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1. INTRODUCTION

It is uniformly agreed that the Global Financial Crisis (GFC) and its aftershock, the so-called Sovereign Debt Crisis (SDC), constitute the greatest global economic calamity since the Great Depression. The main aspects of the problem have included frozen credit markets, the subprime mortgage crisis, slow and inconsistent policy responses, escalating sovereign debt, and an unfolding global (or near global) recession. The crisis has involved major corporate investment and mortgage banking collapses and bailouts in the United States (Lehmans, Freddie Mac and Fannie Mae), United Kingdom (Northern Rock), and Europe (Fortis, Hypo) and has had a devastating effect on homeowners who cannot pay their mortgages (foreclosures), retirees whose pension funds have plummeted in value, employees whose jobs have been lost or are at risk in the recession, and taxpayers whose money is being injected into the banking system in vast quantities to rescue it (e.g., trillions of dollars by the US government).

Unethical, including imprudent, practices have been identified as being among the principal causes of the crisis. These practices include (1) reckless and predatory lending by banks; (2) developing highly leveraged investment banks; (3) the selling of toxic financial products, notably nontransparent

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packaged bundles of mortgages (including subprime mortgages) assessed by ratings agencies as high quality because the investment banks that packaged them had good risk assessment processes, securitized, and sold by banks to pension funds; (4) massive frauds, for example, Bernie Madoff's ponzi scheme; (5) allowing the growth of unsustainable debt by governments and, indeed, whole economies, for example, the US overseas debt accumulated in 2006 alone was $850 billion; (6) excessively loose monetary policy by central banks; (7) the negligence and/or complicity of legislators and regulators regarding all of the above.

Moreover, while the crisis has evidently eased, the bad news regarding unethical behavior, and accompanying financial risk on the part of global banks, continues. There have been a rash of post-GFC money-laundering scandals (e.g., HSBC), incidents of banks facilitating tax evasion through off-shore accounts (e.g., UBS), and rogue traders who have continued to wreak havoc (e.g., the so-called London Whale at JP Morgan Chase).

However, the most important unfolding corruption scandal, or sequence of scandals, in the international banking sector at the time of writing is undoubtedly the manipulation of financial benchmarks. To date, the most prominent of these is the Libor (London interbank offered rate) scandal. Libor is a globally important benchmark calculated for ten major currencies, administered by the British Bankers' Association (BBA) and published daily; it has been subject to manipulation by many, if not most, of the leading global banks.[1] Moreover, libor manipulation turns out to be just one among an array of financial benchmarks which have been subject to manipulation. Others include euribor (euro interbank offered rate) and tibor (Tokyo interbank offered rate). Indeed, the European Union's investigation into manipulation of financial benchmarks has led to fines for six global banks—JP Morgan Chase, Citigroup, Société Générale, UBS, Royal Bank of Scotland (RBS), and Barclays. With fines totaling $2.3 billion, this is "the largest cartel fine in history."[2] As if this wasn't enough, it now seems that it is not simply interbank interest rate benchmarks that have been manipulated but, very probably, foreign currency exchange rate (forex) benchmarks, notably, WM/Reuters reference rates.[3]

Accordingly, the question arises as to where it will all end; indeed, some commentators are already suggesting that we are or have been on the cusp of one of the greatest corruption scandals in international banking history.[4]

In this context, I note that these and other financial benchmarks and indexes constitute financial infrastructure and, as such, have a key role in a

1. An earlier version of some of the material in this article appeared in Seumas Miller, "The LIBOR Scandal," in *Integrity, Risk and Accountability in Capital Markets: Regulating Culture*, ed. Justin O'Brien and George Gilligan (Oxford: Hart, 2013), 111–128.

2. Justin O'Brien, "Cartel in Benchmark Rigging" (December 5, 2013). <www.unsw.clmr>

3. Liam Vaughn, Gavin Finch, and Ambereen Choudhury, "Traders Said to Rig Currency Rates to Profit Off Clients," <www.bloomberg.com/news/print/2013-06-11/traders-said-to-rig-currency-rates>

4. O'Brien, "Cartel in Benchmark Rigging."

multitude of financial transactions worth trillions of dollars.[5] While prices, including interest rates and currency exchange rates, obviously depend on supply and demand, it turns out that they also depend on reference rates (financial benchmarks) set by (ideally, but not necessarily in fact) independent administrators on the basis of (again ideally, but not necessarily in fact) objective transactional data. In short, decision making by market actors in financial markets relies crucially on financial benchmarks.

