundamentally rethink how they approach the regulation of financial benchmarks. In the U.K., for example, the Wheatley Review has

³³⁹ This, of course, is consistent with this Article's broader thesis: that the limits of private ordering undermine welfare enhancing innovation, even when the enhancements are not costly to make (once we exclude the lost opportunities for rent-seeking which incumbent market structures generate for some market participants).

³⁴⁰ See WHEATLEY FINAL REPORT, *supra* note 232, at 21.

³⁴¹ See WHEATLEY INITIAL DISCUSSION, *supra* note 248, at 16.

recommended—and the government has largely implemented—a series of wholesale reforms.³⁴² First, the administration of Libor and the submission of Libor rates by panel banks have both become “regulated activities” under the Financial Services and Markets Act,³⁴³ thus explicitly bringing these activities under the umbrella of a public regulatory framework. These activities have also been designated “controlled functions” with the individuals responsible for overseeing them subject to the Financial Conduct Authority’s (“FCA”)³⁴⁴ approved persons regime.³⁴⁵ Second, day-to-day governance and oversight of Libor has been taken away from the BBA and given to a new, independent administrator.³⁴⁶ This new administrator is responsible for, amongst other matters, compiling submissions, verifying their accuracy against actual interbank transactions, and publishing official Libor rates.³⁴⁷ The administrator is required to establish and maintain effective governance arrangements to carry out this role (including the management of any conflicts of interest), ultimately with a view to maintaining the integrity and continuity of the benchmark.³⁴⁸ The administrator is also required to establish an oversight committee comprised of panel banks, market infrastructure providers, benchmark users, and at least two independent non-executive directors.³⁴⁹ Together with this oversight committee, the administrator is responsible for establishing practice standards for panel banks governing, among other things, the methodology for determining submissions, management of conflicts of interest, use of transaction data, recordkeeping, internal systems and controls, and external audit requirements.³⁵⁰ The administrator is also responsible for identifying and reporting breaches

³⁴² See WHEATLEY FINAL REPORT, *supra* note 232, at 8–9.

³⁴³ Financial Services Act, 2012, c. 21, § 7 (U.K.).

³⁴⁴ The FCA replaced the FSA as the U.K.’s financial conduct regulator on April 1, 2013. *UK Financial Regulation Overhauled*, BBC NEWS (Mar. 31, 2013, 8:06 PM), <http://www.bbc.com/news/business-21987829>, archived at <http://perma.cc/J286-Z8SK>.

³⁴⁵ See generally FIN. SERV. AUTH., POLICY STATEMENT 13/6, THE REGULATION AND SUPERVISION OF BENCHMARKS 12–13 (2013), available at <http://www.fca.org.uk/static/documents/policy-statements/fsa-ps13-06.pdf>, archived at <http://perma.cc/S93R-PF6J>.

³⁴⁶ See *supra* note 229.

³⁴⁷ See FIN. SERV. AUTH., *supra* note 345, at 9–10.

³⁴⁸ *Id.* at 9–12.

³⁴⁹ *Id.* at 12–13.

³⁵⁰ *Id.* at 18.

of these standards or potentially manipulative behavior to the FCA.³⁵¹ Finally, it is envisioned that new civil and criminal penalties will eventually be introduced for intentionally or recklessly making false or misleading statements in connection with the setting of a benchmark.³⁵² Broadly similar reforms targeting financial benchmarks have also been proposed at the European level.³⁵³

The Wheatley Review's approach toward the regulation of financial benchmarks can be understood as an acknowledgment of the trade-offs embedded within private market structures such as Libor. There can be little doubt that panel banks are best positioned to *produce*—if not necessarily *verify*—information about prevailing market conditions as this information is a natural byproduct of their own capital raising activities. At the same time, however, these market participants—along with the industry associations that represent their interests—may be poorly incentivized to provide meaningful *ex ante* oversight of the rate-setting process or, where necessary, pursue vigorous *ex post* enforcement in relation to misconduct.³⁵⁴ By bringing these activities within the scope of a public regulatory framework, introducing new civil and criminal penalties, and bonding the reputation of the administrator to the integrity of the benchmark, these reforms can thus be understood as an attempt to enhance the credibility of commitments made by both the administrator and panel banks.³⁵⁵ This, in turn, could conceivably help restore market confidence in the scandal-tainted benchmark.

The Wheatley Review's recommendations were also shaped by the view that the new administrator would be more responsive than public regulatory authorities to the evolving demands of market

³⁵¹ *Id.* at 14–15.

³⁵² See WHEATLEY FINAL REPORT, *supra* note 232, at 18–19.

