Benchmark Regulation

Gina-Gail S. Fletcher[*]

ABSTRACT: Benchmarks are metrics that are deeply embedded in the financial markets. They are essential to the efficient functioning of the markets and are used in a wide variety of ways—from pricing oil to setting interest rates for consumer lending to valuing complex financial instruments. In recent years, benchmarks have also been at the epicenter of numerous, multi-year market manipulation scandals. Oil traders, for example, deliberately execute trades to drive benchmarks lower artificially, allowing the traders to capitalize on the manipulated benchmarks. This ensures that later trades relying on the benchmarks will be more profitable than they otherwise would have been. Such manipulative practices have far-reaching and, in some instances, destabilizing effects on the financial markets.

In responding to these benchmark manipulation scandals, regulators have relied on the existing anti-manipulation framework, which is based solely on ex post prosecution of wrongdoers. The current framework treats benchmark manipulation as just another form of market manipulation. But, as more benchmark manipulation schemes come to light, they cast doubt on the effectiveness of this traditional approach to curbing a modern-day form of manipulation.

This Article provides the first in-depth analysis of the differences between benchmark manipulation and traditional forms of market manipulation. This analysis demonstrates that regulators cannot adequately address benchmark manipulation through ex post enforcement actions alone. In failing to recognize how benchmark manipulation differs from traditional manipulation, regulators miss a prime opportunity to oversee a key facet of the financial markets and safeguard market integrity. By focusing on the unique attributes of benchmarks that make them susceptible to manipulation,

[*] Associate Professor of Law, Indiana University Maurer School of Law. J.D., Cornell Law School. For their helpful comments on this project, many thanks to William Bratton, Brian Broughman, Guy-Uriel Charles, John C. Coates, James D. Cox, Christopher Drahozal, Joan Hemingway, Timothy Holbrook, Kristen Johnson, Patricia M. McCoy, Ajay Mehrotra, Donna Nagy, Aviva Orenstein, Veronica Root, and Hilary Sale. I am also grateful to the participants at the 2015 Duke University School of Law Culp Colloquium, SEALS 2015 Annual Meeting, National Business Law Scholars 2015 Annual Meeting, and the Midwestern Law and Economics 2015 Annual Meeting. Finally, I am grateful to Lauren Fletcher, Erin Buerger, and Antoni'A White for their invaluable research assistance. All errors and omissions are my own.

this Article puts forward a comprehensive prescriptive regulatory framework aimed at detecting and minimizing benchmark manipulation, rather than merely punishing wrongdoers after the fact.

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I. INTRODUCTION

Benchmarks have quietly become a ubiquitous feature of the financial markets.[1] A benchmark aggregates market information into a single metric that is used as the basis for pricing or valuing financial contracts or obligations. More specifically, a benchmark is a price, rate, or index that

1. DAVID HOU & DAVID SKEIE, LIBOR: ORIGINS, ECONOMICS, CRISIS, SCANDAL, AND REFORM 2–3 (2014), https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr667.pdf (discussing the use of LIBOR as a common benchmark for the health of financial markets).

measures one or more underlying assets, prices, or other data based on a formula, value assessment, or market survey.[2] Benchmarks are embedded into a wide variety of financial contracts—from consumer loans to long-term commodity contracts to complex financial derivatives.[3] For example, derivatives based on the leading interest rate benchmark—the London Interbank Offered Rate ("LIBOR")—have an estimated outstanding notional value of $220 trillion.[4] Yet many outside the financial markets were unaware of benchmarks until the revelation of the LIBOR scandal in 2012.

When a company or consumer is interested in obtaining a loan, LIBOR is one of the primary benchmarks banks and other lenders utilize to set interest rates.[5] Although it began as a way to estimate borrowing costs among banks, non-banks and other market actors have adopted LIBOR extensively throughout the financial markets.[6] LIBOR is widely referenced in pricing derivatives and numerous complex financial instruments, and it impacts interest rates applicable to everyday consumer loans—such as student loans, auto loans, and mortgages.[7] Given that LIBOR undergirds trillions of dollars of financial obligations, the presumption is that a central bank or other type of governmental agency oversees this benchmark, but this is not the case for LIBOR nor most other benchmarks.[8]

LIBOR is calculated from the submissions of leading banks estimating the rate at which they could borrow funds from other banks.[9] But, dating back to (at least) 2007, banks such as JPMorgan, Barclays, and UBS—known as panel banks—began to exploit their role as input providers to profit from derivatives that referenced the benchmark.[10] To manipulate the benchmark,

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2. ONNIG H. DOMBALAGIAN, CHASING THE TAPE: INFORMATION LAW AND POLICY IN CAPITAL MARKETS 89 (2015); INT'L ORG. OF SEC. COMM'NS, FINANCIAL BENCHMARKS: CONSULTATION REPORT 48 (2013), https://www.iosco.org/library/pubdocs/pdf/IOSCOPD399.pdf. While the term "benchmark" covers a broad range of metrics, it is important to specify the scope of this Article. First, the benchmarks analyzed herein exclude those created for public policy purposes such as consumer-price indices or inflation indices. Second, benchmarks that reflect the value of an investment portfolio, such as the Standard & Poor's ("S&P") 500, are also outside this Article's scope.

3. *See* FIN. STABILITY BD., REFORMING MAJOR INTEREST RATE BENCHMARKS 6 (2014), http://www.financialstabilityboard.org/wp-content/uploads/r_140722.pdf; HOU & SKEIE, *supra* note 1, at 2–3.

4. FIN. STABILITY BD., *supra* note 3, at 6.

5. *Behind the Libor Scandal*, N.Y. TIMES: DEALBOOK (July 10, 2012), http://www.nytimes.com/interactive/2012/07/10/business/dealbook/behind-the-libor-scandal.html.

6. *See* Michael J. De La Merced, *Q. and A.: Understanding Libor*, N.Y. TIMES: DEALBOOK (July 10, 2012, 10:38 PM), https://dealbook.nytimes.com/2012/07/10/q-and-a-understanding-libor.

7. *Id.*

8. *See infra* Part II.C.

9. De La Merced, *supra* note 6.

10. *See Understanding the Rate-Fixing Inquiry: The Banks: Global Financial Firms Reach Settlements*, N.Y. TIMES: DEALBOOK (July 28, 2014), http://www.nytimes.com/interactive/2012/07/16/business/dealbook/20120716-libor-interactive.html?_r=0#/#banks.

panel banks did not report the interest rate at which they could borrow to the British Bankers' Association ("BBA"), the trade association that administered LIBOR, as expected; rather, they reported rates based on whether they wanted LIBOR to rise or fall, so that their derivatives positions would become more profitable.[11] The extensive integration of LIBOR into the markets, coupled with a dearth of oversight, meant that panel banks were able to earn illicit profits from their misdeeds, and the markets and regulators were none the wiser until years later.[12]

Upon uncovering the LIBOR manipulation scheme, regulators worldwide fined all participating banks approximately $14 billion in total[13]—a pittance compared to the illicit profits earned throughout the life of the manipulation scheme.[14] The LIBOR manipulation scandal was expansive, impacting trillions of dollars of financial contracts—but, frighteningly, it typifies benchmark manipulation. Although the transfer of wealth to LIBOR's manipulators from the markets was significant, the scheme itself was not unique.

Indeed, scarcely had the dust settled when regulators uncovered a similar manipulation plot. The benchmark at the center of this scheme was one of the primary currency indices: the WM/Reuters foreign exchange benchmark.[15] Once again, financial institutions responsible for providing input data for the benchmark intentionally skewed information they submitted to move the benchmark in their favor. This enabled them to profit from their financial obligations that referenced the benchmark.[16] Similar to the LIBOR scandal, the scheme went undetected for nearly six years, and regulators imposed relatively weak monetary sanctions to punish those

11. *See The LIBOR Scandal: The Rotten Heart of Finance*, ECONOMIST (July 7, 2012), www.economist.com/node/21558281.

12. *See* James O'Toole, *LIBOR Scandal: Explaining the Libor Interest Rate Mess*, CNN: MONEY (July 10, 2012, 12:07 PM), http://money.cnn.com/2012/07/03/investing/libor-interest-rate-faq/index.htm.

13. Jamie McGeever & Katharina Bart, *UBS Falls on $8 Billion Estimate in FX Fine Research Report*, REUTERS (June 12, 2014, 8:27 AM), http://www.reuters.com/article/banks-fx-fines-idUSL5NoOT2I320140612 (stating UBS will pay $8 billion in Libor fines and that other banks had already paid $6 billion).

14. *See* Tom Osborn, *Is Libor in Its Death Throes?*, FIN. NEWS (Oct. 31, 2011), http://www.efinancialnews.com/story/2011-10-31/libor-death-throes; Matt Taibbi, *Everything Is Rigged: The Biggest Price-Fixing Scandal Ever*, ROLLING STONE (Apr. 25, 2013), http://www.rollingstone.com/politics/news/everything-is-rigged-the-biggest-financial-scandal-yet-20130425.

15. *See* Daniel Schäfer et al., *Regulators Slap $4.3bn Fines on Six Banks in Global Forex Probe*, FIN. TIMES (Nov. 12, 2014, 7:44 PM), http://www.ft.com/cms/s/0/aa812316-69be-11e4-9f65-00144feabdco.html#slideo; *infra* Part III.B.

16. *See* Liam Vaughan et al., *Traders Said to Rig Currency Rates to Profit off Clients*, BLOOMBERG (June 12, 2013, 1:06 PM), http://www.bloomberg.com/news/articles/2013-06-11/traders-said-to-rig-currency-rates-to-profit-off-clients.

involved.[17] These two examples are not exceptional. In recent years, there has been a spate of benchmark manipulation schemes—additional reports have come to light involving the manipulation of benchmarks linked to oil,[18] gold,[19] natural gas,[20] precious metals,[21] and even milk.[22] With each new scandal, U.S. financial regulators have responded with investigations, fines, and sanctions, but their reactions have been too little, too late.

As an aggregation of data, a benchmark provides information on an underlying asset that is both deeper and richer than information to which any single market actor has access.[23] These metrics enhance market efficiency by reducing information and transaction costs, because market actors are able to rely on the benchmark rather than compiling their own data. Benchmarks developed slowly and quietly in the markets as a useful tool to help gauge market prices and rates. But parallel regulatory oversight did not accompany this development. Consequently, the benchmark industry in the United States is entirely unregulated ex ante, despite the importance of these metrics to the wider financial markets.[24]

Regulators exclusively address benchmark manipulation schemes, if discovered, through prosecuting wrongdoers after the fact. The reliance of U.S. regulators on after-the-fact enforcement actions stems from their view that benchmark manipulation is akin to "traditional" market manipulation.[25] In sum, the current regulatory approach is one in which benchmarks are not

17. Schäfer et al., *supra* note 15.

18. Justin Scheck & Jenny Gross, *Traders Try to Game Platts Oil-Price Benchmark*, WALL STREET J. (June 19, 2013, 3:01 PM), http://www.wsj.com/articles/SB10001424127887324682204578517064053636892.

19. Madison Marriage, *Gold Price Rigging Fears Put Investors on Alert*, FIN. TIMES (Feb. 23, 2014, 8:19 AM).

20. Javier Blas, *Regulators Probe UK Natural Gas Market*, FIN. TIMES (Nov. 13, 2012, 8:41 AM), http://www.ft.com/cms/s/0/611cc5c2-2d02-11e2-9211-00144feabdco.html#axzz3nAIgP74g.

21. *See* Jean Eaglesham & Christopher M. Matthews, *Big Banks Face Scrutiny over Pricing of Metals*, WALL STREET J. (Feb. 23, 2015, 9:26 PM), http://www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801?mod=WSJ_hp_LEFTWhatsNewsCollection&cb=loggedo.11980235165828723 (discussing the DOJ's recent commencement of investigations into banks' potential manipulation of gold, silver, platinum, and palladium benchmarks).

22. Alison Fitzgerald, *Why Dairy Farmers Are in a Sour Mood*, BLOOMBERG (May 27, 2010, 4:00 PM), https://www.bloomberg.com/news/articles/2010-05-27/why-dairy-farmers-are-in-a-sour-mood.

23. *See* Gabriel Rauterberg & Andrew Verstein, *Index Theory: The Law, Promise and Failure of Financial Indices*, 30 YALE J. ON REG. 1, 13 (2013) ("Indices also ingeniously solve the collective action problem of too little information production. . . . Indices obtain private information by offering the prospect of liquidity and diversification to induce traders to share it, acting as a platform for information trading.").

24. *See infra* Part II.B.

25. *See* Andrew Verstein, *Benchmark Manipulation*, 56 B.C. L. REV. 215, 250 (2015) ("The United States has followed the traditional common law approach to novel wrongdoing: preserve substantial freedom, but create private or public causes of action to hold bad actors accountable for their misdeeds.").

subject to prescriptive regulation, and regulators address benchmark distortion through ex post remedial measures—a most ineffective combination.

This enforcement-focused approach to market manipulation, including benchmark manipulation, stems from efficiency concerns[26]—given the inherent difficulties in identifying manipulation before it occurs, it is inefficient to regulate it preemptively. Some argue that prescriptive anti-manipulation regulation would be at once too broad—capturing legitimate, non-manipulative trading—and too narrow—omitting manipulative practices that do not fall within the proscribed activities.[27] Per this line of reasoning, it is better for regulators to address manipulation schemes exclusively by prosecuting offenders when and as they arise.

But, as more benchmark manipulation schemes are revealed, it becomes increasingly evident that this ex post approach is insufficient to deter similar future misconduct.[28] The reason is simply that benchmark manipulation is not like other forms of market manipulation, and, consequently, it is not responsive to the current ex post regulatory framework. Leaving this industry unregulated on an ex ante basis and relying solely on ex post prosecution is ineffective because of how benchmarks are produced and used within the markets.[29] Continued reliance on the current regulatory approach will have detrimental consequences on market integrity, efficiency, and—given the widespread integration of benchmarks in the markets—stability.

This Article challenges the current approach to market manipulation as it applies to benchmarks, demonstrating that the efficiency concerns regarding ex ante manipulation regulation are not valid with respect to

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26. *See generally* Craig Pirrong, *Detecting Manipulation in Futures Markets: The Ferruzzi Soybean Episode*, 6 AM. L. & ECON. REV. 28 (2004).

27. *Id.*

28. *See* Joel Slawotsky, *Reigning in Recidivist Financial Institutions*, 40 DEL. J. CORP. L. 280, 282–87 (2015) ("The current prosecutorial and regulatory regime relevant to financial institutional misconduct is broken.").

29. This Article discusses ex ante/prescriptive/preemptive regulation to refer to a regulatory framework that outlines, in detail, permissible and/or impermissible activities. As such, describing the current framework as ex post simply implies that the rule in place is a broad one left to the interpretation of enforcement agencies or prosecutors after wrong-doing has occurred. For example, the Securities Exchange Act of 1934 broadly prohibits "the use of manipulative and deceptive devices" but does not provide much more in detail. Securities Exchange Act of 1934 § 10, 15 U.S.C. § 78j (2012). The disclosure requirements applicable to publicly traded companies, on the other hand, are much more prescriptive in nature. Those requirements lay out in great detail who must disclose what and when they must do so. Violation of this prescriptive framework is, of course, subject to ex post prosecution, so both ex post and ex ante regulation exist together. However, this Article seeks to delineate these two regulatory formats.

benchmark manipulation.[30] Although other scholars and policymakers have argued in favor of an enforcement-based regulatory approach to traditional market manipulation, this Article argues against sole reliance on the enforcement-based regulatory approach to benchmark manipulation. It draws a meaningful distinction between traditional market manipulation and benchmark manipulation, demonstrating that ex post enforcement actions are inefficient to deter benchmark manipulation or regulate benchmarks. Furthermore, the lack of government oversight exposes benchmarks to an avoidable source of manipulation, much to the detriment of the financial markets.

Benchmark manipulation is possible and profitable because of the innately conflicted process that underpins the production of a benchmark. All benchmarks are compiled using data contributed by entities that are also their primary consumers. The dual and conflicting role these contributor-consumer entities play in creating benchmarks exposes the metric to possible manipulative practices. Other aspects of how industry professionals use benchmarks in the market further exacerbate the potential for manipulation. These include the widespread integration of benchmarks in the financial markets, which amplifies the reach of benchmark manipulation schemes, and the importance of benchmark liquidity, which diminishes market discipline in the face of manipulation. Because of these features, enforcement actions are often inadequate.