Significantly, the various manipulations of financial benchmarks in question have involved collusion between banks and have implicated senior bank staff; so the matter cannot simply be dismissed as a case of "a few rotten apples." As I argue below, the fact that there is widespread collusion within and between banks implies that there is collective responsibility both for the malfeasance itself and for the failure to prevent it.

At the very least, it is evident that post-GFC global banks have not mended their unethical ways. Moreover, it seems that large-scale corporate collapses and corruption scandals in the global financial sector in general, and the global banking sector in particular, are a recurring phenomenon.[6]

Given that this recurring phenomenon is massively harmful in its economic and social impact on mortgage holders, shareholders, investors, employees, retirees, and so on it goes without saying that there is a need to address it. Moreover, it would appear that what is called for is a holistic approach which not only focuses on micro-institutional mechanisms, such as the workings of particular financial benchmarks, but also on some of the macro-institutional aspects of the banking sector that might bear on this and related ethical problems.

Central among these macro-institutional aspects is surely the phenomenon of global financial institutions that are "too big to fail."[7] Thus, there were a number of bailouts of major banks and other financial institutions following the decision in 2008 to allow Lehman Brothers to fail; a decision which is thought to have virtually brought the international financial system to its knees. Importantly for our concerns here, the phenomenon of banks that are "too big to fail" has morphed into the phenomenon of banks that are "too big to manage" and, indeed, "too big to jail" or, less colloquially, "too big to regulate." For example, there is the recent case of the multinational bank HSBC, and international money-laundering activities of criminal

5. For details, see Gabriel Rauterberg and Andrew Verstein, "Index Theory: The Law, Promise and Failure of Financial Indices," *Yale Journal on Regulation* 30, no. 1 (2013): Article 2. <http://digitalcommons.law.yale.edu/yjreg/vol30/iss1/2

6. See, for example, Paul Krugman, *The Return of Depression Economics and the Crisis of 2008* (New York: W. W. Norton, 2009); Frank L. Clarke, Graeme Dean, and K. G. Oliver, *Corporate Collapse: Accounting, Regulatory and Ethical Failure* (Cambridge: Cambridge University Press, 2003); and Paul W. MacAvoy and Ira M. Millstein, *The Recurrent Crisis in Corporate Governance* (Stanford, CA: Stanford University Press, 2004).

7. See, for example, U.S. Attorney-General Eric Holder's answers to the Senate Judiciary Committee as reported in Andrew Ross Sorkin "Realities Behind Prosecuting Big Banks," *New York Times* (March 12 2013), B1.

organizations, such as Mexican-based drug cartels.[8] The latter were found to have used HSBC for this purpose over a ten-year period resulting in a US $1.9 billion fine for HSBC for failing to have in place effective anti–money-laundering measures and for failing to conduct due diligence on some of its account holders. Criminal negligence notwithstanding, HSBC retained its license to operate having in effect been deemed by the regulators "too big to fail." However, the inference that is being drawn from HSBC's retention of its license in these circumstances is that it is, in effect, too big to regulate.

The general proposition that the banks are beyond the reach of regulators, whether because they are too big to regulate and/or for other reasons (e.g., regulatory capture), is further evidenced by the paucity of criminal convictions of senior bank personnel in this context of widespread and ongoing malfeasance in the global banking sector. For example, evidently the US Department of Justice (USDJ) has yet to prosecute successfully any bank personnel at the most senior levels for criminal behavior during and in the aftermath of the GFC. It simply beggars belief that senior Wall Street executives, including CEOs and board members, have not personally been engaged in various forms of criminal behavior, such as fraud or, at the very least, criminal negligence.

In addition to structural and associated regulatory reform, at micro and macro levels, there is a need to address issues of culture, though these are closely related. For example, there is a culture within the sector, or large parts of it, which is conducive to interest-rate rigging and, for that matter, other unethical practices. If so, structural and associated regulatory redesign needs to go hand in glove with the reformation of banking culture. Such reformation may well involve a process of professionalization, or at least of occupational ethical acculturation.