³⁵³ See *Commission Proposal for a Regulation of the European Parliament and of the Council on Indices Used as Benchmarks in Financial Instruments and Financial Contracts*, at 2–3, COM (2013) 641 final (Sept. 18, 2013); *Principles for Financial Benchmarks: Final Report*, INT'L ORG. SEC. COMMISSIONS, 3–4 (July 2013), <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>, archived at <http://perma.cc/66TQ-Q75S>; *Reforming Major Interest Rate Benchmarks*, FIN. STABILITY BOARD, 1–3 (July 22, 2014), http://www.financialstabilityboard.org/publications/r_140722.pdf, archived at <http://perma.cc/ZC7H-H3Z2>.

³⁵⁴ See WHEATLEY INITIAL DISCUSSION, *supra* note 248, at 16.

³⁵⁵ See *supra* note 5. This, however, ultimately hinges on the ability of the FCA to maintain a credible enforcement threat.

participants.³⁵⁶ Here, however, we encounter another set of potentially significant trade-offs. On July 9, 2013, it was announced that a subsidiary of NYSE Euronext would be appointed as the new administrator.³⁵⁷ On November 13, 2013, NYSE Euronext was acquired by Intercontinental Exchange, Inc. (“ICE”), a leading global operator of financial exchanges and clearinghouses.³⁵⁸ This raises an important question: why would ICE—the world’s largest operator of equity and derivatives exchange platforms³⁵⁹—want to administer a scandal-tainted benchmark? The answer, of course, is that ICE can bundle it with both its existing market data services and, crucially, license it as a component part of the derivatives and other financial products it offers via its global network of options, futures, and commodities exchanges, and alternative trading platforms such as ICE Swap Trade, Creditex, and NYSE Liffe.³⁶⁰ On its face, then, the decision to appoint NYSE Euronext (and now ICE)—as opposed to a truly independent third party—seems likely to further cement Libor as “the most important figure in finance.”³⁶¹ On the one hand, this may be viewed as a positive development insofar as the threat of losing a valuable revenue stream may incentivize ICE to ensure that Libor is well governed and free from manipulation.³⁶² On the other hand,

³⁵⁶ WHEATLEY FINAL REPORT, *supra* note 232, at 13.

³⁵⁷ Press Release, N.Y. Stock Exch., NYSE Euronext Subsidiary to Become New Administrator of Libor (July 9, 2013), *available at* <http://www1.nyse.com/press/1373365567815.html>, *archived at* <http://perma.cc/ST4X-E3YH>. The transfer was completed on February 1, 2014. *See About Us*, *supra* note 229.

³⁵⁸ Press Release, Intercontinental Exch., IntercontinentalExchange Completes Acquisition of NYSE Euronext (Nov. 13, 2013), *available at* http://otp.investis.com/clients/us/intercontinental_exchange_group/usn/usnews-story.aspx?cid=953&newsid=21126, *archived at* <http://perma.cc/4N7T-8FLN>.

³⁵⁹ For a more detailed description of the business and operations of ICE, see generally IntercontinentalExchange Grp., Annual Report (Form 10-K) (Feb. 14, 2014).

³⁶⁰ Indeed, market participants looking to use Libor as a reference rate or in its pricing activities must enter into a licensing arrangement with ICE Benchmark Administration Limited, the ICE subsidiary appointed as Libor’s new administrator. *See ICE Benchmark Administration (IBA): Licensing*, INTERCONTINENTAL EXCHANGE, <http://www.theice.com/iba/licensing> (last visited Nov. 17, 2014), *archived at* <http://perma.cc/36UX-K9SH>.

³⁶¹ *See supra* note 225 and accompanying text.

³⁶² *See* Gabriel Rauterberg & Andrew Verstein, *Index Theory: The Law, Promise and Failure of Financial Indices*, 30 YALE J. ON REG. 1, 43–45 (2013).

however, the bundling of Libor with other products seems likely to generate further network externalities and enhance the market power of ICE.³⁶³ Accordingly, this strategy may ultimately serve to erect further barriers to entry for new market structures and undermine the threat of market-based sanctions that—as the Wheatley Review hoped—would compel the administrator to respond to market demand.³⁶⁴

Ultimately, if the new administrator cannot be counted upon to respond to exogenous demand, this raises another important question: why not cut out the middleman? Why not simply have panel banks make their submissions directly to public regulatory authorities or, at the very least, a third party without a commercial interest in Libor? Put differently, what innate comparative advantages do market participants such as NYSE Euronext possess in terms of the relatively straightforward tasks of compiling, verifying the accuracy of, or disseminating submitted rates? In the absence of a compelling answer to this question—which neither the Wheatley Review nor the Hogg Tendering Advisory Committee, which was appointed to select the new administrator,³⁶⁵ articulated—might we not just be creating another layer of agency costs? The objective here is not to answer these questions, but to highlight the fact that they have perhaps received short shrift in the context of the recent benchmark reform debate.