To minimize the impact and likelihood of benchmark manipulation, the benchmark industry should be subject to ex ante regulation. This Article puts forward a comprehensive, prescriptive regulatory framework for U.S.-based benchmarks. The proposed regulatory regime would address the underlying motivations of benchmark manipulation, but also grant the benchmarking industry much-needed flexibility in self-governance. The Article lays out a two-tiered self-regulatory format mirrored on the governance approach to stock exchanges and futures markets. First, the benchmark industry would form a self-regulatory organization ("SRO") responsible for adopting, implementing, and enforcing prescriptive rules. Second, the SRO would be subject to the

30. *See* Daniel R. Fischel & David J. Ross, *Should the Law Prohibit "Manipulation" in Financial Markets?*, 105 HARV. L. REV. 503, 518–19 (1991) (arguing that market manipulation is self-deterring and does not require regulation); Stephen Craig Pirrong, *The Self-Regulation of Commodity Exchanges: The Case of Market Manipulation*, 38 J.L. & ECON. 141, 196–99 (1995) (arguing that ex ante regulation is inefficient because of the burdens imposed on the markets); Verstein, *supra* note 25, at 271–72 (arguing against a prescriptive framework for benchmarks because of efficiency concerns); *see also* Steve Thel, *$850,000 in Six Minutes—The Mechanics of Securities Manipulation*, 79 CORNELL L. REV. 219, 296–98 (1994) (contending that market manipulation is not self-deterring and must be regulated but through stronger enforcement actions). *But see* Jerry W. Markham, *Manipulation of Commodity Futures Prices—The Unprosecutable Crime*, 8 YALE J. ON REG. 281, 361–66 (1991) (advocating in favor of better defined anti-manipulation provisions to prevent market manipulation ex ante).

oversight of a relevant financial regulator, which could include the Securities and Exchange Commission ("SEC") or the Commodity Futures Trading Commission ("CFTC"). The proposed framework would involve the industry in its own regulation, allowing for tailored rules that do not stifle innovation or hamper efficiency, but also engage government oversight, taking into account the importance of this crucial aspect of the financial markets.

Part II lays the groundwork for the Article's main claim by discussing traditional market manipulation and the reasons for preferring ex post enforcement actions for these types of manipulation schemes. Part II also introduces the benchmark industry to highlight and explain differences between benchmark manipulation and traditional manipulation. Part III analyzes three case studies of benchmark manipulation to expound on the fundamental features of benchmarks and benchmark manipulation that render the industry ill-suited for an ex post regulatory approach. Part IV presents justifications both for taking an ex ante approach to regulating benchmarks and for employing a two-tiered, self-regulatory model. It also proposes a regulatory framework to address the aspects of the benchmark industry that make benchmarks susceptible to manipulation. Finally, Part V addresses possible critiques of the proposed framework.

II. MARKET MANIPULATION AND EX POST REGULATION

Market manipulation is as old as the markets themselves and was the impetus for the initial federal regulation of the financial markets.[31] Proscribing manipulation is key to market integrity and efficiency, but the expansive financial regulatory framework fails to define "manipulation."[32] As one scholar opined, "[m]anipulation is difficult to define . . . . [D]rawing a line between healthy economic behavior and that which is offensive has proved to be too subjective and imprecise to produce an effective regulatory tool."[33] For this reason, lawmakers, courts, and academics routinely differ on how to define manipulation and what should constitute manipulation in the markets.[34]

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31. *See generally* JERRY W. MARKHAM, LAW ENFORCEMENT AND THE HISTORY OF FINANCIAL MARKET MANIPULATION 14–16 (2014) (discussing market manipulation schemes, in both securities and commodities, that led to New Deal Legislation, such as the 1933 Securities Act, the 1934 Exchange Act, and the Commodities Exchange Act). See *infra* Part II.B for discussion of traditional forms of market manipulation.

32. Albert S. Kyle & S. Viswanathan, *How to Define Illegal Price Manipulation*, 98 AM. ECON. REV. 274, 274 (2008) ("Current US law does not explicitly define [manipulation].").

33. Robert C. Lower, *Disruptions of the Futures Market: A Comment on Dealing with Market Manipulation*, 8 YALE J. ON REG. 391, 392 (1991).

34. *See* Fischel & Ross, *supra* note 30, at 507–12. They argue that market manipulation is self-deterring because of the economic impossibilities of buying low and selling high—a necessary condition for a successful manipulation scheme. *Id.* at 547–49. In response, Professor Steve Thel refuted the idea that market manipulation was self-deterring and further argued that market

The absence of an agreed-upon definition of manipulation has not limited regulators' focus on punishing those who distort the markets for personal gain. In 2014, the SEC brought 63 cases alleging market manipulation, up from 50 such cases in 2013.[35] Rather than wrestle with the definitional issues of manipulation, lawmakers broadly proscribe abusive trading practices, and regulators prosecuted such actions ex post. Such an approach served regulators well as they sought to maintain market integrity because of the idiosyncrasies of traditional market manipulation schemes. Broad prohibitions against bad behavior coupled with targeted enforcement actions, therefore, were the optimal regulatory framework for addressing traditional market manipulation without hampering the market's efficiency. Subpart A analyzes the rationale for an ex post approach to traditional market manipulation. Afterwards, Subpart B describes traditional market manipulation and applies the analysis of Subpart A to demonstrate that the limited nature of these schemes justifies an enforcement-only approach.

A. EX POST REGULATION OF MARKET MANIPULATION

There is a rich scholarly debate surrounding the optimal form, structure, and timing of financial market regulations.[36] Modern law and economics theory posits that the sole legitimate reason for government regulation is to respond to market failure.[37] The expansive nature of the financial markets means that market failures manifest in distinct ways and the appropriate response will differ in accordance with these distinctions and regulatory goals. The regulatory goal with respect to market manipulation is straightforward: to deter manipulative behavior.[38] The question remains as to whether regulators should seek to regulate manipulative behavior before it occurs or only after the harm has taken place.

Generally, the timing of regulatory intervention in the financial markets depends on four factors: (1) the level of information available; (2) the effectiveness and feasibility of sanctions; (3) administrative costs of regulation; and (4) the net impact on market integrity, efficiency, and

manipulation was feasible and profitable without employing fraud or fictitious trades. *See* Thel, *supra* note 30, at 221–24. This debate, however, is beyond the scope of this Article because it is specific to "traditional" forms of market manipulation, which differ meaningfully from benchmark manipulation.

35. SEC. EXCH. COMM'N, YEAR-BY-YEAR SEC ENFORCEMENT STATISTICS, https://www.sec.gov/news/newsroom/images/enfstats.pdf (last visited Apr. 15, 2017).

36. *See generally* Kyle D. Logue, *In Praise of (Some) Ex post Regulation: A Response to Professor Galle*, 69 VAND. L. REV. EN BANC 97 (2016).

37. *Id.* at 97.

38. Although this is the primary goal of anti-manipulation regulation, in the absence of preventing manipulation the laws also seek to compensate manipulation victims and, in some instances, prevent wrongdoers from participating in the industry in the future. *See* Veronica Root, *Coordinating Compliance Incentives*, 102 CORNELL L. REV. (forthcoming 2017).

stability.[39] In weighing these factors, scholars have coalesced, by and large, around the notion that the government can best deter market manipulation through ex post prosecution of wrongdoers.[40]

First, with respect to information, if government regulators have inferior information about the conduct they intend to deter—whether about the magnitude of harm, nature of wrongdoing, or potential perpetrator—then legal intervention should take place after the harm has occurred.[41] For example, a trader may try to exploit her dominant market position to manipulate the market. While this is certainly illegal market manipulation, it is difficult to identify market actors who may engage in this form of manipulation in the future. If lawmakers tried to enact regulations to prevent such manipulation, the rules would necessarily be both over- and under-inclusive. Therefore, it is better to allow the markets to operate without restrictions that would deter legitimate transactions, yet not eliminate illegitimate ones,[42] and to regulate only when more accurate information is available.

Second, ex post regulation is preferable if sanctions are an effective deterrent for undesirable conduct. The effectiveness of sanctions depends on whether they can reflect the nature and magnitude of the harm.[43] With traditional manipulation, there is a high probability that regulators will be able to detect the offending conduct once it has occurred and impose the necessary fines on the wrongdoers.[44] Furthermore, penalties imposed on traditional market manipulators after the fact are more likely to reflect the level of harm the markets have suffered because of their schemes, thereby enabling restitution to victims in certain instances. Ex ante regulation of traditional manipulation, therefore, is not preferable because of the difficulty in foretelling the level of harm prior to its occurrence.

Third, the costs associated with intervention must be considered in deciding whether regulation ought to be prescriptive or reactive. The analysis must weigh the costs of monitoring and policing against the cost of investigating questionable conduct after it has occurred. Traditional manipulation is, for the most part, easy to detect, so it is unnecessary for

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39. STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 572–78 (2004).

40. *See* Pirrong, *supra* note 30, at 197–98 (noting how "the nature of manipulation is well suited to deterrence through harm-based sanctions").

41. SHAVELL, *supra* note 39, at 575–76.

42. Pirrong, *supra* note 30, at 196–97.

43. SHAVELL, *supra* note 39, at 576–77.

44. *See infra* Part II.B. This is because traditional market manipulation is transaction-based. Attempts to corner or squeeze the markets will be evident from trading volumes in a matter of days, in most cases. Jerry Markham, *Manipulation of Commodities Price Manipulation: The "Unprosecutable" Crime*, 8 YALE J. ON REG. 281, 294 (1991) ("The presence and effects of a corner also may be revealed by comparison of prices at the close of the delivery month with prices immediately thereafter.").

regulators to monitor the markets constantly.[45] For example, when the Hunt brothers attempted to manipulate the price of silver in 1979, regulators became aware of their schemes in a matter of months because of the observable impact it had on the price of silver.[46] Further, market forces will also play a role in detecting and punishing traditional manipulation.

Lastly, financial regulators are tasked with ensuring the integrity, efficiency, and stability of the markets, each of which market manipulation negatively impacts. Of these three, manipulation most obviously impacts market integrity. If investors do not believe that the markets are fair (i.e., that they have integrity), they are unwilling to enter them. Manipulation also impacts efficiency to the extent that such conduct results in the markets reflecting inaccurate information. Market efficiency depends on the markets incorporating accurate information once it becomes available;[47] manipulation impedes this process, making the markets less efficient. Manipulation less obviously also impacts market stability. It increases market volatility[48] which, in turn, can have a destabilizing—even if non-systemic—effect on the financial markets. Regulators must consider how the regulatory tradeoffs they make in one area may impact other areas and whether the timing of regulatory intervention is beneficial to the markets as a whole. Regarding traditional manipulation, regulators can best accomplish this through ex post enforcement actions.

Traditional market manipulation is well-suited for ex post enforcement actions because of the inherent limitations of these schemes. Consequently, waiting until regulators expose these manipulative schemes does not jeopardize the markets or impose sufficient harm to the markets to warrant ex ante regulation.

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45. This is not to imply that traditional manipulation is immediately identifiable; rather, that traditional manipulation does not take years, as is the case with benchmark manipulation.

46. *See generally* JEFFREY C. WILLIAMS, MANIPULATION ON TRIAL: ECONOMIC ANALYSIS AND THE HUNT SILVER CASE 103–06 (1995) (analyzing the impact of the Hunt brothers' trading on the daily price of silver).

47. *See* Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 554–59 (1984).

48. Benchmark manipulation impacts market stability by negatively impacting market forces such that the natural forces of supply and demand are not setting the price of the underlying. When the manipulation scheme ends or is revealed, the market's reaction may cause volatility in the market for the underlying as the market seeks to reestablish equilibrium. This can result in significant price swings in the underlying. *See* James O'Toole, *Oil-Price Manipulation: The Next Libor?*, CNN: MONEY (May 17, 2013, 12:17 PM), http://money.cnn.com/2013/05/17/news/economy/oil-price-libor.

B. THE LIMITS OF "TRADITIONAL" MARKET MANIPULATION

"Traditional" manipulation schemes (i.e., non-benchmark manipulation) include corners,[49] squeezes,[50] fictitious trades,[51] spoofing,[52] pump-and-dump,[53] and certain high-volume trading done to affect prices.[54] Such schemes are generally difficult to proscribe ex ante because lawmakers are limited in their ability to craft regulation to outlaw these schemes in a way that does not have a net-negative effect on the financial market. At the same time, traditional manipulation schemes face certain inherent limitations. They are limited in scope because: (1) they target single assets; (2) they are capital-intensive and will not be profitable in an informationally efficient market; and (3) they are not sustainable long term because regulators can detect them quickly.

A traditional manipulation scheme focuses on distorting the price of a single underlying asset, security, or commodity. In the commodities markets, this is done through corners or squeezes. In a corner, for example, a trader seeks to distort the price of a single asset by gaining and abusing her dominance in the market for the asset. The control the trader exerts over the underlying asset forces others in the market to transact with her at a monopolistic price.[55] In the securities market, acquiring a monopoly position is almost impossible, but pump-and-dump schemes may have a similar effect. In these schemes, manipulators feed false information into the market about a given company to distort the price and profit in subsequent sales or purchases of the same security.[56] The impact of these types of schemes is limited to a single asset, and the stability of the financial markets is not threatened. Such one-off, non-systemic instances of market manipulation do not require a complex system of prescriptive regulation; rather, robust enforcement actions are more effective to address these schemes as they arise.

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49. Fischel & Ross, *supra* note 30, at 549.

50. *Id.*

51. *Id.* at 542 n.178.

52. Charles R. Korsmo, *High-Frequency Trading: A Regulatory Strategy*, 48 U. RICH. L. REV. 523, 548 (2014).

53. *Id.* at 554 n.149.

54. *Id.* at 557.

55. *See* Shaun D. Ledgerwood & Paul R. Carpenter, *A Framework for the Analysis of Market Manipulation*, 8 REV. L. & ECON. 253, 264–65 (2012) (detailing Sumitomo Corporation's alleged cornering of the world copper market). Cornering a commodity is illegal under federal law. *See* 7 U.S.C. § 13(a)(2) (2012) (making it a felony for "[a]ny person to manipulate or attempt to manipulate the price of any commodity in interstate commerce, or for future delivery on or subject to the rules of any registered entity, or of any swap, or to corner or attempt to corner any such commodity").

56. *See* Tālis J. Putniņš, *Market Manipulation: A Survey*, 26 J. ECON. SURVS. 952, 955–56 (2012) (describing "pump-and-dump" manipulations).

In addition, these manipulation schemes are capital-intensive. Unless a manipulator naturally happens to be in a dominant market position,[57] she must expend significant capital in order to gain a strong enough position in the market such that will enable her to influence prices.[58] Further, once she has established her control over the market, she will have to invest additional capital to maintain her position. This includes, for example, additional purchases in order to maintain market dominance, storage fees in the case of physical commodities, and broker fees in the case of futures, options, or stock transactions.[59] Consequently, these schemes must hold the promise of spectacular profits to be worthwhile, given the significant up-front costs required to begin and continue manipulating the asset in order to turn a profit.

Profiting at all from these manipulative trades is questionable. Professors Daniel Fischel and David Ross argued that market manipulation is self-deterring because of the inherent difficulty of buying low and selling high in an informationally efficient market.[60] Even if a manipulator (1) gains dominance in a given asset class forcing others to transact with her and (2) pushes prices higher than they otherwise would have been in the absence of her manipulative behavior, she still faces an almost certain price decline when she sells the asset, which limits her potential profits.[61] The manipulator needs the asset's price to remain artificially high to profit from her manipulation, but once she begins selling it, prices will decrease to reflect its true price. Therefore, the manipulator must find a way to dispose of the asset without causing the price to decrease—a difficult feat given the laws of supply and demand.[62] Because the market naturally imposes limitations on traditional schemes, regulatory resources are best used to punish wrongdoers after the fact, rather than seeking to ferret out such behavior on an ex ante basis.

Lastly, these schemes are limited in terms of their lifespans. Traditional manipulation schemes are unsustainable long term not only because of the

57. This may be possible because of crop shortages or overproduction of a given commodity, but neither is commonplace nor likely if market forces are allowed to operate freely.

58. *See* Franklin Allen et al., *Large Investors, Price Manipulation, and Limits to Arbitrage: An Anatomy of Market Corners*, 10 REV. FIN. 645, 659–60 (2006).

59. These are the costs of transacting in the market that must be accounted for if a trader decides to engage in such manipulative activities. *See, e.g.*, Craig Pirrong, *Commodity Market Manipulation Law: A (Very) Critical Analysis and a Proposed Alternative*, 51 WASH. & LEE L. REV. 945, 954 n.20 (1994) (discussing the impact of the cost of deliveries on market manipulation schemes).