I take it that a fundamental problem that needs to be addressed in relation to the above-described ongoing cycle of banking scandals is institutional corruption and that a currently important aspect of this institutional corruption is the manipulation of financial benchmarks. At any rate, this is my focus in this article. Moreover, as I have also argued elsewhere, a principal remedy for institutional corruption consists in institutionally embedding *collective moral responsibility*. Accordingly, in this article, my task is threefold: (1) to provide an appropriate theoretical normative analysis of the kinds of key global financial benchmarks in question, namely, libor and WM/Reuters reference rates; I will do so in terms of my notion of a joint institutional mechanism[9]; (2) to establish and defend an appropriate theoretical notion of

8. Jill Treanor and Dominic Rushe "HSBC to Pay 1.2 Billion Pounds over Mexico Scandal," *The Guardian* (December, 2012). <www.guardian.co.uk/business/2012/dec/10/standard-chartered-settle-iran-sanctions>

9. Seumas Miller, "Joint Action," *Philosophical Papers* 21 no. 3 (1992): 275–99; *Social Action: A Teleological Account* (New York: Cambridge University Press, 2001), 174–79; and *Moral Foundations of Social Institutions,* 50–52.

collective moral responsibility; here I rely on my notion developed elsewhere in detail of collective moral responsibility as joint moral responsibility[10]; (3) to explore the ways in which collective moral responsibility can be institutionally embedded in the service of substantially reducing the actual and potential corruption of financial benchmarks.

2. FINANCIAL BENCHMARKS

2.1 The Manipulation of Financial Benchmarks: Libor and WM/Reuters Reference Rates

The libor is the average short-term (e.g., daily [shortest term], yearly [longest term][11]) interest rate that leading international banks estimate they would have to pay if borrowing from other banks. The most important libor is the three-month interest rate for US dollars. The average interest rate calculations are based on submissions to the BBA by the leading banks in question; these submissions ought to be the bona fide estimations by the leading banks of the interest rates they would have to pay. I note that these estimations not being calculations derived from actual observed transactions are inherently subjective and, as such, lend themselves to "falsification."

Libor is used as an interest rate benchmark by many financial institutions, mortgage lenders, and credit card agencies, that is, they use libor as the reference point for setting their own interest rates. According to Martin Wheatley (of the Wheatley Review of Libor[12]), "Libor is used in a vast number of financial transactions, with a value of at least $300 trillion."[13] Indeed, according to *The Economist,* Libor is the most important figure in finance.[14]

The libor scandal involves the rigging of libor (either by pushing rates up or pushing them down). The leading banks in question rigged libor by means of fraudulent and collusive submissions to the BBA. For example, at the height of the GFC, Barclays' management caused their staff to falsify the bank's libor submissions; on numerous occasions the interest rate submitted was lower than the actual estimation of the interest rate at which the bank could borrow in order to give the appearance that the bank was in

10. Miller, *Social Action*, Chapter 8; *Moral Foundations,* Chapter 4; and "Collective Moral Responsibility: An Individualist Account," *Midwest Studies in Philosophy* 30 (2006), 176–93.

11. There are actually fifteen such borrowing periods or tenors.

12. *The Wheatley Review (Final Report)* (London: HM Treasury), September 2012. <http://www.hm-treasury.gov.uk>

13. Martin Wheatley, "Pushing the Reset Button on Libor," Speech to the Financial Services Authority (FSA), London, September 26, 2012. <http://www.fsa.gov.uk/library/communication/speeches/2012/0928-mw.shtml>

14. "Libor Scandal: The Rotten Heart of Finance," *Economist*, (February 19, 2013). <www.economist.com/node/21558281?%22%22, accessed 28/03/2013>

better financial health than was in fact the case.[15] In addition, their bank traders made huge profits for the bank (and increased bonuses for themselves) manipulating libor. They did so by causing their colleagues making the libor submissions to adjust those interest rate submissions (upwards or downwards). Even very small changes in libor enable traders to make huge profits if they can predict those changes in advance. On occasion libor manipulation involved interbank collusion; the UK Financial Services Authority (FSA) found this to be the case in its investigation of libor manipulation in the RBS.[16]

As mentioned above, investigations by the FSA, the USDJ, and other regulatory authorities have resulted in massive fines being imposed on major banks such as Barclays, UBS, and the RBS. For example, UBS has been fined $1.5 billion.[17] In addition, again as mentioned above, massive fines have been imposed on six global banks for financial benchmark manipulation by EU authorities. Clearly, the problem is systemic.

In addition to the institutional and reputational damage and the massive fines, there is the matter of (actual and potential) lawsuits filed on behalf of those who have been adversely affected by the manipulation of libor, for example, investors who earned a lower rate of interest than otherwise would have been the case, and mortgage holders whose interest payments were higher than otherwise would have been the case. The financial impact of these lawsuits (including class actions) may ultimately dwarf the fines being imposed on banks by the regulators.