To date, the new administrator appointed to oversee the Libor rating-setting process has made significant strides toward improving the benchmark's internal governance. ICE has established an oversight committee, which includes representatives from the Federal Reserve System, Bank of England, and Swiss National Bank.³⁶⁶ It has reportedly required some banks to provide it with “internal transaction data,” sending a signal that it is serious about verifying submitted rates against actual interbank transactions as opposed to fuzzy estimates.³⁶⁷ It is also in the process of developing “new benchmark surveillance techniques and technology” designed to bring “enhanced transparency”

³⁶³ See *supra* note 79 and accompanying text.

³⁶⁴ See *supra* text accompanying note 356.

³⁶⁵ See Press Release, N.Y. Stock Exch., *supra* note 357.

³⁶⁶ See *Governance: Oversight Committee*, INTERCONTINENTAL EXCHANGE, www.theice.com/iba/governance#iba-oversight-committee (last visited Nov. 17, 2014), archived at <http://perma.cc/U6XA-9A6P>.

³⁶⁷ Philip Stafford, *ICE Prepares Deeper Reform of Libor*, FIN. TIMES (July 8, 2014, 12:21 PM), <http://www.ft.com/intl/cms/s/0/07d4f4d6-0685-11e4-ba32-00144feab7de.html>.

to the rate-setting process.³⁶⁸ These are all steps in the right direction—steps that ICE’s predecessor was poorly incentivized to take. It remains to be seen, however, what the impact of these changes will be over the longer term.

B. The DC Mechanism

Unlike Libor, the DC mechanism offers a relatively clean slate upon which to evaluate the merits of potential reforms. Indeed, at first glance, there exists no shortage of regulatory and governance strategies that could potentially help ameliorate the hardwired conflicts of interest and weak governance that render the DC mechanism vulnerable to opportunistic behavior. While each of these strategies could theoretically be implemented by ISDA itself, the influence of global swaps dealers over both ISDA’s organizational agenda and the relevant markets suggest that, to be truly effective, these strategies would likely require some sort of public regulatory intervention.³⁶⁹ The first and, in some respects, most straightforward strategy would be to require DC members to disclose their trading positions in any reference obligation.³⁷⁰ The disclosure obligation would be triggered by receipt of a request for a determination under the DC Rules and then continue in effect until publication of the final determination.³⁷¹ Required disclosure could take the form of detailed position-level information or simply indicate whether the DC member held a long or short position in the relevant reference obligation. The second strategy—which could be employed on its own or in conjunction with the first—would be to require DC members to report and, if necessary, recuse themselves in the event of an actual or potential conflict of interest. A third party removal mechanism could also be employed. Indeed, this is almost precisely what the DC Rules currently contemplate for expert review panels.³⁷² In order to render these recusal/removal mechanisms more

³⁶⁸ See *ICE Benchmark Administration: Overview*, *supra* note 230.

³⁶⁹ See *supra* text accompanying note 217.

³⁷⁰ ISDA has stated that “[t]he industry has made significant progress towards . . . full transparency on the positions held . . . by DC members” such that it will be possible to determine whether a DC member is in fact voting its book. See *Determination Committees*, *supra* note 206, at 3–4. In reality, however, this statement is likely just aspirational.

³⁷¹ This obligation would thus require public disclosure of any *changes* in position during this period.

³⁷² See *supra* note 197 and accompanying text.

effective, DC members could be automatically disqualified from participating on any DC where their exposure to a reference obligation exceeded a specified threshold. The third and most radical strategy, meanwhile, would be to impose reference obligation-specific trading restrictions on DC members during the period beginning with receipt of the request for determination and ending with the final determination.

Upon close inspection, each of these strategies manifests potentially significant trade-offs. Position disclosure, for example, would impose substantial information costs on both DC members (who must *produce* the requisite information) and other market participants and public regulatory authorities (who must *digest* this information in order to generate a credible threat of market-based/regulatory sanctions). It would also put DC members at a disadvantage vis-à-vis the remainder of the marketplace by requiring them to disclose proprietary information, thereby discouraging them from acting as a dealer at a time when the costs of doing so are already on the rise.³⁷³ Disclosure obligations would also likely incentivize behavior designed to obscure the nature and extent of these positions. Compounding matters, it would be difficult to design a disclosure regime that captured positions in correlated assets that might be used by DC members to gain (or minimize) exposure to a given reference obligation. Indeed, the prospect of trading in correlated assets presents similar conceptual problems for both recusal/removal mechanisms and trading restrictions. The imposition of trading restrictions, meanwhile, would serve to suffocate dealer-intermediated markets, leaving market participants with even fewer trading options. Moreover, insofar as trading restrictions render DC members vulnerable to market movements which occur during the restricted period, they may have an adverse impact on a firm's overall financial position and, *in extremis*, financial stability. Ultimately, these costs may be significant, and must be weighed against the expected benefits associated with these strategies.