60. *See* Fischel & Ross, *supra* note 30, at 512–19.

61. Pirrong, *supra* note 30, at 144–45 (referring to this problem as "burying-the-body," i.e., the problem of selling to a market that has been starved of a commodity but keeping the price artificially high).

62. *See* Benjamin E. Kozinn, *The Great Copper Caper: Is Market Manipulation* Really *a Problem in the Wake of the Sumitomo Debacle?*, 69 FORDHAM L. REV. 243, 258 (2000).

capital they require, as discussed above, but also because of the informational efficiency of the markets. Market manipulation based on misinformation must be believable in order for a manipulator to profit from it. If the market can quickly determine that the information is untrue, then those wishing to profit from misinformation have a narrow window of time in which to act. This has two results in the markets. First, small, less liquid markets, such as microcap or penny stock companies, are more susceptible to manipulation through misinformation because of the difficulty of verifying information.[63] But this, once again, limits the potential market impact of such manipulative schemes to small segments of the market and is unlikely to have market-wide effect. Second, although liquid markets may also be victims of information-based manipulation, doing so requires the manipulators to take extensive steps to legitimize the information so that the markets will not disregard it out of hand.[64] Even then, the impact will be temporally restricted to a few hours and limited to a single stock.[65] Market actors will uncover the misinformation quickly, allowing the market to price the stock accurately.[66]

The ability of the markets to detect and respond to traditional market manipulation schemes justifies the enforcement-focused regulatory approach of U.S. financial regulations. Because these schemes are limited in scope, nature, and impact, the absence of an ex ante framework does not negatively impact financial markets as a whole, even if they are successful. Practically, implementing ex ante regulations to prevent traditional market manipulation would be cumbersome, costly, and ineffective.[67] From a regulatory standpoint, traditional manipulation schemes are best left to market forces to deter bad behavior and enforcement actions to punish the undeterred.

But, as discussed in Part III, the markets have evolved in many ways—including how wrongdoers accomplish market manipulation. Benchmarks have shifted the focus away from manipulation through market dominance or easily discredited misinformation to manipulation through the

63. *Microcap Stock: A Guide for Investors*, SEC: INVESTOR PUBLICATIONS (Sept. 18, 2013), https://www.sec.gov/reportspubs/investor-publications/investorpubsmicrocapstockhtm.html (stating that information on microcap companies is hard to ascertain because of the lack of public filings).

64. For example, a manipulator filed a fictitious tender offer from Avon Products, Inc. with the SEC's electronic filing system. News of the pending buyout sent Avon's stock soaring—rising as high as 20% above the pre-takeover announcement price. However, not long after the stock price rose, it fell, as the markets quickly discredited the false news. While the misinformation campaign impacted Avon's stock, the impact was only temporary, lasting less than a day. *See* Aruna Viswanatha, *In Suit, SEC Says Fake Avon Bid Was Work of Bulgarian*, WALL STREET J. (June 4, 2015, 9:10 PM), http://www.wsj.com/articles/sec-sues-ptg-capital-others-over-apparently-bogus-avon-products-bid-14334356oo.

65. *Id.*

66. *Id.*

67. *See generally* Fischel & Ross, *supra* note 30 (stating that market manipulation, specifically what this Article describes as traditional manipulation, is self-deterring and does not require ex ante regulation to prevent).

fundamental metrics on which the entire financial markets rely. The impact of benchmark manipulation, therefore, is not limited in scope, implementation, or timing, so an ex post response is ineffectual against these modern-day manipulation schemes. Given the noteworthy differences between traditional market manipulation and benchmark manipulation, it is dubious whether the current enforcement-based regime, which is well-suited for the former, is appropriate for the latter.

Subpart C introduces the benchmark industry as a first step in understanding how benchmark manipulation is accomplished in the financial markets.

C. *BENCHMARKS IN THE FINANCIAL MARKETS*

Most commodities are priced with reference to a benchmark, which has come to represent their de facto price to the markets.[68] For example, contracts for purchase and sale of most of the world's crude oil are priced according to the Brent Crude Oil Index.[69] The rise of benchmarks as key market metrics has shifted the focus of would-be manipulators. Given that for many markets, benchmarks have come to represent their assets' prices, manipulators no longer seek to manipulate, for example, gold, oil, or corn prices; rather, they target the respective benchmarks.

To better appreciate how wrongdoers can manipulate benchmarks—and how this manipulation differs from traditional market manipulation—it is necessary to understand how the markets use benchmarks, who is involved in their compilation, and how they are created.

1. Uses of Benchmarks

Benchmarks provide a comprehensive picture of the price or rate of an underlying asset, commodity, or security (collectively, "the underlying").[70] This results in numerous additional benefits to the financial markets and the market for the underlying.[71] For one, benchmarks are a rich source of information for the underlying and, consequently, enhance market transparency and liquidity. As an aggregation of numerous data points into a single number, benchmarks reduce or eliminate the need for market actors to conduct specific investigations into the market of the underlying. Rather, the markets rely on the benchmark as representative of the underlying. With each party relying on the same information that neither produced,[72] the

68. Verstein, *supra* note 25, at 217–18.

69. *See infra* Part III.C.

70. *See* Rauterberg & Verstein, *supra* note 23, at 2–5 (discussing the importance of Libor as a benchmark for investors).

71. "Underlying asset" will be shortened to "underlying" throughout the Article.

72. As will be discussed *infra*, each may have contributed to providing the data on which the benchmark is based.

market for the underlying is more liquid because the parties are able to transact more easily.

Additionally, the markets are more transparent because market actors contribute more information to the benchmarks to enhance their accuracy. By aggregating the knowledge of the collective markets, benchmarks provide information that benefits all market actors. Recent research found that benchmarks provide transparency in over-the-counter ("OTC") derivatives, one of the more opaque segments of the financial markets.[73] In their research, Professor Darrell Duffie and his colleagues found that "[b]y reducing the informational disadvantage of 'buy-side' market participants relative to dealers, benchmarks encourage greater market participation, lower the cost of delays associated with 'shopping around' for a better price, and improve the ability of OTC markets to efficiently match buyers with the most cost-effective sellers, and vice versa."[74] Benchmarks, therefore, enhance the accuracy of the markets and make them more attractive for others to enter, further augmenting liquidity.

Relatedly, banks, issuers, and other market participants use benchmarks as contract referents as a way of pricing or valuing financial obligations, most notably with derivatives. Indeed, the development of benchmarks and growth of derivatives have been symbiotic.[75] Derivative contracts rely on benchmarks as a pricing mechanism, which allows market actors to hedge against risks within the markets.[76] Linking these derivatives to a relevant benchmark has simplified structuring a financial instrument that addresses the risks particular to the underlying. Interest rate derivatives, for example, arose from the need of lenders to hedge against the risk of rising interest rates after they had made a loan.[77] As a means of pricing, most interest rate derivatives reference an interest rate benchmark.[78] Benchmarks, therefore, allow market actors to tailor their derivative products to specific risks by providing comprehensive pricing information on the underlying. Furthermore, using benchmarks as a price reference reduces the possibility of opportunism on the part of either party, which in turn lowers contracting costs and possible future adjudication costs.[79]

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73. *See* Darrell Duffie & Piotr Dworczak, *Robust Benchmark Design* 3–5 (Nat'l Bureau of Econ. Research, Working Paper No. 20540, 2014), http://www.nber.org/papers/w20540.pdf.

74. Darrell Duffie et al., *In Support of Transparent Financial Benchmarks*, VOX (Feb. 16, 2015), http://www.voxeu.org/article/transparent-financial-benchmarks.

75. Vincent Brousseau et al., *The LIBOR Scandal: What's Next? A Possible Way Forward*, VOX (Dec. 9, 2013), http://www.voxeu.org/article/libor-scandal-and-reform.

76. Gina-Gail S. Fletcher, *Hazardous Hedging: The (Unacknowledged) Risks of Hedging with Credit Derivatives*, 33 REV. BANKING & FIN. L. 813, 830–32 (2014).

77. *See generally id.* (discussing the use of derivatives as a way to hedge against risks).

78. Rauterberg & Verstein, *supra* note 23, at 2–5; *see also* Fletcher, *supra* note 76, at 824–32 (defining credit derivatives).

79. Rauterberg & Verstein, *supra* note 23, at 8–12.

2. Benchmark Industry

A key goal of benchmarks is to be representative of the underlying markets on which they are based.[80] This depends, in significant part, on the data the benchmark administrator selects and how it decides to calculate the benchmark. While benchmarks vary across markets in how they are compiled and who participates in the process, there are three categories of participants common to all: input providers, end users, and benchmark administrators.[81]

Input providers contribute the information that constitutes the basis for the benchmark. Possible data sources range from executed transactions on a given platform to estimates from experts in the underlying market.[82] The representativeness of a benchmark depends in large part on its data source—the input providers.[83] As the foundation of the benchmark, the breadth of data contributors correlates to the benchmark's robustness and its susceptibility to manipulation.[84] Thus, the greater the number of input providers, the less likely benchmark distortion is to occur.[85]

At the other end of the production chain are end users, or benchmark consumers. The foremost consumers are financial institutions that use benchmarks as pricing or valuation tools in financial derivatives. Another significant category of benchmark consumers are derivative issuers,[86] such as banks, insurance companies, hedge funds, and other large actors in the financial market.[87] Notably, end users and input providers often overlap, as entities are more likely to rely on benchmarks that reflect their transactions in the market. In many ways, this is unsurprising: Parties use benchmarks to reduce information and transaction costs, but they still want the information source to reflect their trades, as an indicator of its accuracy. This also means that those who use the benchmark have a direct and conflicting interest in it to the extent that they are input providers. This conflict is present in all benchmarks and is the basis for benchmark manipulation.

The benchmark administrator intermediates between input providers and end users. Administrators compile inputs, calculate benchmarks, and disseminate the outputs to end users. They make key determinations such as

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80. DEUTSCHE BÖRSE GRP., THE BENCHMARK INDUSTRY: AN INTRODUCTION AND OUTLOOK 10–11 (2013).

81. *Id.*

82. *See* FIN. STABILITY BD., *supra* note 3, at 10 (describing areas in which market participants believe they need reference rates).

83. *See* Duffie & Dworczak, *supra* note 73, at 5.

84. *Id.*

85. *Id.*

86. DEUTSCHE BÖRSE GRP., *supra* note 80, at 10.

87. *See generally* John Kiff, *What Is LIBOR?: The London Interbank Rate Is Used Widely as a Benchmark but Has Come Under Fire*, 49 FIN. & DEV. 32 (2012), http://www.imf.org/external/pubs/ft/fandd/2012/12/pdf/basics.pdf.

identifying input sources, deciding which inputs to include in the benchmark calculation, and choosing whether to weigh inputs differently depending on their contributors. Benchmark administrators have significant discretion over the benchmark and, by extension, over how the benchmark reflects the market.[88]

Benchmark administrators are typically private third parties that aggregate relevant market data for an underlying based on self-designed methodologies. There are two broad categories of benchmark administrators. The first are administrators whose primary purpose is to create benchmarks. These administrators calculate indices for clients that have subscribed their services.[89] Price reporting agencies fall within this category of administrators—they compile data and produce benchmarks that underpin numerous commodities' markets.[90] The second type of administrators provide benchmarks as a secondary source of business. This group may include exchanges, banks, and trade organizations. LIBOR, for example, prior to the discovery of its manipulation, was done under the auspices of the British Bankers' Association ("BBA"), a trade association of banks based in London.

In compiling benchmarks, administrators, regardless of type, must grapple with whether and to what extent they will be transparent with their methodology, given that the level of discretion they exercise could undermine the market's perception of their benchmarks' integrity. In order for the market to respect and rely on their benchmarks, administrators must provide market participants with enough information so that they see the benchmarks as truly reflective of the underlying markets. But in making the process transparent, benchmark administrators may also expose benchmarks to manipulation. Input providers may selectively trade or only provide data that they know will be used to bias the benchmarks in their favor. Administrators must balance the need for some transparency against the potential manipulation that may result from too much transparency. Further, market actors may also question benchmark integrity because of an administrator's conflict of interest. Namely, administrators may also be (or have a material interest in) end users or input providers. This conflict also exposes benchmarks to potential manipulation and is even more problematic because of the administrator's essential role in the benchmark production process.

The overlapping roles of the three primary participants in the benchmark process create significant conflicts of interest that may result in market manipulation. As benchmarks have come to replace the price of the

88. DEUTSCHE BÖRSE GRP., *supra* note 80, at 10.

89. Rauterberg & Verstein, *supra* note 23, at 25.

90. A prominent example of a price reporting agency is S&P Global Platts—a leading commodities benchmark provider. *Global Commodity Prices—Assessments & Methodologies*, S&P Global Platts, http://www.platts.com/price-assessments (last visited Apr. 14, 2017).

underlying asset, manipulation of the benchmark is manipulation of the underlying, but with none of the limitations attendant to traditional manipulation.

Part III analyzes three case studies of benchmark manipulation to demonstrate how this form of market manipulation is dissimilar to traditional market manipulation, such that ex post enforcement actions are not enough to deter, detect, and meaningfully sanction manipulators.

III. BENCHMARK MANIPULATION

Traditional market manipulation is difficult to accomplish because of its structural limitations and the ability of the markets to respond and limit its impact and viability. These limitations do not, however, similarly affect benchmark manipulation, nor are market forces able to mitigate it. Biasing a benchmark has a greater market impact than traditional market manipulation because of the way in which these metrics are produced and utilized in the markets. Unlike attempts to corner the market for an entire commodity that require significant outlay of capital, benchmark manipulation may have the same impact with little or no investment if input providers distort contributed data or administrators exploit their conflicted positions.

Benchmark manipulation differs in its implementation, scope, and market impact from traditional market manipulation schemes because of four key characteristics.

First, benchmarks are innately conflicted because of the overlapping roles of contributors, end users, and administrators. By using benchmarks while occupying various positions in the benchmark production chain, these actors have direct and conflicting interests in the benchmark outcome. Exploitation of this conflict is not only feasible, but it can successfully result in biasing the benchmark in the manipulator's favor.

Second, benchmarks require a level of transparency for the markets to "buy in" and become reliant on them. However, once administrators disclose information about which inputs they use and how they compile them, data providers are able to submit self-interested information to distort the benchmark in their favor. This paradox of transparency has serious implications for the susceptibility of benchmarks to manipulation.

Third, benchmarks are broadly integrated into the markets, which magnifies the effect of their manipulation. While a benchmark is specific to an underlying asset, market actors use them well beyond the present market for the underlying. Oil benchmarks do not merely affect the price of oil today; rather, they alter the pricing of oil-based derivatives contracts that reference the benchmark, as well as any payouts that are valued per the oil benchmark. The broad-based integration of benchmarks means that their manipulation has significant ripple effects throughout the markets, particularly that of the underlying.

Finally, market discipline is absent when a benchmark's underlying market is liquid, because the market will not stop using the benchmark even if it is compromised. This is especially true when there are no alternatives to the benchmark. The market's inability to exert any influence over a distorted but liquid benchmark means that once a benchmark has achieved liquidity, market discipline is no longer a credible limitation on bad behavior.

In the subparts that follow, three case studies are examined in detail to demonstrate how these four factors manifest in benchmark manipulation. Through these case studies it is apparent that not only is benchmark manipulation meaningfully different from traditional manipulation, but, importantly, that these differences limit the effectiveness of an ex post enforcement-focused regulatory regime. A prescriptive regime, therefore, is necessary to address benchmark manipulation.

A. INTEREST RATE

Interest rate and related benchmarks are among the most widely used in the financial markets[91] because they underpin a wide variety of financial instruments. Banks first developed interest rate benchmarks because they wanted an average interest rate for commercial and interbank loans.[92] Since their introduction, interest rate benchmarks have dominated the financial markets. One study estimated that approximately $300 trillion in notional value of derivative contracts are linked to various interest rate benchmarks.[93]

The most widely referenced interest benchmarks are those based on unsecured interbank borrowing—LIBOR, Tokyo Interbank Offered Rate ("TIBOR"), and European Interbank Offered Rate ("EURIBOR") (collectively, the "IBORs").[94] These benchmarks were among the first of any industry to be introduced to the markets.[95] As a result, the IBORs became the leading market standard, used in innumerable financial products to manage interest rate risk.

Interest rate risk is common to most businesses—financial and non-financial alike—which propelled the IBORs far beyond the interbank borrowing market. Creditors routinely used the IBORs to set the rates for commercial lending and compute interest rate payments of everyday consumers.[96] As a representation of the rate at which some of the most secure borrowers would be willing to lend to each other, the IBORs were considered

91. *See* ROSEMARIE SANGIUOLO & LESLIE F. SEIDMAN, FINANCIAL INSTRUMENTS GL.02 (2009).