What of the emerging corruption scandal of foreign currency exchange rate benchmark manipulation? According to a Bloomberg report citing five dealers, a number of the world global banks manipulated benchmark foreign exchange rates, specifically market leader WM/Reuters rates.[3] Such rates are used as benchmarks in the $5 trillion a day foreign exchange markets.

According to Bloomberg:

> WM/Reuters rates are published hourly for 160 currencies and half-hourly for the 21 most-traded. They are the median of all trades in a minute-long period starting 30 seconds before the beginning of each half-hour. Rates for less-widely traded currencies are based on quotes during a 2-minute window.[18]

15. US Commodity Futures Trading Commission, "CFTC Orders Barclays to Pay $200 Million Penalty for Attempted Manipulation of and False Reporting Concerning Libor and Euribor Benchmark Interest Rates" (June 27, 2012). <www.cftc.gov/PressRoom/PressReleases/pr6289-12, accessed 27/03/2013>

16. Financial Services Authority, "Final Notice: Imposing Financial Penalty" (February 6, 2013). <www.fsa.gov.uk/static/pubs/final/rbs.pdf, accessed 27/03/2013>

17. BBC News, "UBS Fined $1.5bn for Libor Rigging" December 19, 2012. <www.bbc.co.uk/news/business-20767984, accessed 27/03/2013>

18. Bloomberg, *Barclays, Citigroup Among Banks Sued Over WM/Reuters Rates* (2013). <http://www.bloomberg.com/news/2013-11-01/barclays-citigroup-among-banks-sued-over-wm-reuters-rates-1-.html>

> The WM/Reuters rates are used by fund managers to compute the day-to-day value of their holdings and by index providers such as FTSE Group and MSCI Inc. that track stocks and bonds in multiple countries. While the rates are not followed by most investors, even small movements can affect the value of what Morningstar Inc. estimates is $3.6 trillion in funds including pension and savings accounts that track global indexes.[19]

Thus, manipulation of WM/Reuters rates can influence the returns earned by investors, including retirees accessing pension and savings funds and shareholders.[20] Consumers are also potential losers. According to John Coffee, a securities law professor at Columbia University, "Any corporation with global operations has to hedge currencies using futures and swaps. If the FX market is manipulated, it can create a loss that is passed on to the consumer and shareholders."[21]

Manipulation of benchmark foreign exchange rates has been investigated by various regulatory authorities, such as the UK Financial Conduct Authority and the US Securities and Exchange Commission and Commodity Futures Trading Commission.[22] Banks implicated in this emerging corruption scandal include Barclays, UBS, Citigroup, Deutsche Bank, RBS, and JP Morgan—all of whom have suspended traders pending internal or external investigations.[23]

According to *Frontline*,

> Four banks—Deutsche Bank, Citigroup, Barclays, and UBS—account for more than 50% of the market. The euro-dollar currency pair is the most liquid, and that portion of the market accounts for a quarter of all spot[24] transactions. And fewer than 100 traders run the spot market. This structure provides the base for collusion among traders.[25]

In the context of the above WM/Reuters rates manipulation allegations, the already proven collusion-dependent corruption of libor, euribor, and so on, regulators' concerns in relation to anomalous movements in exchange rates,

19. Bloomberg, *Traders Said to Rig Currency Rates to Profit Off Clients* (2013).<http://www.bloomberg.com/news/2013-06-11/traders-said-to-rig-currency-rates-to-profit-off-clients.html>

20. C. P. Chandrasekhar, "A Benchmark for Rigging," *Frontline* (November 27, 2013). <www.frontline.in/columns/C_P_Chandrasekhar/a-benchmark-for-rigging/article>

21. Ken Geiger and Silla Brush, "SEC Reportedly Probing Alleged Foreign-Exchange-Rate Rigging," *SFGate* (March 10, 2014). <www.sfgate.com/business/article/SEC-reportedly-probing-alleged-5304808.php>

22. Ibid.

23. Ibid,; Chandrasekhar, "A Benchmark for Rigging."

24. Spot transactions involve an agreement to buy one currency with another at the current rate of exchange. The current rate of exchange is something that is often determined by reference to benchmarks such as WM/Reuters rates. Spot transactions account for about one-third of all foreign exchange transactions.