Fortunately, there exists a fourth and intuitively more desirable strategy. Rather than focusing on the rules by which DC members must abide when making decisions, why not focus on the *identity* of the decision-makers themselves? More specifically, why not simply allocate decision-making authority to parties who—unlike global derivatives dealers—are not inherently conflicted? In answering this

³⁷³ This is the result of reforms such as the Volcker Rule and the Basel III capital adequacy framework. For more information on these and other reforms and their impact on the market making functions of dealers, see Armour et al., *supra* note 47.

question, it is worth pointing out that the DC Rules already envision just such a class of independent parties: the external reviewers nominated by ISDA members to resolve determinations where the requisite supermajority threshold is not reached.³⁷⁴ Moreover, the DC Rules already include disclosure, recusal, and removal mechanisms for external reviewers in the event of actual or perceived conflicts of interest.³⁷⁵ Taking a page from the Wheatley Review, this internal governance mechanism could be augmented by introducing civil and criminal penalties for manipulating determinations, and by designating determinations as a controlled function (or its equivalent) under the relevant approved persons regime.³⁷⁶ Together, these reforms would reduce—if not altogether eliminate—the opportunities for abuse, and improve both ex ante vetting and ex post monitoring and enforcement by public regulatory authorities.

A second variant of this strategy would be to allocate responsibility for determinations to in-house legal counsel employed by DC members. Indeed, at least two DC members—and perhaps others—already employ this strategy.³⁷⁷ Intuitively, the threat of sanctions from the relevant professional licensing bodies (e.g. the New York State Bar Association or the United Kingdom Solicitors Regulatory Authority) would help reinforce existing governance arrangements. This threat could be further reinforced by ensuring that firms adhered to strict ethical firewalls governing the flow of information between the legal and trading functions by mandating disclosure of the identities of the individuals acting as DC members and, once again, by designating these activities as controlled functions (or their equivalents) under the relevant public regulatory regime.

The key to understanding the desirability of this strategy resides in the acknowledgement that the most important decisions made by DC members are essentially matters of contractual interpretation. Specifically, the question of whether a credit, restructuring, or other event has occurred requires DC members to review the relevant provisions of ISDA's credit derivatives documentation and determine whether they apply to a given set of facts.³⁷⁸ That these determinations

³⁷⁴ See *supra* note 196 and accompanying text.

³⁷⁵ See *supra* note 197 and accompanying text.

³⁷⁶ See *supra* notes 345, 352 and accompanying text.

³⁷⁷ This assertion is based on the Author's personal correspondence with market participants.

³⁷⁸ See *supra* text accompanying notes 183–84. At the same time, it is these decisions—along with those relating to the governance of the DC mechanism

are effectively *legal* in nature is reflected by the fact that at least some DC members already delegate this task to counsel.³⁷⁹ In this important respect, global derivatives dealers do not possess an innate comparative advantage over, say, commercial lawyers, legal academics, or independent financial professionals with experience designing, drafting, or negotiating ISDA credit derivatives documentation.³⁸⁰ As a result, there exists no shortage of fundamentally less conflicted, sufficiently expert parties who could perform essentially the same function as current DC members. Of course, the processes reflected in the current DC Rules would need to change in order to ensure that these new decision-makers could render determinations within the same expedited timeframes as existing DCs. A new appeals mechanism would also need to be developed. This, however, seems like a small price to pay to ameliorate the acute agency problems that threaten to undermine confidence in the current DC mechanism.

In the end, the technical details of these strategies, while clearly important, are not the principal takeaways from this Article. Financial markets will continue to change, and so too must the governance and regulatory strategies used to address market failures. Instead, the principal takeaways relate to how we approach the regulation of private market structures. As a preliminary matter, public regulatory authorities must have the legal authority to assert jurisdiction over market structures such as Libor and the DC mechanism, as well as organizations such as the BBA and ISDA.³⁸¹ They must also have wide

itself—that are also arguably the ones most prone to abuse under this strategy. In many cases, lawyers are likely to have less of a competitive advantage in terms of questions surrounding whether to hold an auction and what reference obligations it should include.