92. Landon Thomas, Jr., *Trade Group for Bankers Regulates a Key Rate*, BUS. STANDARD (July 9, 2012), http://www.business-standard.com/article/finance/trade-group-for-bankers-regulates-a-key-rate-112070900076_1.html.

93. FIN. STABILITY BD., *supra* note 3, at 6.

94. *Id.*

95. *See* Thomas, *supra* note 92.

96. *See* Kiff, *supra* note 87, at 32.

a useful starting point to determine lending rates between other parties.[97] Consequently, it was not uncommon to see interest rates on consumer loans being quoted, for example, as "Libor rate plus 2%."[98]

Administrators calculate the IBORs through a simple process—averaging submissions from contributing banks after discarding the highest and lowest quartiles.[99] Panel banks do not base their submissions on transaction data; rather, they submit their estimated cost of unsecured interbank borrowing.[100] The banks that submit inputs for the IBORs are large, international financial institutions. For example, input providers for the U.S. Dollar LIBOR between 2007 and 2010 included JPMorgan, Bank of America, Barclays Bank, and HSBC.[101] Administrators select panel banks based on their market volume, reputation, and expertise in the underlying currency.[102] Notably, the IBORs were fully transparent—meaning that information regarding the method of calculation, source of the inputs, and data provided were completely and almost immediately available to the markets.

The first signs of trouble with the interest rate benchmarks surfaced in 2008, when the media initially raised concerns regarding U.S. Dollar LIBOR calculations. A *Wall Street Journal* article first questioned whether panel banks were misreporting their borrowing rates to conceal growing liquidity issues.[103] However, it was not until the summer of 2012 when Barclays admitted to a multi-year manipulation of its LIBOR submissions that the scheme came to a

97. *Id.*

98. *See* James O'Toole, *LIBOR Scandal: Winners and Losers in Libor Mess*, CNN: MONEY (July 12, 2012, 5:10 AM), http://money.cnn.com/2012/07/12/investing/libor-consumers.

99. *See* MARC HENRARD, INTEREST RATE MODELLING IN THE MULTI-CURVE FRAMEWORK: FOUNDATIONS, EVOLUTION AND IMPLEMENTATION 198–200 (2014).

100. LIBOR submissions are in response to the specific 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 11 am [London time]?" *See* WHEATLEY REVIEW, THE WHEATLEY REVIEW OF LIBOR: INITIAL DISCUSSION PAPER 50 (2012), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191763/condoc_wheatley_review.pdf.

101. Stacey P. Slaughter & Thomas F. Berndt, *Interest-Rate Ruse: Understanding the LIBOR Scandal*, LAW360 (Aug. 15, 2012, 12:28 PM), http://www.law360.com/articles/369340/interest-rate-ruse-understanding-the-libor-scandal.

102. *See* Kiff, *supra* note 87, at 32; Mike Segar, *Libor Lies: 13 Giant Lenders Sued over the Benchmark Rate Riggin*, RT (Sept. 24, 2013, 2:09 PM), http://www.rt.com/business/jpmorgan-libor-banks-sued-268.

103. Carrick Mollenkamp, *Bankers Cast Doubt on Key Rate Amid Crisis*, WALL STREET J. (Apr. 16, 2008, 12:01 AM), http://www.wsj.com/articles/SB120831164167818299. Although the regulatory inquiries started in the mid-2000s, some claim the manipulation started long before: "'Fifteen years ago the word was that LIBOR was being rigged,' says one industry veteran closely involved in the LIBOR process. 'It was one of those well kept secrets, but the regulator was asleep, the Bank of England didn't care and . . . [the banks participating were] happy with the reference prices.'" ECONOMIST, *supra* note 11 (alteration in original).

head.[104] By the fall of 2012, financial regulators in the United States launched investigations into the interest rate benchmark submissions of 16 panel banks.[105] Within the following year, they made similar allegations of misconduct against all the IBORs, and investigations followed suit.[106]

The IBORs scheme had all the fundamental features of benchmark manipulation that renders ex post enforcement actions ineffective. The IBORs were deeply, but openly, conflicted. The panel banks—which comprised of a small pool of between 12 and 18 banks[107]—were the primary issuers of financial derivatives that referenced the IBORs, giving them a direct interest in the rise or fall of the quoted interest rates.[108] Participating banks, therefore, were able to establish the terms of derivatives and impact their ability to profit off of them. And the market knew this. Counterparties to derivatives with panel banks were aware that contributing banks were also consumers of the IBOR benchmark as product issuers that created and sold financial instruments using the IBORs as a referent.[109]

The IBORs' conflict not only stemmed from the standard input provider/end user conflict of interest present in all benchmarks, but the fact that banking trade associations were the benchmark administrators, compounded it.[110] These trade associations represented the interests of the IBOR panel banks and, therefore, were far from impartial. The response of the benchmark administrators when they were notified of possible manipulation of the contributed data highlights the effect of this conflict. Specifically with respect to LIBOR, regulators put the BBA on notice about

104. Jean Eaglesham & Max Colchester, *Interest Rate Probe Escalates: Barclays Agrees to Pay Record Fine; Email Shows Traders Tried to Manipulate Libor*, WALL STREET J. (June 28, 2012, 8:06 AM), http://www.wsj.com/articles/SB10001424052702304830704577493092589081130.

105. Reed Albergotti & Jean Eaglesham, *9 More Banks Subpoenaed over Libor*, WALL STREET J. (Oct. 25, 2012, 11:09 PM), http://www.wsj.com/articles/SB10001424052970203897404578079413742864842.

106. *See* Ben McLannahan, *Japanese Banks Accused of Tibor Fixing*, FIN. TIMES (Feb. 6, 2013, 2:17 PM), http://www.ft.com/intl/cms/s/0/792d5b58-7010-11e2-8785-0144feab49a.html#axzz3ktgsuGoo (describing how a Tokyo trader accused Japanese banks of price fixing).

107. The IBORs were available in different currencies and in each currency for different maturity dates. *See* ICE BENCHMARK ADMIN., ROADMAP FOR ICE LIBOR 5 (2016), https://www.theice.com/publicdocs/ICE_LIBOR_Roadmap0316.pdf. The number of panel banks varied for each currency and tenor. *Id.*

108. *See* Darrell Duffie & Jeremy C. Stein, *Reforming LIBOR and Other Financial Market Benchmarks*, 29 J. ECON. PERSP. 191, 196–98 (2015) (discussing bank motives for manipulating benchmarks).

109. *See* Sharon E. Foster, *Harm to Competition and the Competitive Process: A Circular Charade in the LIBOR Antitrust Litigation*, 10 BYU INT'L L. & MGMT. REV. 91, 94–95, 104 (2014); ECONOMIST, *supra* note 11 ("[T]hose involved in setting the rates have often had every incentive to lie, since their banks stood to profit or lose money depending on the level at which LIBOR was set each day.").

110. The BBA and the Japanese Bankers Association, for example, administered LIBOR and TIBOR, respectively. These associations represented the interests of their members and were not subject to regulatory oversight of their home countries.

questionable submissions as early as 2007, yet it responded weakly.[111] On learning of allegations that banks were deliberately biasing their LIBOR submissions downwards, the BBA wrote letters to the submitters "reminding them of the [LIBOR submission] definition and urging them to submit accurate rates."[112] When considered as a whole, this meant that the data contributors, administrators, and product issuers for the IBORs were the same entities—so the IBORs were conflicted at every turn.

With respect to transparency, the IBORs were the most transparent benchmarks in the market.[113] The identities of panel banks were known to the markets, in addition to each bank's interest rate submission, which the administrator disclosed daily.[114] Input providers also knew how administrators would calculate their submissions in creating the respective IBORs.[115] This level of transparency enabled input providers to "game the system" to their advantage. Working in collusion, panel banks submitted false inputs specifically designed to influence the IBORs' calculation, ensuring that the rate would move in their favor.[116] Transparency, therefore, was a double-edged sword—at the beginning, it bolstered the integrity of the benchmark in the markets, but in the end it provided the manipulators with a roadmap to maximizing their manipulative practices. In addition, transparency allowed panel banks to be so proficient at their manipulative schemes that they were able to keep it going for numerous years undetected.

As discussed above, the IBORs are one of the most-used benchmarks in the financial markets. In theory, a benchmark as innately conflicted as any of the IBORs should not have had the level of market integration that those benchmarks enjoyed. Yet the markets gobbled them up, embedding them into contracts with other parties and, more importantly, accepting them as a pricing mechanism in their derivative contracts with panel banks in spite of the blatant conflicts of interest. The broad integration of IBORs throughout the market amplified the expected profits of the manipulators, but with significantly less effort than a traditional manipulation would require. A derivative contract tied to LIBOR, for example, could net profits in the millions for a manipulator. But a single such derivative contract does not necessarily limit the manipulator; rather, she may have several such contracts with different counterparties. This is exactly what happened with the LIBOR

111. Gavin Finch & Liam Vaughan, *BBA Was Told Banks Lied About Libor to Boost Profits in 2007*, BLOOMBERG (June 5, 2015, 10:57 AM), http://www.bloomberg.com/news/articles/2015-06-05/bba-told-banks-were-lying-about-libor-to-boost-profits-in-2007.

112. *Id.*

113. Stephen M. Bainbridge, *Reforming LIBOR: Wheatley Versus the Alternatives*, 9 N.Y.U. J.L. & BUS. 789, 828 (2013).

114. *See id.* at 823.

115. *See id.* at 797.

116. *Id.*

manipulation scheme. The impact of manipulating the IBORs had far-reaching, market-wide consequences, with some wondering whether there would be systemic repercussions for the financial markets.[117]

Lastly, the cost of liquidity is readily apparent with respect to the IBOR manipulation scheme. Once the media revealed and regulators confirmed the IBORs manipulation scheme, the markets did not transition away from these benchmarks. Instead, the markets continued to use them because there were no alternatives available.[118] Because the IBORs were firmly embedded in the markets, they had become "basin[s] of attraction," which meant that they were the sole benchmarks of their kind.[119] Instruments that referenced the IBORs were liquid and standardized, which enhanced their tradability.[120] Consequently, as IBORs-referencing instruments became more liquid, financial institutions discarded alternate interest rate benchmarks in favor of the IBORs. The benefit of using a more liquid benchmark for the underlying meant that if manipulators later compromised the benchmarks, market participants had no alternatives. In exchange for the liquidity of the IBORs, market actors were irreversibly tied to them even when they no longer accurately reflected the underlying market.

The cost of liquidity, therefore, was the loss of the market's ability to discipline the IBORs through exit. To most market actors, the benefits of using a liquid benchmark outweighed the potential losses from its distortions. Furthermore, because of the widespread integration of the IBORs, any possible threats to abandon them would ring hollow. This is all the more true because the primary users of the interest rate benchmarks were the panel banks that contributed data for its calculation—banks that stood to profit from manipulating the IBORs. In the absence of market discipline, there is no natural limit on benchmark manipulation as there is with traditional manipulation.[121]

The IBORs manipulation schemes are a quintessential example of benchmark manipulation. The IBORs were deeply conflicted, and those conflicts were the foundation for their manipulation; the transparency paradox made manipulating the IBORs more likely; market integration of the IBORs amplified the scope of the manipulative scheme exponentially; and the IBORs liquidity made market discipline impotent.[122] All told, the IBORs manipulation was able to continue for approximately five years in no short measure because of the absence of regulatory oversight.

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117. *See generally id.*

118. *Id.* at 846.

119. Duffie & Stein, *supra* note 108, at 195–96.

120. *See id.* at 193 (discussing traders' preference for high-liquidity).

121. Verstein, *supra* note 25, at 218.

122. *See* Duffie & Stein, *supra* note 108, at 192–93.

B. FOREIGN EXCHANGE

Analysts consider the foreign exchange market to be "the largest and most actively traded . . . in the world," where daily global trades average around $5.3 trillion per day.[123] Traders base most of these transactions on the WM/Reuters ("WM/R") Closing Spot Rates (collectively, "the WM/R rates").[124] As the most important foreign exchange benchmarks globally, market actors use the WM/R rates extensively.[125] Fund managers use the WM/R rates to calculate the day-to-day values of their portfolios, indices price multi-country equities in reliance on them, and counterparties use the rates to value trillions of dollars' worth of derivative and other financial contracts.[126] As the only standardized currency-reference rate, market participants have gravitated to the WM/R rates to reduce transaction costs and pricing inefficiencies.[127]

Unlike the IBORs, administrators base the foreign exchange benchmark on actual transactions, not market estimates, executed within a narrow time period. Specifically, the WM/R rates are the median of executed foreign exchange transactions that occurred 30 seconds before and after 4:00 p.m. GMT, known as the "fix window."[128] Additionally, administrators used only those trades done on the WM/R platform in the benchmarks' calculation.[129] These restrictions meant that traders had one minute to execute transactions and to do so at a favorable rate.[130] This was particularly difficult if traders had a large currency position to trade whether for themselves or on behalf of a client.[131]

The fix window resulted in greater liquidity in the foreign exchange market and also increased robust and competitive currency pricing, mostly during that 60-second window.[132] But it also augmented the possibility of manipulators distorting the markets in their favor. In 2012, some market participants complained of possible manipulation of the WM/R rate to U.K. financial authorities.[133] By late 2013, regulators in three different countries

123. *In re* Foreign Exch. Benchmark Rates Antitrust Litig., 74 F. Supp. 3d 581, 586 (S.D.N.Y. 2015).

124. *See* FIN. STABILITY BD., FOREIGN EXCHANGE BENCHMARKS 6 (2014), http://www.financialstabilityboard.org/wp-content/uploads/r_140930.pdf (discussing the purpose of the WM/R rates).

125. The WM/R rates are available for all major international currencies.

126. FOREIGN EXCH. PROF'LS ASS'N, FOCUS ON: FOREIGN EXCHANGE BENCHMARKS 2 (2015), https://fxpa.org/wp-content/uploads/2015/06/fxpa-benchmarks-5-22final.pdf.

127. *See id.* at 1.

128. *Id.* at 3. This window was widened to five minutes in 2015.

129. *Id.* at 6.

130. *See id.* at 1.

131. *Id.* at 3.

132. *See generally id.*

133. *Id.* at 4.

announced formal probes into whether banks were manipulating the WM/R rate.[134] In 2015, the six largest banks in the foreign exchange markets reached settlement agreements with government regulators for approximately six billion dollars in fines.[135]

To distort the WM/R rates, traders at different banks discussed their orders ahead of the fix window to align their strategies.[136] Traders also shared information about upcoming client orders to improve the chances of moving the benchmark in their favor so they could profit from their clients' transactions. To maximize profit from trading at the fix window, traders would enter into transactions ahead of known client orders in order to move the benchmark, thereby affecting the exchange rate at which they executed them. They would also execute these transactions in installments during the one-minute window to exert the most pressure possible on the WM/R rates.[137] Entering into a number of smaller transactions, as opposed to a single large trade, had a greater impact on the benchmark because administrators based it on the median of transactions.[138]

Owing to the sheer size of the market, and that the benchmarks are transaction based, analysts considered manipulating the foreign exchange markets and the WM/R rates to be a near impossibility.[139] In reality, the size of the foreign exchange market did not immunize the WM/R benchmarks against manipulation, but it did make it attractive to would-be manipulators because of the large potential profits. By moving the benchmark in a particular direction in anticipation of a client's order, traders profited handsomely off client trades and distorted the currency markets for all market participants.[140]

Similar to the IBORs manipulation, the WM/R manipulation possessed the same four fundamental features that made the benchmarks' manipulation feasible, sustainable, and profitable. Most obvious is the inherent conflict of interest. Banks, as input providers, were also the primary consumers of the

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134. *Id.*

135. *See, e.g.*, Press Release, Office of Pub. Affairs, Dep't of Justice, Five Major Banks Agree to Parent-Level Guilty Pleas (May 20, 2015), https://www.justice.gov/opa/pr/five-major-banks-agree-parent-level-guilty-pleas; Press Release, U.S. Commodity Futures Trading Comm'n, CFTC Orders Five Banks to Pay over $1.4 Billion in Penalties for Attempted Manipulation of Foreign Exchange Benchmark Rates (Nov. 12, 2014), http://www.cftc.gov/PressRoom/PressReleases/pr7056-14; FIN. CONDUCT AUTH., FINAL NOTICE TO ROYAL BANK OF SCOTLAND PLC, CASE NO. 121882, at 1 (2014), http://www.fca.org.uk/your-fca/documents/final-notices/2014/royal-bank-of-scotland.