25. Chandrasekhar, "A Benchmark for Rigging."

and in some key foreign exchange markets which are highly concentrated, there is a strong suspicion of collusion-dependent corruption in relation to manipulation of foreign exchange rates. Evidently, we have yet another instance, or set of instances, of collective moral responsibility for both financial benchmark corruption and failure to prevent it.

2.2 Financial Benchmarks and Joint Institutional Mechanisms

An important subelement of most, if not all, institutions is what I have referred to elsewhere as a joint institutional mechanism.[26] Benchmarks such as libor and WM/Reuters reference rates are, I suggest, examples of such mechanisms. Other examples are tossing a coin to resolve a dispute and voting to elect a candidate to political office.

Joint institutional mechanisms[27] consist of (1) a complex of differentiated but interlocking actions (the input to the mechanism); (2) the result of the performance of those actions (the output of the mechanism); and (3) the mechanism itself. In the case of libor, the inputs are the interest rate estimates submitted by the banks. In the case of WM/Reuters reference rates, it is the actual observed transactional data (e.g., all the trades in the minute-long period [see above]). So there is interlocking and differentiated action (the various inputs of the submitters). Further, there is the process applied to the inputs (the mechanism). In the case of libor, this mechanism consists of averaging the various submissions,[28] and in the case of WM/Reuters reference rates it consists of calculating the median of the observed trades during some hour or half-hour period. The application of the mechanism (the averaging process or calculation of median process) to the input (the submissions or trades) yields an output, namely, the libor interest rate for some currency over some period or the reference rate for exchange of some currency with another currency over some hourly or half-hourly period.

Note the following important points regarding these joint institutional mechanisms, assuming they are working as they should and realizing their normative institutional purposes, that is, if they are not malfunctioning or corrupted. First, in each case, *there is a result* is (in part) constitutive of the mechanism. The result (i.e., the resulting interest rate or foreign exchange reference rate) is not aimed at by each or any of the economic actors providing the data; after all, none of these actors can predict the result, let alone bring it about by aiming at it. (I am assuming the mechanism in question is uncorrupted and not malfunctioning.) Nevertheless, in the case of libor, each of the participants in the mechanism (e.g., the bank submitters) has a common end (more precisely,

26. Miller, *Moral Foundations of Social Institutions*, 50–52.

27. Miller, *Social Action*; Miller, *Moral Foundations of Social Institutions*.

28. The averaging process is somewhat more complex than simple averaging since some of the highest and lowest submitted rates are excluded from it. However, this is a sufficient description for our purposes here.

a collective *epistemic* end—see Section 3[29]); namely, that the average interest rate—whatever that is—will be produced by this mechanism. Similarly in the case of the foreign exchange reference rates, the parties to the mechanism have a common end, namely that the median foreign exchange rate—whatever that is—will be produced by the mechanism. Note that in the case of foreign exchange transactions the traders whose trades are being observed are participants in the mechanism by virtue of their being willing,[30] presumably qua market participants committed to the relevant benchmark, to make the details of their transactions known to WM/Reuters for the purposes of enabling the personnel at the latter to generate the reference rates in question.

Second, the generation of an interest rate or exchange rate reference rate by such a mechanism serves a further institutional purpose which is the raison d'être of the mechanism (and, as such, in part constitutive of it), namely that of providing a *benchmark* (interest rate or foreign exchange reference rate) upon which various institutions and individuals can rely. So at one level of description, the result of the application of the mechanism is simply a particular interest rate arrived at by averaging or a particular exchange rate arrived at by calculating the median, that is, they are just *numbers*; but at another level of description, these rates are *benchmarks*. This ultimate benchmarking purpose is itself a collective end of the joint institutional mechanism, but one aimed at not just by the bankers (in the case of libor, the submitters and the compilers of the rates) or the traders (who provide the transactional data) and the personnel at WM/Reuters (in the case of the foreign exchange reference rates) but also by those who use libor to set their own interest rates or use the foreign exchange reference rates to conduct their own foreign exchange transactions or related financial activity. That any one of the two kinds of rates in question serves as a benchmark is an end which is realized not simply by the banks generating it via their submissions, or the personnel at WM/Reuters via the trades they observe, but also by other institutions and individuals using it as such. Absent the participation of both parties (or categories of party), the financial benchmarks of libor and WM/Reuters foreign exchange reference rates would have no point and would cease to exist.