³⁷⁹ See *supra* note 377 and accompanying text.

³⁸⁰ See, e.g., *About Us*, PANEL RECOGNIZED INT'L MARKET EXPERTS FIN., <http://primefinancedisputes.org/about-us/> (last visited Nov. 17, 2014), *archived at* <http://perma.cc/A2LD-BNLP> (“A guiding principal [sic] of the organization is independence, which will distinguish it from industry associations and other financial market participants.”).

³⁸¹ Notably, prosecutions against panel banks for manipulating Libor have been brought by both financial conduct and antitrust authorities, along with agencies such as the DOJ, U.K. Serious Fraud Office, and Dutch National Public Prosecutor's Office. See *Antitrust Division Enters into First Deferred Prosecution Agreement (English, Japanese & Chinese)*, CADWALADER, WICKERSHAM & TAFT LLP (Feb. 27, 2013), <http://www.cadwalader.com/resources/clients-friends-memos/antitrust-division-enters-into-first-deferred-prosecution-agreement>, *archived at* <http://perma.cc/H2M3-3VJD>; *supra* note

ranging enforcement powers to deter and, where necessary, punish misconduct. More important than this formal legal authority, however, is a willingness on the part of these authorities to use this authority to proactively generate a credible threat of regulatory intervention. This threat is necessary to compensate for the absence of market-based sanctions stemming from the existence of positive network externalities, path dependency, and market power. Simultaneously, generating a credible threat of regulatory intervention requires that authorities allocate their scarce resources in ways that maximize the probability of identifying market structures that may be vulnerable to abuse. Indeed, beyond Libor and the DC mechanism, there are a great many other market structures—e.g. foreign exchange benchmarks,³⁸² the London gold fix,³⁸³ and so-called “dark pools”³⁸⁴—where the limits of private ordering may result in market failure. By identifying where these limits are present and evaluating their impact, public regulatory authorities may be able to more effectively target these resources toward where they are likely to yield the greatest impact.

VII. Conclusion

We do not generally think it is a good idea to permit judges to have a material interest in the cases they hear, to let students grade their own exams, or to allow referees to place bets on the sporting events they officiate.³⁸⁵ The salient question thus becomes: is there a

270 and accompanying text. Questions surrounding which of these authorities is best positioned to oversee private market structures is beyond the scope of this Article.

³⁸² See *Rigging Currency Markets: The FX Is in*, ECONOMIST, Oct. 12, 2013, at 88, 88.

³⁸³ See Nicholas Larkin, *No Clear Evidence of Gold Manipulation Seen by UK's FCA*, BLOOMBERG (July 2, 2014, 11:39 AM), <http://www.bloomberg.com/news/2014-07-02/fca-sees-no-clear-evidence-of-manipulation-during-gold.html>, archived at <http://perma.cc/MH8G-734L>; Eric Onstad, *Gold Price Benchmark Open to Manipulation: London Metal Exchange CEO*, REUTERS (June 10, 2014, 9:03 AM), <http://www.reuters.com/article/2014/06/10/gold-fix-lme-idUSL5N0OQ3S420140610>, archived at <http://perma.cc/U8S5-GBKF>; Liam Vaughan, *Gold Fix Study Shows Signs of Decade of Bank Manipulation*, BLOOMBERG (Feb. 28, 2014), <http://www.bloomberg.com/news/2014-02-28/gold-fix-study-shows-signs-of-decade-of-bank-manipulation.html>, archived at <http://perma.cc/YA6K-Y7QJ>.

³⁸⁴ See MICHAEL LEWIS, FLASH BOYS: A WALL STREET REVOLT 42 (2014).

³⁸⁵ See *supra* note 1 and accompanying text.

compelling reason to treat powerful financial intermediaries differently from these other delegated decision-makers to whom we grant, often enormous, discretion? *A priori*, there seems little justification for allocating virtually unconstrained discretion to these intermediaries to adjudicate issues that determine the payoffs under contracts—often worth millions of dollars—to which they are themselves counterparties. Within a perfectly competitive marketplace, this equilibrium would seem unlikely to take hold. In an opaque, concentrated, and intermediated market characterized by positive network externalities, path dependence, and power imbalances, however, all bets are off. The key question in such cases is whether the existing constellation of internal and external governance mechanisms adequately constrain the information, agency, coordination, and other costs at the heart of these market structures. In the case of Libor, the answer was a clear and resounding no.³⁸⁶ Perhaps the only difference in the case of the DC mechanism is that, rather than picking up the pieces, there is still scope to take meaningful *preventative* action—and we should.

³⁸⁶ See *supra* Part IV.