136. FOREIGN EXCH. PROF'LS ASS'N, *supra* note 126, at 4.

137. Vaughan et al., *supra* note 16.

138. *Id.*

139. *Id.* ("Banks are now settling the biggest rate-rigging cases—tampering in the $5.3 trillion-a-day [foreign] currency market, which was long considered immune because of its sheer size.").

140. *See* Vaughan et al., *supra* note 16 ("A move in the benchmark of 2 basis points, or 0.02 percent, would be worth 200,000 francs ($216,000) . . . .").

WM/R benchmarks. They had contracts with clients for large currency positions that depended directly on the WM/R rates, a rate that they were able to influence through their own trades. In theory, given the large number of traders and transactions, this conflict should not have mattered—a single trader should not be able to move the benchmarks. But the foreign exchange markets were also deeply concentrated. Four banks controlled over 50% of the foreign exchange markets as both input providers and consumers of the WM/R benchmarks.[141] The direct and conflicting interest that banks faced—both as input providers and as users with contracts pegged to the benchmark—exposed the benchmarks to distortion.

The transparency of the WM/R methodology also exposed the benchmarks to manipulation. Market actors knew the basis of the benchmarks' calculations and, as such, were able to engage in well-timed trading in order to distort them. Here, by tailoring their trading activity, such as executing multiple smaller trades during the fix window, traders used the transparency of the benchmarks to undermine their integrity. Being transaction-based, therefore, is not enough to inoculate these benchmarks from manipulation, particularly when the markets know how the administrator will use the transaction data to compile them. It is necessary to consider how transparency may be achieved without undermining benchmark and market integrity and whether an ex post regulatory framework can reasonably accomplish this.

Additionally, the WM/R rates are heavily integrated into the financial market, which magnified the impact of their distortion. As discussed above, WM/R rates are incorporated in trillions of dollars' worth of transactions.[142] The widespread adoption of the WM/R rates as reflective of the foreign exchange market makes them an attractive target for manipulation. This also means that the broader markets are threatened because of the benchmarks' manipulation. Unlike traditional market manipulation schemes, the scope of the impact from manipulating the foreign exchange benchmarks is vast. The market-wide implications of these schemes call into question whether enforcement proceedings after-the-fact are the best way to protect the market.

Liquidity also factored into the ability of traders to manipulate the benchmark in the long term. The currency markets are notoriously opaque and most trades are over the counter.[143] Given the numerous venues in which trading is occurring in any currency, the market lacks a globally consolidated

141. *See id.* ("Deutsche Bank AG, based in Frankfurt, is No. 1, with a 15.2 percent share, followed by New York-based Citigroup Inc. with 14.9 percent, London-based Barclays Plc with 10.2 percent and Zurich-based UBS AG with 10.1 percent.").

142. *Id.* (noting that rates are used to set the value of trillions of dollars of investments).

143. *See* FOREIGN EXCH. PROF'LS ASS'N, *supra* note 126, at 3–4 (noting that most currency trades are executed between individual bankers and banks directly, as opposed to executing trades via exchanges); Vaughan et al., *supra* note 16 (noting the same trend).

exchange rate for currencies, so the WM/R rates are the closest thing the markets have.[144] The WM/R rates enhanced the liquidity of the foreign-currency markets because instruments that reference the benchmarks are more tradable and have lower transaction costs. The cost of the liquidity that accompanies the WM/R rates is that market discipline is not possible. Even when other market actors know that banks have manipulated the benchmarks, they will continue to use them because there are no alternatives. Investors have even gone as far as indicating that they would use the WM/R rates even if they were rigged because they are "more convenient and often cheaper than seeking [multiple] quotes from individual banks."[145] Once again, this demonstrates the difficulty in expecting the markets to act as a bulwark against potential benchmark manipulation. The cost of attaining liquidity is that market actors are unwilling to abandon the benchmark even if it is distorted. This, therefore, poses a constant threat to the maintenance of overall market efficiency and integrity that ex post enforcement may not adequately address.

The extreme conflicts that pervaded the IBORs may suggest, on their surface, that the manipulation of the interest rate benchmarks was an anomaly. But when regulators revealed another multi-year manipulation scheme, classifying the IBORs manipulation schemes as a one-off event became less realistic. The foreign exchange benchmark manipulation scheme once again demonstrated that conflict of interest, transparency, market integration, and liquidity all play a role in benchmark manipulation. The successful long-term manipulation of yet another fundamental market metric highlights the shortcomings of the existing enforcement-only model in deterring benchmark manipulation.

C. CRUDE OIL

Similar to the foreign exchange markets, the oil markets are opaque, and participants conduct most transactions bilaterally over the counter among a small number of traders.[146] In the absence of exchange trading, the oil market depends on price-reporting agencies for the price of oil.[147] The prices these agencies report serve as the reference price for physical and derivative

144. *See* Vaughan et al., *supra* note 16 (noting that "the WM/[R] rates provide standardized benchmarks allowing fund managers to value holdings and assess performance").

145. *Id.*

146. *See, e.g.*, ENERGY CHARTER SECRETARIAT, PUTTING A PRICE ON ENERGY: INTERNATIONAL PRICE MECHANISMS FOR OIL AND GAS 79–80 (2007), http://www.energycharter.org/fileadmin/DocumentsMedia/Thematic/Oil_and_Gas_Pricing_2007_en.pdf; Andrew Tuson, *Benchmark Manipulation—Price of Oil in the Spotlight*, BERWIN LEIGHTON PAISNER LLP: EXPERT LEGAL INSIGHTS (June 20, 2014), http://www.blplaw.com/expert-legal-insights/articles/benchmark-manipulation-price-oil-spotlight.

147. ENERGY CHARTER SECRETARIAT, *supra* note 146, at 80; Tuson, *supra* note 146.

transactions in the oil market.[148] The main price-reporting agency for oil benchmarks is Platts, an energy news and data provider.[149] Platts has collected and disseminated data on the price of crude oil for over 100 years[150] and today is responsible for estimating the price for approximately 80% of the oil market.[151]

Platts's primary oil benchmark is the Brent Crude Oil Index ("Brent") benchmark, which reflects the most heavily traded grade of crude oil in the physical market.[152] To set the Brent benchmark, Platts uses trades done within a preset window, known as the market-on-close ("MOC") window.[153] Administrators calculate only trades done within a 30-minute period starting at 4:00 p.m. GMT each day into the benchmark.[154] Notably, data contributors provide information on transactions on a voluntary basis and may (legally) do so selectively.[155] Consequently, administrators include only a small number of trades in the benchmark's calculations, and market participants may selectively submit these trades to influence the benchmark.

The nature and basis on which input providers contribute data to the oil benchmark enables them to distort the market. Because they do not need to submit all transactions in crude oil, traders may strategically submit data in the MOC window. Traders can and do selectively contribute data to the price-reporting agencies that would move the benchmark to benefit derivatives positions that reference it. In recent years, U.S. and European regulators have launched investigations to determine whether traders have engaged in these

148. Tuson, *supra* note 146.

149. *Id.*; *see also* Alexander Kwiatkowski & Winnie Zhu, *EU Oil Manipulation Probe Shines Light on Platts Pricing*, BLOOMBERG (May 15, 2013, 12:21 PM), http://www.bloomberg.com/news/articles/2013-05-15/eu-oil-manipulation-probe-shines-light-on-platts-pricing-window.

150. *See Our History*, PLATTS, http://www.platts.com/history (last visited Apr. 16, 2017) (stating that Warren Platt started his publishing venture in 1909).

151. Tuson, *supra* note 146.

152. Sandy Fielden, *Crazy Little Crude Called Brent—The Physical Trading Market*, OIL & GAS FIN. J. (Mar. 12, 2013), http://www.ogfj.com/articles/2013/03/crazy-little-crude-called-brent-the-physical-trading-market.html; *see* Daniel Kurt, *Understanding Benchmark Oils: Brent Blend, WTI and Dubai*, INVESTOPEDIA (Dec. 24, 2015, 10:12 AM), http://www.investopedia.com/articles/investing/102314/understanding-benchmark-oils-brent-blend-wti-and-dubai.asp ("Roughly two-thirds of all crude contracts around the world reference Brent Blend, making it the most widely used marker of all.").

153. *See* PLATTS, EDITORIAL GUIDELINES AND METHODOLOGIES: EUROPEAN OIL PRODUCTS 2–3 (2011), https://perma.cc/3UDR-CJMM?type=pdf (describing changes to the market on close assessment process).

154. *See id.* (describing assessment timeframe).

155. Bassam Fattouh, *An Anatomy of the Crude Oil Pricing System* 33 (Oxford Inst. for Energy Studies, Working Paper No. 40, 2011), http://www.oxfordenergy.org/wpcms/wp-content/uploads/2011/03/WPM40-AnAnatomyoftheCrudeOilPricingSystem-BassamFattouh-2011.pdf ("Market participants are under no legal or regulatory obligation to report their deals to [price reporting agencies] or any other body . . . . Whether participants decide to share information depend[s] on their willingness, their reporting policies, and their interest in doing so.").

tactics.[156] To date, they have brought no charges against specific traders or price-reporting agencies for manipulating oil benchmarks,[157] but the fundamental characteristics that differentiate benchmark manipulation from traditional market manipulation are nonetheless present.

As with other benchmarks, conflicts of interest are inherent in oil benchmarks. Any company registered with Platts may post bids and offers in the MOC window for use in calculating the Brent benchmark.[158] This includes end users with derivative and other financial obligations pegged to it. The ability of these actors to submit trades selectively further compounds the conflict, thereby increasing the likelihood of benchmark distortion. Market concentration, illiquidity, and opacity of the oil markets add to the potential conflict of interest. The oil market has very few players, so there is a significant overlap between input providers and end users of the oil benchmark. Platts depends on a handful of large oil producers such as Shell and British Petroleum to provide data on oil trades. It is those same companies that are the most prominent users of the benchmark.[159]

Similar to the fix window for the WM/R rates, the MOC window provides transparency as to what transactions administrators incorporate into the benchmark, but this also exposes the benchmark to potential manipulation. Admittedly, the Brent benchmark has a wider trading period than the WM/R fix window, but it nonetheless encourages would-be manipulators to concentrate their trading in that narrow band of time to have the greatest impact on distorting it. Coupled with strategic submissions, this level of transparency undermines the integrity of the benchmark and exposes the oil market to manipulation.[160]

The opacity of the physical oil market has resulted in oil benchmarks becoming the primary means by which market participants price oil-based financial contracts.[161] Since the Brent benchmark dominates the market, participants integrate it into numerous transactions, especially derivatives. But they also use the Brent benchmark to price the majority of global crude-oil transactions on the spot market (i.e., cash market).[162] This means that participants use the benchmark for both short-term and long-term oil-based

156. Scheck & Gross, *supra* note 18.

157. *Id.*

158. Kwiatkowski & Zhu, *supra* note 149.

159. Bob Van Vorins et al., *Brent Crude Traders Claim Proof BFOE Boys Rigged Market*, BLOOMBERG (Nov. 6, 2013, 8:31 AM), https://www.bloomberg.com/news/articles/2013-11-06/brent-crude-traders-claim-proof-bfoe-boys-rigged-market (detailing a lawsuit brought against BP and Shell for their role in manipulating inputs for Platts's Brent Crude Oil benchmark).

160. RAYMOND J. LEARSY, RUMINATIONS ON THE DISTORTION OF OIL PRICES AND CRONY CAPITALISM 242 (2013).

161. *See id.*

162. Fattouh, *supra* note 155, at 24.

contracts, which replaces the "real" market price of the commodity.[163] With the incorporation of benchmarks in even the spot markets, the market impact of distorted oil benchmarks would be quite extensive.[164]

Financialization of the oil markets has amplified the need for a standardized valuation tool for pricing oil.[165] Platts's Brent benchmark provides the markets with this tool, and the markets are heavily dependent on it.[166] As with the two benchmarks analyzed previously, the high degree of market reliance on the benchmark, in addition to its dominance as the primary benchmark in the oil market, means that the markets will be unable to move away from the benchmark even if its manipulators later compromise it. Thus, benchmark manipulation is likely to continue somewhat unfettered—even if the market is aware of it—because market participants will prefer a flawed, but liquid, benchmark over none at all. This is all the more true in the oil markets which opacity and illiquidity plague.

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As the above case studies demonstrate, benchmarks and attempts to manipulate them share certain fundamental characteristics that make this form of market manipulation meaningfully distinct from traditional market manipulation. Importantly, these differences mean that benchmark manipulation has a more significant impact on the financial markets than does traditional manipulation. But even in instances when it does not rise to such levels, benchmark manipulation has far-reaching negative consequences for the market. Delaying enforcement until after regulators have detected these schemes, as opposed to having a prescriptive regulatory framework to monitor the benchmark industry, is ineffective and puts the market at risk.

Benchmarks are innately conflicted by their very structure because, at a minimum, most input providers are also consumers of their benchmarks.[167] Per this fundamental structure, those integral to creation of the benchmark are also those who are best positioned to manipulate it surreptitiously and benefit from it most easily.[168] Benchmark manipulators, therefore, are able to

163. Verstein, *supra* note 25, at 242.

164. Scheck & Gross, *supra* note 18 (As the E.U. has stated: "Even small distortions of assessed prices may have a huge impact on the prices of crude oil, refined oil products and biofuels purchases and sales, potentially harming final consumers.").

165. Fattouh, *supra* note 155, at 32–33.

166. Kwiatkowski & Zhu, *supra* note 149.

167. WHEATLEY REVIEW, *supra* note 100, at 15.

168. *See* Olli E. Kangas, *Self-Interest and the Common Good: The Impact of Norms, Selfishness and Context in Social Policy Opinions*, 26 J. SOCIO-ECONOMICS 475, 476 (1997) ("The emphasis in economic discourse has been on the pursuit of self-interest, individual gain. The world view has been that of *Homo Economicus*, who at his/her most extreme heeds only the voice of the wallet to the exclusion of all other considerations."); Michael Pickhardt, *Some Remarks on Self-Interest, the*

distort the underlying market without contending with some of the obstacles that limit the scope of traditional manipulation. For one, benchmark manipulation does not require the outlay of capital that traditional manipulation does. Would-be manipulators of a transaction-based benchmark will have to trade to influence the benchmark, but, as seen with the foreign exchange and oil benchmarks, transactions only matter if done within a known, limited time period. Accordingly, the investment required to distort the capital is significantly less for benchmark manipulation than it is for traditional manipulation.

Furthermore, the inherent structural conflict enables manipulators to carry out their schemes undetected for years. Again, because input providers are consumers or because administrators may have a material interest in either input providers or consumers, manipulators distort the benchmark from within.[169] Therefore, unless regulators are monitoring the benchmark, it will take years for them to detect that the benchmark is being manipulated. The fact that manipulators do not need to sustain their benchmark manipulation long-term to be successful also stymies detection because they may distort the benchmark for this week or this month, but not do so next month.[170] A single instance of benchmark manipulation could reap rewards across numerous derivative contracts, if the wrongdoers perform their manipulation on an optimal day.[171] The conflicted structure of benchmarks and the attendant consequences of exploiting these conflicts, therefore, expose benchmarks to likely manipulation that, unlike traditional manipulation, is not limited by high capital investments and ease of detection.

The paradox of transparency also significantly affects benchmark manipulation. The markets rely on a benchmark to the extent they believe it accurately reflects the market for the underlying. To demonstrate this, benchmark administrators must provide some information about how they calculate the benchmark and compile inputs. As the above three case studies demonstrate, manipulators use the information provided to undermine the benchmark even though the level of their disclosures varies. With interest rate benchmarks, for example, knowing how administrators used submissions allowed wrongdoers to tailor their manipulation tactics to maximize their impact on the benchmark. As the examples of the foreign exchange and oil benchmark demonstrate, this remains true even for transaction-based benchmarks. Whereas transparency allowed for easier detection of traditional

Historical Schools and the Evolution of the Theory of Public Goods, 32 J. ECON. STUD. 275, 276 (2005) ("[T]he modern theory of public goods rests entirely on the self-interest hypothesis.").

169. DEUTSCHE BÖRSE GRP., *supra* note 80, at 10.

170. Of course, the profitability of their malfeasance will be greater if the manipulators are consistent with their schemes, but such continuity is not necessary for profitability.

171. "Optimal" here refers to the day on which the derivative is valued, as stipulated in the contract.

market manipulation schemes, transparency in benchmarks augments the capacity of traders to distort the markets successfully. Addressing the repercussions of this transparency paradox requires regulatory intervention on an ex ante basis to minimize repeated blows to market integrity.