Third, the benchmarking purpose or collective end of joint institutional mechanisms, such as libor and WM/Reuters' reference rates, is what I have elsewhere referred to as a collective good.[31] Accordingly, it is something that *ought to be* jointly aimed at by relevant participants; it ought to be aimed at (other things being equal) because it is a good (albeit, in the case of benchmarks, an instrumental good). In short, financial benchmarks are not

29. More precisely, there is a two-stage process, the first stage of which is the production of Libor, the second stage of which is its communication and acceptance by numerous institutions and individuals as a credible benchmark. The collective end is an epistemic one since it consists in an item of knowledge (ideally). For more on this, see Miller, *Moral Foundations of Social Institutions*, Chapter 11.

30. Or at least their superiors are willing to allow these trades to be observed.

31. Miller, *Moral Foundations of Social Institutions,* chaps. 1 and 2.

simply prices consequent upon supply and demand but which no one is actually aiming at; rather they are the aimed-at average or median (or other numerical relationship) calculated on the basis of recorded transactional data or judgments thereof. Moreover, they are calculated, promulgated, and relied upon as a collective good, that is, as a mutually known benchmark upon which market actors can rely. Accordingly, they constitute, I suggest, financial infrastructure underpinning market activity in the finance sector.

Fourth, and needless to say, providing false submissions, or otherwise seeking to manipulate the results of the mechanism, is a matter of breaching one's moral obligations, given its important institutional purpose (it is a collective good) and the consequent trust placed in it by so many. This point has been reinforced by the recommendation of the Wheatley Review and the Monetary Authority of Singapore,[32] that noncompliance with the requirements of libor, for example, by intentionally making false submissions, be a criminal offense.

From an analytical moral perspective, a dual feature of the manipulation of benchmarks, a feature which might go some way to explaining their prevalence, is that, on one hand, manipulation can yield huge financial rewards for those who engage in it, and on the other, the harms caused to victims can be thought to be spread very thinly—millions of individuals get cheated, but only out of a relatively small amount, so that no one is seriously harmed. This may well be largely true if only a single act of manipulation is considered, though even here there are important exceptions. For example, a retiree's single large savings investment with an overseas component may be substantially adversely impacted by foreign exchange rate manipulation on the date of the investment's maturity. In the case of multiple acts of manipulation over time, it is much less likely to be true that the harms caused are spread thinly. For example, an individual could suffer great financial harm if inflated interest payments on a house or reduced investment returns to a retirement fund are aggregated over decades. There is also the matter of the institutional, including reputational, damage resulting from the undermining of trust in the benchmarks in question once they are known, or even falsely believed, to be manipulated.

One important difference between libor and WM/Reuters reference rates is that the latter are more directly based on observed transactions—as opposed to subjective judgments about what the rate would be. A second important difference is that the administrator operating the mechanism and those supplying the transactional data are not the banks or bank personnel themselves (via their representative body, BBA); so there is not the same structural conflict of interest and potential for collusion between submitters—or in the case of WM/Reuters observers of the transactions—and traders as in the case of libor. In these two respects, libor is surely in need of reform. On the other hand, most foreign currency transactions take place outside organized

32. Monetary Authority of Singapore, *MAS Proposes Regulatory Framework for Financial Benchmarks* (Singapore: Singapore Government, 2013). <www.mas.gov.sg/News-and-Publications/Press-Releases/2013>

exchanges and are subject to even less regulation than interest rate benchmarks such as libor. In this respect, foreign exchange rate benchmarks are surely in need of reform.

3. COLLECTIVE MORAL RESPONSIBILITY

Collective moral responsibility is a species of moral responsibility. Here, we need to distinguish *moral* responsibility (including collective moral responsibility) from *causal* responsibility.[33] A person or persons can inadvertently cause a bad outcome without necessarily being morally responsible for so doing. Moral responsibility typically requires not only causal responsibility but also an intention to cause harm or the knowledge that one's action will or may well cause harm, whether harm to persons or institutions or (more likely in the kinds of cases under consideration here) to both.

We also need to distinguish moral responsibility for actions and moral responsibility for omissions and retrospective from prospective moral responsibility. All these distinctions in respect of individual moral responsibility are mirrored in the case of collective moral responsibility. Hence, the various different but related questions that arise: Who are collectively morally responsible for the corruption of a financial benchmark by their acts or omissions? Who are collectively morally responsible for ensuring it does not recur? In this article, my primary concern is with the latter question and this is the focus of the final section in particular.

Collective moral responsibility is the moral responsibility that attaches to structured and unstructured groups for their morally significant actions and omissions. Thus, an organized gang of thieves who carry out a million dollar bank heist or a gang of bank employees who carry out a multimillion dollar interest-rigging fraud is said to be collectively morally (and, one might have expected, legally) responsible for the theft and fraud (respectively) and also for the resulting harm to those affected, for example, depositors or investors.

Elsewhere, I have elaborated and defended a relational account of collective moral responsibility; specifically, that of collective responsibility as joint responsibility.[34] On this view, collective responsibility is responsibility arising from joint actions and omissions.

Roughly speaking, a joint action[35] can be understood thus: two or more individuals perform a joint action if each of them intentionally performs an individual action (or omission), but does so with the (true) belief that in so doing, they will jointly realize an end which each of them has.

33. And also from notions of accountability and liability. See Andre Nollkaemper and Dov Jacobs, *Shared Responsibility in International Law: A Conceptual Framework*, Amsterdam Law School Research Paper No. 2011-17 (Amsterdam: Amsterdam Center for International Law, 2011) for discussions of these notions in international legal contexts.

34. Miller, "Collective Moral Responsibility," 176–93.

35. Miller, "Joint Action," 275–99; Seumas Miller, "Intentions, Ends and Joint Action," *Philosophical Papers* 24, no. 1 (1995): 51–67.

So joint actions are interdependent actions directed toward a common goal or end. But what is such an end? This notion of a common goal or, as I shall refer to it, a collective end, is a construction out of the prior notion of an individual end. Roughly speaking, a collective end is an individual end more than one agent has, and which is such that, if it is realized, it is realized by all, or most, of the actions of the agents involved; the individual action of any given agent is only part of the means by which the end is realized. Realizing the collective end is bringing into existence a state of affairs. Each agent has this state of affairs as an individual end. (It is also a state of affairs aimed at under more or less the same description by each agent.) So a collective end is a species of individual end.[36]

On this view of collective responsibility as joint responsibility, collective responsibility is ascribed to individual human beings only, albeit jointly.[37] Each member of the group is individually morally responsible for their contributory action and also for the outcome of the set of actions. However, each is individually responsible for that outcome *jointly with the others*; hence, the conception is relational in character. Thus, in our million dollar bank heist example, each member of the gang is responsible jointly with the others for the theft of the million dollars because each performed his contributory action in the service of that collective end (the theft of the million dollars).

The key notion of joint action underpinning collective responsibility can be construed very narrowly or more broadly. On the most narrow construal we have what I will call *basic* joint action. Basic joint action involves two co-present agents each of whom performs one basic individual action, and does so simultaneously with the other agent, and in relation to a collective end that is to be realized within the temporal and spatial horizons of the immediate face-to-face experience of the agents. A basic individual action is an action an agent can do at will without recourse to instruments other than his or her own body. An example of a basic individual action is putting one's hand in the till and seizing a wad of banknotes; an example of a basic joint action is two people lifting a safe onto the back of a truck.

If we construe joint action more broadly, we can identify a myriad of other examples of joint action. Many of these involve the intentions and ends of multiple institutional actors directed to outcomes outside the temporal and/or spatial horizon of the immediate experience of those actors, for example, the members of a management team setting revenue targets and developing

36. Miller, "Joint Action"; *Social Action*, 56–71; Seumas Miller, "Joint Action: The Individual Strikes Back," in *Intentional Acts and Institutional Facts: Essays on John Searle's Social Ontology*, ed. Savas L. Tsohatzidis (New York: Springer, 2007), 73–92; and *Moral Foundations of Social Institutions*, 41–46.

37. Accordingly, there is no need to hold that collective responsibility attaches to collective entities *per se*, as collectivist theorists such as Margaret Gilbert and (in a somewhat different vein) Philip Pettit have done. For criticisms of these collectivist accounts, see Seumas Miller and Pekka Makela, "The Collectivist Approach to Collective Moral Responsibility," *Metaphilosophy* 36, no. 5 (2005): 634–51.

strategies in the context of a plan to grow their business over a five-year period.[38]

We can further distinguish between two species of joint action, namely joint behavioral action and joint *epistemic* action.[39] Unlike joint behavioral action, joint epistemic action is directed to (collective) epistemic ends, notably knowledge—for example, members of a team of accountants seeking knowledge of the assets and liabilities of a company. As is the case with joint behavioral actions, participants in joint epistemic actions are collectively (jointly) morally responsible for morally significant joint epistemic actions—for example, the members of a team of auditors from Arthur Anderson who conducted an unsuccessful audit by virtue of failing to unearth fraudulent "special purpose entities" at Enron.