The widespread integration of benchmarks into the financial markets is also important for determining whether an enforcement-based regulatory regime is adequate. The more market actors widely adopt a benchmark, the more concerning its manipulation is to the efficiency and stability of the overall financial market.[172] This is emphasized by the dependence of derivatives on benchmarks.[173] According to one study, over 90% of exchange-traded derivatives reference an interest rate benchmark.[174] This means that when a trader manipulates a benchmark for personal profit, the impact of her machinations does not end with her and her direct counterparties. Rather, they impact every derivative contract that references the benchmark, regardless of whether the manipulator intended to target it. This is in stark contrast to traditional manipulation schemes that affect a single stock or commodity. Integrating benchmarks into derivative and other financial instruments, therefore, transforms benchmark manipulation into a significant impediment to market integrity and efficiency or, at worst, a potential source of systemic risk.[175]

Finally, a significant difference between traditional and benchmark manipulation is the ability of market forces to limit them. With the former, natural forces of supply and demand limit the profitability of manipulative trades.[176] But with the latter, market forces are impotent. As a benchmark "become[s] a powerful 'basin of attraction'" within the markets,[177] the market is less able—and less willing—to move away from the metric in the face of manipulation. When contracts widely reference the benchmark, the underlying becomes more liquid, attracting additional market participants to reference it and further increasing liquidity. However, as one benchmark becomes liquid, alternatives either fail to develop or are crowded out of the market.[178] When wrongdoers manipulate the dominant benchmark, the markets are unable and unwilling to transition away from it, and, consequently, there is little to no opportunity for market discipline to deter

172. *See generally* Robert C. Hockett & Saule T. Omarova, *Systemically Significant Prices*, 2 J. FIN. REG. 1 (2016).

173. Verstein, *supra* note 25, at 226 ("Benchmarks are utterly essential to the operation of financial derivatives.").

174. FIN. STABILITY BD., *supra* note 3, at 9. For other studies of derivative products that reference interest rate benchmarks, see *id.* at 8–9.

175. Hockett & Omarova, *supra* note 172, at 10–12.

176. *See supra* Part II.B.

177. *See* Duffie & Stein, *supra* note 108, at 195–96.

178. *See* Robert N. McCauley, *Benchmark Tipping in the Money and Bond Markets*, BIS Q. REV., Mar. 2001, at 39, 39–45.

benchmark manipulators. Benchmark manipulation will persist as market actors will value the liquidity the benchmark offers—even a manipulated one—over no benchmark at all.[179] The cost of liquidity, therefore, is the loss of market discipline.

Considering the differences between traditional market manipulation and benchmark manipulation in the aggregate reveals that the ex post regulatory regime aimed at deterring the former through enforcement actions is inadequate to address the latter. Given that benchmark manipulation (1) is difficult to detect in the absence of monitoring; (2) stems from the innately conflicted structure of the benchmark production process; and (3) can have serious consequences for market stability, a prescriptive, ex ante regulatory framework is needed. Part IV proposes such a framework.

IV. BENCHMARK REGULATION

As the prior discussion indicates, benchmark manipulation is meaningfully distinct from traditional manipulation. From a regulatory standpoint, treating them the same fails to regulate a significant source of risk in the markets. Therefore, a different approach is needed. Currently, the benchmark industry is largely unregulated, and regulators address manipulation through enforcement actions, when and if these actions are uncovered. In the face of continued benchmark manipulation, it is undeniable that regulation would be beneficial to the benchmark industry and, by extension, the financial markets. Regulation would safeguard benchmark integrity, as well as market integrity, efficiency, and stability.

Former CFTC Chair Timothy Massad, however, has rejected prescriptive government regulation of the benchmark industry, instead encouraging "alternatives to government regulation."[180] The question remains as to what alternatives there are and how effective they might be. As the prior discussion demonstrated, alternatives such as market discipline, enforcement-only responses, and industry regulation have done little to nothing to minimize benchmark manipulation.[181]

To be clear, the aim of regulating benchmarks is not to remove all possibility of manipulation from the markets. This would be neither feasible nor desirable. Rather, the goal is to minimize the impact and frequency of manipulative schemes so that benchmarks can be useful and accurate tools. Ex ante prescriptive regulation would best accomplish this. However, the timing of regulation is only one piece of the puzzle; it is even more important to consider the form it should take. This Article proposes prescriptive

179. Rauterberg & Verstein, *supra* note 23, at 43.

180. Timothy Massad, Chairman, U.S. Commodity Futures Trading Comm'n, Remarks at the Natural Gas Roundtable (May 26, 2015).

181. *See supra* Part III.

regulation of benchmarks through a two-tiered framework of self-regulation and government oversight.

This Part provides a theoretical justification for ex ante regulation, discusses the benefits of self-regulation, and outlines the two-tiered framework.

A. *IN FAVOR OF EX ANTE REGULATION*

The question of when the law should intervene to correct market failure is important and ongoing.[182] While it is useful to delineate between ex ante and ex post intervention academically, they work together in all legal systems—particularly in regulation of the financial markets.[183] For instance, ex ante laws would have no impact if there were no ex post mechanisms to enforce them. In describing an approach in these terms, the focus is on *when* to best regulate the conduct.[184] Nonetheless, it is important to consider the point at which the government should intervene in the markets for regulation to be the most effective.

As discussed in Part II, from a law and economics perspective, the issue of when to regulate conduct turns on three key factors: information availability, effectiveness of sanctions, and administrative costs.[185] In the financial markets, another set of factors also applies—the effect of regulations on market integrity, efficiency, and stability. Regulators must balance all these considerations to ensure they do not emphasize one to the detriment of another. Considered together as a whole, all the factors listed above support an ex post approach to traditional market manipulation; however, the opposite conclusion holds true with respect to benchmark manipulation.

One of the strongest arguments against regulating market manipulation ex ante is that government agencies lack sufficient information to craft optimal regulation to prevent manipulation without unduly hampering the market. This is not true of benchmarks. To start, benchmarks are innately conflicted, and, as this Article has demonstrated, benchmark manipulation is the direct result of these unchecked conflicts. Yet there is no regulatory oversight to minimize the impact of these conflicts on benchmarks or the financial markets. The link between conflicts of interest and benchmark

182. *See generally* Brian Galle, *In Praise of Ex ante Regulation*, 68 VAND. L. REV. 1715 (2015) (critiquing ex post regulation). *But see generally* Logue, *supra* note 36 (defending ex post regulation).

183. *See* Alan R. Palmiter, *Toward Disclosure Choice in Securities Offerings*, 1999 COLUM. BUS. L. REV. 1, 9 ("The Securities Act of 1933 regulates securities offerings to public investors by combining mandatory ex ante disclosure to investors and market intermediaries, administrative clearance, and heightened *ex post* fraud liability.").

184. *See* Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557, 568–70 (1992).

185. *See supra* Part II.A.

manipulation provides regulators with a sound starting point for regulating benchmarks because they can identify the source of manipulation.

Knowing how conflicts potentially manifest in benchmarks provides the regulators with sufficient information to intervene to deter abusive market behavior. Whereas regulating traditional forms of market manipulation on an ex ante basis would require something akin to the predictive abilities of a seer, this is not the case with benchmark manipulation, where the conflict of interest problem is identifiable. Regulating benchmarks does not require perfect information, and financial regulators can acquire the additional data points needed to oversee benchmarks effectively.

Professor Brian Galle supports these assertions about the level of information regulators need to implement ex ante regulations successfully. Traditional theory posits that the government should have perfect or, at minimum, superior information compared to market actors prior to imposing prescriptive regulation.[186] Using a series of mathematical and statistical simulations, Galle convincingly demonstrates that the government need not have perfect information to regulate in advance; rather, modest informational gains can enable the government to adopt well-crafted, ex ante rules.[187] With enough information—which can be as little as a single additional data point—ex ante regulation is not as costly as others claim.[188] For benchmarks, identifying the role that conflicts of interest play in benchmark manipulation is one such salient data point. Regulators, therefore, do not need perfect or superior information; they merely need "enough" information.

A second consideration in deciding the timing of regulation is the effectiveness of sanctions.[189] If regulators can use after-the-fact sanctions to deter misbehavior, then they are preferable to government intervention. But sanctions may not be effective if the perpetrator is judgment proof or if the sanctions are not imposed at a high enough level to deter actual misconduct. Galle identifies another instance in which ex post sanctions may be insufficient—when regulators impose them on actors who are indifferent to future incentives.[190] This "[m]yopia [p]roblem," as Galle puts it, makes it difficult to incentivize actors who discount the future with ex post measures.[191] Consequently, the government must regulate these actors ex ante in order to force them to account for the full cost of their decisions.

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186. SHAVELL, *supra* note 39, at 575–76.

187. Galle, *supra* note 182, at 1729–34 (arguing that government ex ante regulation can be more successful than appreciated if regulators have access to "modest information" and the regulations are "flexibl[e]").

188. *Id.*

189. SHAVELL, *supra* note 39, at 576–77.

190. Galle, *supra* note 182, at 1734–38.

191. *Id.* at 1734–35.

Actors in the benchmark industry are likely to suffer from this myopia, thereby necessitating a prescriptive framework.[192] Because it is difficult for regulators to detect benchmark manipulation, a would-be manipulator may decide that it is economically beneficial and rational to manipulate a benchmark that is tied to large financial obligations. A trader could weigh the potential profits that she would earn if she distorted the benchmark against the low likelihood of detection and rationally conclude that a benchmark manipulation scheme would be a net-positive endeavor. Given the lack of oversight of the benchmark industry, the trader would discount the likelihood of being caught and sanctioned in her calculus, so threatening her with these fines would not necessarily deter bad behavior.

The trader will also likely discount the negative externalities of her benchmark-manipulation scheme. In seeking to maximize her own self-interest by manipulating a given benchmark, the trader impacts several other segments of the financial markets because market actors widely use benchmarks. When a rational manipulator weighs the likelihood and potential fines for being caught against the potential profits of her scheme, she will only count the costs to her personally and not the costs to the wider financial market.[193] Both the trader's lack of incentive to account for all the costs of her manipulation and the fact that ex post sanctions are unable to fully capture those costs argue in favor of ex ante regulation to minimize them up front.

The third consideration is that of administrative costs. Professor Steven Shavell argues that if the costs to monitor and police before the fact outweigh the costs to identify and fine after the act, then government intervention should be ex post.[194] Unlike traditional manipulation, it is highly doubtful that after-the-fact enforcement is administratively less burdensome than prescriptive regulation for preventing benchmark manipulation. Imposing a new regulatory framework on a market when none existed before does create new administrative costs, but any attendant benefits that would arise from prescriptive regulation offset those costs—particularly considering the costs that manipulated benchmarks exact from the markets. In addition, these benefits must include those that would accrue to the overall financial markets.

192. Benchmark manipulators are indifferent to future incentives for three reasons. First, they are able to reap profits from their manipulative conduct almost immediately, so they discount the future penalty of getting caught. Second, the lag in between manipulative conduct and government detection is so large that they are likely to discount the likelihood of being caught. Finally, benchmark manipulators do not have to internalize the full cost of their misdeeds because their actions impact other actors in the market, even those who did not transact with them.

193. Although it is true that traditional manipulators also only consider the costs of such schemes to themselves personally and not to the overall financial markets, the broader market costs in the case of traditional manipulation schemes are lower because of the limiting nature of these schemes. *See supra* Part II.B (discussing the limits of traditional market manipulation).

194. *See generally* SHAVELL, *supra* note 39.

Implementing a regulatory framework will minimize the likelihood that would-be manipulators will be able to exploit their conflicted positions possibly unnoticed for many years and to the detriment of both their counterparties and the market. By investigating potentially manipulative practices sooner rather than later, regulators will be able to stymie manipulative practices before they become commonplace and wreak havoc on the market. The lack of regulatory oversight currently exacerbates regulators' difficulty with detecting benchmark manipulation schemes. A prescriptive framework for benchmarks provides regulators with a window into the operations of the industry, enabling them to identify problematic behavior early. This augments not only the integrity of benchmarks but also the integrity of the financial market.

While regulating to deter market manipulation is a question of maintaining market integrity and efficiency, the large-scale integration of benchmarks into the financial markets means that benchmark-manipulation schemes also implicate market stability.[195] In delineating between ex ante and ex post regulation in the financial markets, Professors Iman Anabtawi and Steven Schwarcz analyze the goal of each type of regulatory framework with respect to market stability.[196] They argue lawmakers must consider more than simply the conduct of market actors in deciding when to intervene; rather they must also consider the impact regulation will have on the market as a whole.[197] As such, the relative advantages of ex ante over ex post regulation relate to the desired effect lawmakers want to have on the financial system.[198] Specifically, ex ante regulations prevent negative financial shocks, whereas ex post laws mitigate their harm once they have occurred.[199]

Although Anabtawi and Schwarcz were discussing regulation to mitigate against the systemic risk to the financial markets from the failure of large financial institutions, their framework is useful for considering how to regulate benchmarks because of the impact benchmark manipulation has on market volatility.[200] The possibility and likelihood of significant negative market shocks, therefore, calls for ex ante regulation to best ensure the stability of the financial markets, per the Anabtawi–Schwarcz framework.[201] Addressing benchmark manipulation solely through enforcement actions

195. Market stability refers to less volatility in the markets and not to systemic risk. *See supra* Part II (discussing market stability).

196. *See generally* Iman Anabtawi & Steven L. Schwarcz, *Regulating Ex Post: How Law Can Address the Inevitability of Financial Failure*, 92 TEX. L. REV. 75 (2013).

197. *See generally id.*

198. *See id.* at 92–93.

199. *Id.*

200. This is not to argue that benchmark manipulation may result in systemic risk; rather that the Anabtawi–Schwarcz framework is useful in understanding when regulation can do the most good.

201. *See generally* Hockett & Omarova, *supra* note 172 (analyzing how and when benchmark manipulation may have systemic consequences for the financial markets).

leaves the markets exposed needlessly to a major, avoidable threat to market stability.

Benchmark manipulation also compromises market efficiency if regulators do not meaningfully address it ex ante. Market actors use the information benchmarks provide to price and value assets, commodities, and securities. If these benchmarks are subject to ongoing manipulation, then the markets will be less efficient because actors will base pricing on incorrect and distorted information. Consequently, because benchmark manipulation impacts market integrity, efficiency, and stability to such a high degree, ex ante regulation is necessary to prevent the negative financial shock that can ensue from it. It is easier to establish parameters for creating "honest" benchmarks than it is to unwind trillions of dollars of contracts that integrated a distorted benchmark. An ex ante regulatory framework will allow for the former result more easily than ex post regulation.

The design and structure of the regulatory framework is equally important to its timing. Before detailing the proposed two-tiered framework for regulating benchmarks, Subpart B discusses the benefits of self-regulation, which is a key aspect of the proposed framework.

B. THE BENEFITS OF SELF-REGULATION

Self-regulation is one of the hallmarks of U.S. financial regulation.[202] Stock exchanges, for example, have been self-regulating entities since their inception.[203] Self-regulation is a useful tool that straddles the middle ground between top-down government regulation and the absence of regulation.[204] It is also a particularly useful regulatory tool for complex systems, such as the benchmark industry, in which top-down, government-directed regulation may do more harm than good.[205]

There are several primary benefits of self-regulation. First, self-regulation leverages the technical expertise and knowledge of the industry to craft a high-quality, efficient, and effective system of rules and regulations for the industry. Indeed, reliance on industry experts to design and implement the rules should result in lowered costs and increased benefits for the regulated industry.[206]

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202. *See* CFA INST., SELF-REGULATION IN TODAY'S SECURITIES MARKETS: OUTDATED SYSTEM OR WORK IN PROGRESS? VI, 1 (2007), http://www.cfapubs.org/toc/ccb/2007/2007/7.

203. *Id.* at VI.

204. Saule T. Omarova, *Rethinking the Future of Self-Regulation in the Financial Industry*, 35 BROOK. J. INT'L L. 665, 675–76 (2010).

205. *Id.* at 672; *see also* Julia Black, *Decentring Regulation: Understanding the Role of Regulation and Self-Regulation in a 'Post-Regulatory' World*, 54 CURRENT LEGAL PROBS. 103, 107 (2001); Orly Lobel, *The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought*, 89 MINN. L. REV. 342, 357–58 (2004).

206. CFA INST., *supra* note 202, at 5.

Next, a self-regulatory regime is more flexible and more responsive to the challenges and needs of the industry than government regulation. Industry-led regulations are able to foresee and react to potential issues within their markets more quickly and easily than a government agency.[207] Self-regulation is also capable of being more expansive in its application than government regulation. As the industry imposes governing rules and regulations, it is not subject to a specific mandate, as government agencies are, that limits the scope of its authority. Self-regulation may, therefore, go beyond legal standards and impose higher ethical standards that benefit the entire industry.[208]

By drawing private parties into participating in their own regulation, self-regulation minimizes industry resistance to regulation and encourages greater compliance. Less resistance also increases cost saving because of decreased enforcement actions against members.[209] Finally, self-regulation also reduces administrative costs of regulations. Industry resources will be used to fund monitoring of market actors and implementation of rules.[210]

Although there are numerous benefits to self-regulation, there are a few noteworthy concerns. Critics of self-regulation posit that "private profit-seeking enterprises cannot be trusted to regulate their own activities in a manner conducive to promotion of publicly desirable goals."[211] Given that self-regulation requires market actors to subordinate self-interest for the public good—an impractical expectation in a capitalist market[212]—some say it is bound to be an unsuccessful regulatory tool. Self-regulation also creates potential conflicts of interest in granting regulatory authority to an entity that represents the interests of the regulated. This raises questions of whether the self-regulatory body will adequately police its members in a socially beneficial manner.[213] Finally, the industry may use its self-regulatory authority in an anti-competitive manner to exclude future entrants. Instead of serving to monitor and police the industry, industry members may use self-regulation as a means of maintaining their dominance in the market.

The serious negative repercussions that may result from a self-regulatory framework indicate that regulators should not leave the industry to regulate itself with no government oversight at all. In the absence of government

207. *See generally* Saule T. Omarova, *Wall Street as a Community of Fate: Toward Financial Industry Self-Regulation*, 159 U. PA. L. REV. 411 (2011) (describing the benefits of self-regulation in the financial market).

208. Stavros Gadinis & Howell E. Jackson, *Markets as Regulators: A Survey*, 80 S. CAL. L. REV. 1239, 1251–52 (2007).

209. CFA INST., *supra* note 202, at 5; Gadinis & Jackson, *supra* note 208, at 1251; Omarova, *supra* note 204, at 675–76.

210. Gadinis & Jackson, *supra* note 208, at 1251.

211. Omarova, *supra* note 204, at 674.

212. CFA INST., *supra* note 202, at 3.

213. Gadinis & Jackson, *supra* note 208, at 1254.

oversight, the disadvantages of self-regulation are more pronounced. Thus, the stick of government oversight is necessary to achieve the numerous benefits that can result from self-regulation.

The regulatory framework this Article proposes seeks to strike that balance. It recognizes that granting the benchmark industry self-regulatory authority without additional oversight does not change the status quo of the benchmark industry and, indeed, may exacerbate the ills currently plaguing the industry by granting such authority with no means of checks and balances. But it also rejects the approach of government-directed regulation. Top-down regulation would do more harm than good for the benchmark industry and may even result in input providers withdrawing from the markets entirely in order to avoid regulation. This would only leave the market in a worse state—less liquid, more opaque, and without any recourse. Consequently, a hybrid approach that recognizes the need for self-regulation with government oversight is the best framework to balance the interests of the benchmark industry against the wider financial markets and deter benchmark manipulation.

C. THE PROPOSED FRAMEWORK

This Article proposes regulating benchmarks ex ante by means of a two-tiered self-regulatory framework similar to the SRO framework applied to national stock exchanges and national futures associations. Specifically, benchmarks would be subject to oversight by an SRO comprised of participants in the benchmark industry, as well as other entities or persons who are consumers of or contributors to benchmarks. In addition, the SRO would be subject to oversight by a financial regulator, either the SEC or CFTC—an additional step required to ensure industry adherence with the new framework.

Because of the intricacies, complications, and diversity of benchmarks, a modified self-regulatory structure is better-suited for benchmarks than top-down government regulation. Implementing a self-regulatory structure over the benchmark industry would address many of the factors that make this form of market manipulation viable and protect the wider markets from its dangers. To be most effective, government involvement would be a necessary component to ensure compliance with the self-regulatory format and, importantly, to mitigate against the conflicts of interest inherent in the industry.

The SRO framework is a familiar one in U.S. financial regulation. Market participants in a given industry comprise the membership of its SRO. To carry out their governance responsibilities, regulators require SROs to implement and enforce rules that prevent fraudulent and manipulative conduct and practices and fulfill their duties in such a way that is not unduly burdensome

to competition.[214] The SRO is the first-tier regulator—it monitors and polices members, maintains industry integrity, and ensures compliance with adopted regulations. At the second tier is the relevant government agency that oversees the SRO.

The most well-known examples of SROs in the financial markets are those formed to administer securities exchanges. Before an equity security can be bought or sold on any exchange, the issuer of the security must become a member of the Financial Industry Regulatory Authority ("FINRA"), the stock-exchange SRO.[215] As a member of FINRA, the issuer is subject to FINRA's rules regarding trading, corporate governance, and certain ethical standards. In return, FINRA gives the issuer access to either the New York Stock Exchange or NASDAQ platform so that investors may buy and sell its security.

The SRO for the benchmark industry would operate in a similar manner. It would require market participants to register with the relevant benchmark SRO prior to trading on the platform from which the administrator culled inputs. To use the benchmark, the SRO would also require its end users—to the extent they are also input providers or large market actors—to register. Importantly, government oversight is necessary to prevent the conflicts of interest that plague the benchmark industry from becoming entrenched in the proposed SRO structure.

The Subparts that follow address in greater detail the proposed framework for benchmark regulation, including the SRO, government oversight, and potential enforcement mechanisms.

1. Regulated Entities

Two necessary preconditions for the SRO format to work are that it must have the power to (1) require benchmark market participants to become members of the SRO and (2) exclude those who do not comply with its governance requirements from the benefits of the SRO. Without either, the SRO would become a voluntary association of some members of the industry with no authority over those who choose to flaunt its rules. In much the same way that issuers seeking access to the capital market must become members of FINRA, the benchmark SRO should require those who contribute to and administer a benchmark to participate in it and be subject to its authority.

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214. Richard G. Wallace & Benjamin R. Dryden, *Self-Regulation: Background and Recent Developments*, 33 ALI-ABA BUS. L. COURSE MATERIALS J. 43, 46 (2009), http://www.foley.com/files/publication/974bee6c-9f0a-460d-b274-bc1297177dc6/presentation/publicationattachment/c6329027-7d7f-45f7-b9a0-c2182ceaaa34/cmj0912wallacedryden.pdf.

215. *Self Regulatory Organization*, LEGAL INFO. INST., https://www.law.cornell.edu/wex/self_regulatory_organization (last visited Apr. 19, 2017).

i. Benchmark Administrators

It is important that the SRO requires benchmark administrators to be members. As the conduit of information in the benchmarking process, administrators are a natural starting place for benchmark regulation, and they would likely be best able to monitor other actors. Administrators are well positioned to influence the behavior of others in the benchmark industry and to identify manipulative conduct because of their control over the benchmarks. They are also likely to be the most responsive to government oversight, thereby incentivizing them to police members to avoid running afoul of agency regulations.[216]

A more difficult issue is determining which administrators the SRO should subject to its authority. For instance, should it exclude an administrator if its benchmark is a "byproduct" of its principal business[217] or if its benchmark is not yet liquid? Such exclusions, if applied too broadly, may serve to undercut the entire regulatory framework for benchmarks, making the SRO impotent because of its limited reach. Another option would be to determine SRO membership based on the value of the underlying market that references the benchmark. This is the approach that the United Kingdom has taken in its benchmark regulations.[218] However, it also results in some level of arbitrary line drawing that may not fully address the problems inherent to the benchmark industry.

For the SRO format to be most effective, the SRO should require all benchmark administrators to be members. By making membership to the SRO mandatory, the authority of the SRO solidifies, and the industry as a whole is subject to across-the-board regulation. This approach would not be subject to arbitrary line drawing, nor does it require determining whether an administrator produces benchmarks primarily or as a byproduct. Instead, by requiring all administrators to be members of the SRO, this framework would oversee all benchmarks in a way that the market cannot. Furthermore, mandatory membership will benefit smaller, less-liquid benchmarks that may be able to establish their legitimacy more easily because of their SRO membership and observance of its rules.

216. Benchmark administrators are the only entities that are openly profit-seeking for the involvement in the benchmark industry. Consequently, they are most responsive to fines.

217. *See* Rauterberg & Verstein, *supra* note 23, at 26–31 (surveying the motivation for index production).

218. The Financial Conduct Authority ("FCA") has authority to regulate eight identified benchmarks because of their market significance. Both administrators and contributors to these eight benchmarks are within the FCA's regulatory purview. *See Benchmark Powers*, FIN. CONDUCT AUTH. (Apr. 22, 2016), https://www.fca.org.uk/markets/benchmarks/powers.

ii. Data Contributors

The more challenging issue regarding the scope of the SRO's authority concerns its authority over data contributors. The issue is further complicated because it differs depending on whether an input is based on transaction data as opposed to estimates. To the extent that administrators use estimates as the input for a benchmark, the concern is with authenticity, i.e., that conflicting interests or other inappropriate factors do not color the provided estimate, as was the case with the IBORs. Such estimates are difficult to verify because often the providers do not base them on actual or potential transactions. Notably, an administrator may not be any better equipped to identify distorted estimated submissions than a regulator. Nonetheless, to ensure accountability, the SRO should require the benchmark administrator to be particularly vigilant with estimated inputs. One alternative would be to enable the SRO to audit the submissions of contributors that they base on estimates to ascertain whether they follow a pattern that indicates possible distortion.[219] While input providers do not base the estimates on actual or expected transactions, they ground them in market conditions and information that the contributors should be able to document. Again, this is where the SRO demonstrates its value, in that it would not require contributors to disclose this information publicly, but rather to make disclosure to the SRO directly.

Another option, which the SRO could utilize in addition to auditing, is to anonymize estimate-based contributors. For a benchmark such as LIBOR, in which the estimates submitted reflect a bank's liquidity or ability to borrow, input contributors do not want to disclose any borrowing difficulty in comparison to peer institutions.[220] With anonymity, a contributing bank would not have felt as compelled to fabricate its submission so as not to appear as an outlier among other banks, which was a motivating factor in the LIBOR scandal.[221] Indeed, LIBOR administrators now anonymize submissions for this reason. If implemented together, these two tools would improve the integrity of estimated submissions for benchmarks and provide a needed means of verifying estimates to integral benchmarks.

With respect to transaction-based inputs, the concern is different. The inputs of transaction-based benchmarks are susceptible to distortion to the

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219. The SEC does something similar in detecting insider trading. It reviews trading data to identify trading that is suspiciously profitable in light of market movements as a basis for identifying possible insider traders. *See* Reuters, *Here's How the SEC is Using Big Data to Catch Insider Trading*, FORTUNE (Nov. 1, 2016), http://fortune.com/2016/11/01/sec-big-data-insider-trading.

220. *See* ECONOMIST, *supra* note 11 ("Banks that were weak would not have wanted to signal that fact widely in markets by submitting honest estimates of the high price they would have to pay to borrow, if they could borrow at all.").

221. *Cleaning Up LIBOR*, ECONOMIST (Apr. 12, 2012), http://www.economist.com/node/21552578 ("[I]n times of funding stress, no one wants to stand out from the crowd: all banks might be tempted to submit artificially low LIBOR estimates when pressure in the system rises.").

extent that the benchmark focuses on a narrow, specified period of time that is known to the markets. As discussed above, informing market participants of the source of the data ensures transparency but also makes the benchmark susceptible to distortions from targeted trading behavior. To address this issue, benchmark administrators could disclose this information to the SRO. To the extent that administrators want to enlarge the input window or change it on a periodic basis, they could take these actions after appropriate disclosures to the SRO and not to the public in general. Again, there is value in transparency, but to the extent that it makes market manipulation more feasible, it has its limitations. But by disclosing the information to the SRO, administrators could achieve the benefits of transparency without augmenting the possibility for benchmark manipulation.

2. Detecting Benchmark Manipulation

This proposed two-tier framework takes advantage of the expertise of industry participants because they are better able to identify manipulative actions than a financial regulator would be if it acted without any industry input. Importantly, the SRO structure places the onus on benchmark administrators to detect and address distortion or face specific consequences from government regulators. The possibility of government sanctions for non-compliance mitigates against this and incentivizes the administrator to monitor its input sources.

Importantly, benchmark administrators are more likely to take complaints of manipulation from market actors seriously and take action against these manipulators. Administrators would also have an interest in policing other benchmark participants to continue their business operations. In short, given the absence of organic market discipline, the SRO format would simulate the effect and impact of market discipline within the benchmark industry. This would make it easier to detect manipulation and less likely for manipulative schemes to continue for a prolonged period.

To further strengthen the duty of administrators to maintain the integrity of their benchmarks, there should also be an affirmative duty, imposed by SRO rules, that administrators investigate and report any suspected manipulation to the SRO and/or the government. If SRO regulations place this burden on the benchmark administrators, they would be more likely to be diligent about preventing manipulation because the SRO could find them liable if they are complicit in or willfully ignorant of manipulative behavior.

3. Conflicts of Interest

Conflicts of interest are a primary factor in benchmark manipulation. Unsurprisingly, regulations will not eliminate conflicts of interest in the benchmark industry, but the proposed framework will minimize their effects. The framework would address these conflicts of interest in two ways. First, it

would facilitate monitoring of them, such that regulators could address egregious conduct before it rose to the level of manipulative behavior or destabilized the markets. Second, the SRO would develop governance mechanisms that minimize possible manipulation owing to conflicts.

The SRO will be better suited to monitoring conflicts of interest in the industry because it will be more aware of the types of conflicts that administrators and data contributors face, due to its experience with the market. The SRO will be able to detect conflicts more easily and quickly when manipulators are exploiting them to the detriment of the benchmarking process. Importantly, the SRO should be authorized to adopt and enforce codes of conduct that establish needed guidelines for addressing conflicts. Again, adherence to this code would be likely because administrators and data contributors must comply to participate in the benchmark industry and, importantly, to be in good standing with the SRO and, by extension, financial regulators.

In developing governance mechanisms to address conflicts of interest, there are various approaches the SRO could adopt. At the extreme end of the spectrum, the SRO could implement a complete ban on conflicts of interest, such that an input provider or benchmark administrator could not be an end user of the benchmark. As discussed above, such a ban would be impossible, particularly regarding input providers and end users. Although a total ban is attractive because it would end the problem of conflicts of interest entirely, it would also very likely result in the end of the benchmark industry.[222]

Another possibility is that the SRO could require administrators and input providers to disclose all conflicts to the market, so that possible counterparties would be on notice about them. This, however, is similar to how the markets currently operate, except that the administrators and input providers would affirmatively state the disclosures, rather than counterparties generally presuming them. While this may result in a small increase in the number of counterparties that become aware of the conflicts, it is not likely to have a significant change on how the industry operates.

A better option would be to require not only disclosure on the part of administrators and data contributors, but to provide counterparties with the opportunity to waive the conflict for each transaction. This approach would improve on current practice in a significant way. By providing counterparties with the opportunity to waive (or not) the conflicts of the administrator or input contributor, this would enable consumers to decide whether to use a benchmark that may be conflicted or to use an alternative one. The transaction cost would reflect the counterparty's choice, because the non-conflicted counterparty would be able to demand a lower price for using a conflicted benchmark. Among the disclosure options the SRO could adopt,

222. *See supra* Part II.C.

this is the most suitable because it would also minimize the likelihood of benchmark manipulation.

In addition to adopting a "disclose and waive" approach to conflicts of interest, the SRO should also impose structural changes to minimize self-interested exploitation of conflicts. One way to approach the inherent conflict of interest in the benchmarking process is through imposing ethical screens. For an entity that wears dual hats with respect to a single benchmark, internal partitions between the parties can ensure the integrity of the process. This is the route lawmakers took to address the conflict of interest inherent in the initial public offering ("IPO") process at investment banks.[223] Specifically, analysts are prohibited from soliciting business for their investment banks or marketing IPOs under national stock exchange rules.[224]

Separating those who contribute information to the benchmark from those who issue financial products that reference it would minimize the likelihood that improper motivations would taint the data contributed. Indeed, as part of its settlement order with Barclays, the CFTC required organizational firewalls between data providers and traders, but did not go as far as requiring a physical barrier between the two.[225] However, to be most effective, these firewalls should be not only organizational, but also physical; that is, those with different roles in the benchmark process should be located in physically distinct spaces if they are part of the same entity. When combined with the separation of roles, this would decrease even the possibility of accidentally sharing information.

4. Enforcement Mechanisms

This Article focuses on the implementation of a prescriptive framework for benchmarks because without it, manipulation will continue to be commonplace in the benchmark industry. Yet self-regulation, even when coupled with government oversight, is insufficient without any means by which to enforce its rules. Without enforcement mechanisms, the proposed framework would hardly improve on the current state of benchmark regulation. That said, devising the appropriate penalties for manipulation or other abusive behavior is not straightforward. The effect of penalties on the behavior of those who distorted or abused the benchmark is important, as is the potential impact enforcement proceedings on the benchmark's very existence. A multipronged approach, therefore, is the proper tool with which to address these complex issues.

223. Securities Exchange Act of 1934 § 15, 15 U.S.C. § 78a (2012).

224. Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204, § 501, 116 Stat. 745, 792 (2002).

225. *See generally* In re Barclays PLC, CFTC No. 12-25, 2012 WL 2500330 (June 27, 2012).

First, most administrators own the calculations and formulae that undergird benchmarks.[226] If they manipulate a benchmark, what punishment would be appropriate given their ownership rights? As discussed in Part III, the more liquid a benchmark, the harder it is for market participants to use an alternative one—even if the manipulated benchmark's credibility is called into question.[227] If the SRO determines that an administrator has violated the rules, should it revoke the administrator's license to provide the benchmark? Given that the benchmark is the property of the administrator, revocation may not be a feasible response and, undoubtedly, would be too harsh. Instead, it would be necessary to punish the offending benchmark administrator without destroying the benchmark's existence.

Sanctions must remain part of the regulatory arsenal of the SRO and financial regulators for punishing manipulative behavior. But, particularly if an administrator manipulates its benchmark, it should face disgorgement—i.e., have to repay the losses clients suffered because of its malfeasance. Even though market actors cannot move away from the benchmark because of its liquidity, administrators would still be liable for their manipulative behavior. Furthermore, if the administrator is not the manipulator but could have reasonably prevented the manipulation, the SRO should once again hold it liable.[228] In this instance, the liability may be less than actual, direct manipulation of the benchmark, but the administrator should bear some responsibility. Again, this would bolster the benchmark's integrity by forcing the administrator to be actively aware of potential distortions of inputs to avoid its own liability. It would create a stronger sense of ownership of the benchmark that would then result in fewer long-lasting instances of manipulation.

Second, benchmarks cannot exist without data providers. If the major players manipulate the benchmark, could the benchmark continue to exist without their participation? Once again, sanctions should play a role in punishing manipulators, but with these actors more is needed—particularly in light of the pervasive conflicts that they face. To that end, if a data provider manipulates inputs, the SRO should exclude it from providing inputs to the benchmark for a specified time. This would ensure that the data provider could not distort the benchmark going forward. As the SRO reintroduces information the manipulator contributes into the data pool, it should discount this information for an additional period. This would lessen the importance of the contributor's data relative to the data pool, given its past

226. *See* Rauterberg & Verstein, *supra* note 23, at 16 (discussing Libor's calculation methodology).

227. *See supra* Part III.

228. This is akin to the duty of oversight the Delaware Chancery Court articulated in *In re* Caremark Int'l Inc. Derivative Litig., 698 A.2d 959, 971 (Del. Ch. 1996). Known as the *Caremark* duty, it imposes on a board of directors a duty to monitor the corporation to prevent illegal or fraudulent behavior. *Id.*

malfeasance. If, however, the manipulators are the largest data contributors and their absence would significantly impair the benchmark, it may not be feasible to exclude them from contributing to it in the first instance. In this case, discounting their contributions may be more appropriate so as not to punish the markets twice—first with their manipulation and second with the demise or impairment of a significant benchmark. In this instance, the inputs these contributors provide should be discounted for a longer period of time to have a meaningful deterrent impact.

Finally, with respect to both administrators and contributors, the SRO should require specific disclosures if they were guilty of manipulation in the past. It should give clients the option to request another benchmark, if available, given the prior misdeeds of the contributor or the administrator. While not many clients may choose to use an alternate benchmark given the value of contracts that refer to a liquid, albeit manipulated one, this option may return a bit more of the market discipline to the process. If a contributor, for example, makes numerous disclosures admitting manipulation of several benchmarks, it may seriously impact its reputation in the markets. A client may respond by engaging the services of another institution because of the seemingly pervasive dishonesty of the contributor. Again, this is how market discipline *should* work, but for the cost of liquidity. These mechanisms, therefore, would inject quasi-market discipline into the benchmark industry, making it at least more responsive to allegations of manipulation than it is now.

Creating an SRO regulatory framework would address many of the issues that beset the benchmark industry and expose these critically important metrics, and the markets that depend on them, to manipulation. Government oversight of the self-regulatory schema would add legitimacy to the process and incentivize market players to self-police to avoid the heavy, punitive hand of the government regulators. Furthermore, the right balance of enforcement mechanisms would provide a new, different form of market discipline, offsetting the absence of actual market discipline. This process would also offer a lighter touch than that of the United Kingdom, which has adopted a government-driven prescriptive framework that excludes the benchmark industry from participating in its regulation.[229] By engaging market actors in their own regulation, but subjecting it to government oversight, it would be possible to allow benchmarks to benefit the markets and minimize their susceptibility to abuse.

In spite of the benefits that will accrue from an SRO framework, government involvement is necessary to counter the fact that the SRO would also suffer from conflicts of interest. A two-tiered regulatory structure that includes government oversight of the SRO would be ideal. A self-regulatory

229. *See Benchmark Powers*, *supra* note 218.

structure, when combined with government oversight, would balance government involvement against market interests. Financial regulators would be able to impose broad, overarching standards on the industry, but this regime would enable participants in the benchmark industry to have a meaningful say in their own regulation. The following Subpart discusses the contours of government involvement in the proposed regulatory framework in greater detail.

5. Government Oversight

Government involvement is required if benchmark regulation is to be a meaningful change from the current status quo. Government oversight of the benchmark industry would ensure that the SRO implements and enforces rules and regulations to improve the benchmark industry and the financial markets overall. Again, the relationship among the SEC, FINRA, and stock exchange provides a useful guide. In establishing an SRO for national stock exchanges, the 1934 Exchange Act does not trust the industry-led SRO with the ultimate discretion to determine which rules and regulations it ought to implement.[230] Rather, it specifies minimum listing standards, requires that the exchanges adopt rules to govern their members, and gives the SEC general authority over the SRO.[231] Thus, the SRO has regulatory jurisdiction over its members, but under the purview of the SEC. Consequently, the SEC has the sole responsibility for ensuring that FINRA fulfills its minimum regulatory obligations. It has oversight of FINRA's rulemaking process, including the authority to approve or deny proposed rules and to abrogate and amend adopted rules. The SEC may also pursue enforcement action against FINRA for failing to enforce its own rules, and it may review disciplinary actions FINRA has taken against its members.[232]

This tiered regime has two notable benefits. First, it ensures that the benchmark SRO is within the scope of government oversight. Government involvement in the benchmark SRO structure, albeit from the outside, ensures that the "watchers are being watched," thereby improving the quality of governance of the industry overall. With the credible threat of government prosecution, the benchmark SRO is motivated to police and monitor its members, and, relatedly, the members are motivated to comply. Second, this regulatory format enables the financial regulator to use its limited resources more judiciously. Rather than seeking to monitor and police the myriad actors in the industry, the financial regulator can monitor and oversee the benchmark SRO and rely on the SRO to monitor the actors directly. The SRO framework, therefore, makes use of the authority of the financial regulator to

230. Securities Exchange Act of 1934 § 6, 15 U.S.C. § 78(f) (2012).

231. *Id.* § 78(s).

232. *Id.*

keep market actors in compliance without invasive government involvement in the industry's direct regulation.

It can be said that the format of the benchmark industry shares similarities with national stock exchanges,[233] which makes the SRO format well-suited to benchmark regulation. Given the fragmentation of U.S. financial regulation, the overseeing government agency of the benchmark SRO could be the SEC, the CFTC, or the Federal Reserve, depending on the benchmark's underlying market. While there are strengths and weaknesses for any of these regulatory bodies, this Article does not need to resolve that question. Rather, it is sufficient to say that the government agency with oversight of the benchmark SRO would perform its tasks comparably to the SEC in relation to FINRA. Government intervention in benchmark regulation would follow President Theodore Roosevelt's foreign-policy doctrine: Speak softly, but carry a big stick. This would allow the SRO and its members to develop effective regulation for the benchmark industry without burdensome intervention from the government but nonetheless under its watchful eye.

V. OBJECTIONS AND RESPONSES

Regulating benchmarks will not be without its challenges. For starters, there are overarching concerns about imposing a new regulatory system on an industry that has never known one. Adopting a new system of regulation will impose costs on the markets and, possibly, increase the costs of using benchmarks. Yet, in spite of these drawbacks, the benefits of a two-tiered regulatory framework as proposed herein outweigh the costs. This Subpart addresses challenges to an ex ante regulatory framework for benchmarks.

One of the first objections to a regulatory framework is based on the diverse array of benchmarks in the financial markets. Benchmarks vary widely in how they collect and calculate data and how market actors use them. These disparities mean that, while certain rules may be well suited for one category of benchmarks, they may not be applicable to others. If the proposed framework seeks to impose broad, one-size-fits-all regulations on the benchmark industry, it will undoubtedly burden some benchmarks—possibly to the point of extinction.

The SRO framework this Article proposes would address this because the industry would design the adopted regulation by and for itself, making it more likely that the regulation will be appropriately flexible to accommodate the varying needs of different types of benchmarks. By combining the relevant expertise of the benchmark industry with financial regulators, the SRO framework should be able to find innovative ways to monitor the industry,

233. These similarities are owing to benchmark administrators acting as intermediaries for pricing information, in much the same way stock exchanges allow market participants to determine the value of traded securities.

such that the benefits to market participants and the financial system as a whole outweigh its costs.

Given the intricacies of the benchmark industry, government regulators would need the insights of market actors to implement a robust regulatory framework. This is a common approach in financial regulation and would be beneficial with benchmark regulation as well.[234] This is particularly true given the structure of the benchmarking industry, which is innately conflicted and obscures manipulative activities. Accordingly, government oversight would require the assistance of insiders to be effective. Furthermore, although the concerns of capture are valid, they should not exclude industry participation given the complexities of the benchmark industry.

A significant concern with adopting benchmark regulation is the chilling effect that it could have on the industry. Opponents of benchmark regulation may point to increased costs that always accompany a new regulatory regime.[235] These costs could force some benchmarks to fold, reducing market liquidity and transparency and increasing transaction costs. Such an effect on benchmarks would be significant because their popularity is directly related to the fact that they increase market liquidity and reduce transaction costs. If regulation were to impact these features in significant measure, their utility would be lost.

Indeed, if benchmarks were regulated, there is a possibility that some data contributors would withdraw from the process to avoid regulation. If contributors refuse to participate in the process, this would weaken the benchmark. It is important to consider, then, the alternatives available if regulation leads to a mass exodus of contributors from the benchmarking process.

One option in response to this issue is mandatory data submission—requiring input providers to continue in that role after the SRO has been formed and has adopted regulations. For input providers already subject to the oversight of financial regulators in one way or another—such as banks, hedge funds, and mutual funds—it may be possible to mandate benchmark submissions. But these entities do not constitute the universe of benchmark data providers. Importantly, for non-regulated contributors, there may simply be no basis on which government agencies may compel data submissions absent legislation. Consequently, while mandatory data submission may work

234. *See, e.g.*, Press Release, Morgan Lewis, SEC Requests Public Comment on Transfer Agent Regulation and Concept Release (Jan. 14, 2016), https://www.morganlewis.com/pubs/sec-requests-public-comment-on-transfer-agent-regulation-proposal-and-concept-release; Press Release, SEC. EXCH. COMM'N, SEC Publishes Request for Comment on Regulation S-X (Sept. 25, 2015), https://www.sec.gov/news/pressrelease/2015-211.html; Press Release, U.S. Commodity Futures Trading Comm'n, CFTC Staff Issues Request for Comment on Draft Technical Specifications for Certain Swap Data Elements (Dec. 22, 2015), http://www.cftc.gov/PressRoom/PressReleases/pr7298-15.

235. *See* Rimes, *EU Council Adopts New Benchmark Regulation*, THOUGHT LEADERSHIP (May 25, 2016), https://www.rimes.com/insights/financial-benchmark-regulations.

for some benchmarks, it may not be possible in all benchmarks in which voluntarily submitted estimates constitute the inputs.

Absent mandating data contribution, benchmark regulation could result in two distinct possibilities regarding the voluntary participation of input providers. First, contributors may continue to provide data in spite of the new regulation, particularly if the benchmark is liquid. Data contributors may consider it to be in their own interest to provide data to the benchmark because the potential costs of regulatory compliance are less than the benefits of using a liquid benchmark. Indeed, during a review of LIBOR post-scandal, market participants indicated that they would only be willing to continue contributing data to LIBOR if it were regulated.[236] Furthermore, recent research has demonstrated that dealers and banks are ardent adopters of benchmarks because of the value of liquidity to their trading activities.[237]

A second option is to allow the benchmark to cease to exist. The market would, in response, either find an alternate index or benchmark that met its needs, or it would develop the means by which to gather the same information. While this alternative may appear to be a high cost to pay for regulation, it is not so high as it might seem. If market actors choose to withdraw from the benchmark to avoid regulation, this would indicate that data providers may have been extracting rents from their participation in the benchmarking process (possibly through the ability to manipulate the benchmark), or that the benchmark was not valuable to the markets. In either instance, regulation compels the market to make a choice about the utility of the benchmark, which makes it stronger in the long run.

In sum, while there may be some chilling effect on the benchmark industry, it is unlikely that there would be wholesale flight away from regulated benchmarks. In fact, the "cost of liquidity" would force some data contributors to continue submitting data if they had obligations tied to the benchmark. In spite of the costs that would accompany benchmark regulation, the benefits would outweigh the costs. Regulation would strengthen the information available and increase the worth of benchmarks to the markets. As the example of the United Kingdom demonstrates, benchmarks are able to withstand regulation—even when it is more onerous than the framework this Article proposes.

VI. CONCLUSION

Benchmarks are an integral feature of the markets, and their importance will only continue to grow. In spite of this, benchmarks remain curiously, dangerously, and firmly outside the scope of financial regulation in the United States. As this Article demonstrates, the conventional wisdom that

236. Bainbridge, *supra* note 113, at 813–14.

237. Duffie et al., *supra* note 74.

advocates an enforcement-only regulatory approach to market manipulation does not hold true with benchmark manipulation. This is because of the innately conflicted process by which market actors use and consume benchmarks that enables their distortion to go undetected for many years. This is further exacerbated when a benchmark is liquid because market discipline is absent as a barrier against manipulation. Generally, market actors will remain loyal to a liquid benchmark because of the cost of using an alternate benchmark and/or unwinding contracts that rely on it. All of this calls for prescriptive regulation because of the inability of the market to protect itself—a classic justification.

Because of the widespread integration of benchmarks into the financial markets, benchmark manipulation has far-reaching consequences for them. To leave this significant segment of the markets unregulated is concerning, particularly for its integrity, efficiency, and stability. As this Article proposes, a prescriptive framework that addresses the underlying causes of benchmark manipulation would curb the occurrence and extent of benchmark manipulation and, concomitantly, enhance the integrity of the markets. By incorporating those involved in the benchmarking process in their own regulation, the proposed SRO format ensures that the regulations would be flexible and responsive to the needs of the industry. On the other hand, the oversight of a regulator would minimize the likelihood of non-enforcement or industry non-compliance. While there are legitimate concerns that may be raised with this approach, it is undeniable that regulation is necessary to safeguard benchmarks from recurring manipulation and the wider financial markets from the consequences of such abuses.

If regulators want to curb market manipulation effected through benchmarks, they must consider and eventually implement ex ante regulation. The two-tiered SRO framework that this Article proposes, if adopted, would augment the integrity of benchmarks and render them less susceptible to manipulation, particularly in light of the extent to which they are embedded in the markets. If the 2008 financial crisis taught the markets anything, it is that an aspect of the market may seem benign, but its market-wide impact can be great. Benchmarks in many ways are similar: They are essential to a properly functioning market and heavily utilized. Yet, their oversight, control, and (lack of) regulation are in self-interested hands that bear no incentive to supervise them. Hopefully, it will not require a manipulation scheme with systemic consequences to force U.S. regulators to understand the necessity and wisdom of ex ante benchmark regulation.