Naturally, epistemic action can, and often does, involve behavioral action and vice versa. Consider, for example, the evidence-gathering activities of auditors sifting through documents, conducting interviews, and so on. However, I suggest that epistemic action does not necessarily involve behavioral action. For example, mental acts of judgment are epistemic actions because directed at truth, knowledge, understanding, or some other epistemic end; but they are not necessarily instances of behavioral action.[40]

Note that the collective ends of joint epistemic actions are importantly different from those involved in joint behavioral action. In the case of the former the content of the collective end (for example, the knowledge whether or not that p) is necessarily absent at the commencement of the joint epistemic action; for it is precisely that knowledge which the joint epistemic action is aiming to acquire.

In the p section, I introduced a further species of joint action, namely joint *institutional* mechanisms. As we also saw above, financial benchmarks, such as libor and WM/Reuters reference rates, are joint institutional mechanisms. Joint institutional mechanisms play a central role in institutional activity, and it is important for my purposes in this paper that they can be understood in purely individualist terms by recourse to my core notion of joint action. For in that case the participants in morally significant joint mechanisms are, at least in principle, collectively (jointly) morally responsible for the input and output of these mechanisms.

On this account of joint institutional mechanisms, the various relevant bank submitters, traders, and/or managers involved in some particular episode of libor interest-rigging can be ascribed collective moral responsibility for this particular corrupt (joint) action and for any (personal and/or institutional) harm that might result from it. While each person is individually responsible for his or her contributory individual action or omission (e.g., a manager who signed off on a particular submission knowing it to be false), all those who

38. Miller, *Moral Foundations of Social Institutions*, Chapters 1 and 2.

39. Seumas Miller, "Collective Responsibility and Information and Communication Technology," in *Moral Philosophy and Information Technology,* ed. J. van den Hoven and J. Weckert (New York: Cambridge University Press, 2008), 226–50.

40. I cannot pursue the complexities of this issue here, although I have done so elsewhere.

intentionally contributed to the joint action are collectively (i.e., jointly) morally responsible for the realization of its end (e.g., all those who colluded to manipulate the interest rate in question so that they could profit from this).

Note that in most of the scandals, we are considering the network of joint actions and omissions can be quite wide and complex without necessarily involving all, or even most, personnel in a given institution. Moreover, some joint actions or omissions might be of greater moral significance than others, and some individual contributions, for example, those of senior bank managers, of greater importance than others.

Further, the cumulative damage done by an ongoing series of such episodes of corrupt action by numerous bank personnel from different institutions and on multiple occasions might conceivably also be attributed to the entire large group, though there are various barriers to the ascription of collective moral responsibility in large groups in which each member only makes a small causal contribution. In this connection, let us consider organizational action and, specifically, layered structures of joint institutional action.

Institutions which are organizations consist of an (embodied) formal *structure* of interlocking roles.[41] An organizational role can be defined in terms of the agent (whoever it is) who performs certain tasks, the tasks themselves, procedures,[42] and conventions. Moreover, unlike social groups, organizations are individuated by the kind of activity that they undertake, and also by their characteristic *ends*. Many organizations are also social institutions. Social institutions are organizations with a moral dimension by virtue of, for example, the authority relations they involve and the fact that in many cases their collective ends are also collective goods.[43] Thus, governments have, as a collective end, the regulation of other local institutions (a collective good), universities the end of discovering knowledge (a collective good), and so on.

Collective goods are not to be confused with public goods in the economists' sense, that is, nonrival and nonexcludable goods, notwithstanding the fact that financial benchmarks happen to be nonrival goods. Rather, collective goods are goods that are jointly produced. For example, cars are typically jointly produced; their production involves many different workers performing a variety of different tasks. Moreover, collective goods in my sense are (either necessarily or simply as a matter of contingent fact[44]) enjoyed by multiple actors; indeed, the members of the relevant community are entitled to access to the good. Benchmarks are collective goods since they are a good which is

41. Miller, *Social Action*, Chapter 5; Miller, *Moral Foundations of Social Institutions,* Chapters 1 and 2.

42. Defined in detail elsewhere but, roughly speaking, the performance of a certain task in each instance of a recurring situation.

43. Miller, *Moral Foundations of Social Institutions*, Chapter 2.

44. There are various complications arising at this point which I cannot pursue here, including in relation to the property of excludability.

jointly produced, namely, by the actions (in the case of libor) of submitters, and the like; moreover, they are enjoyed by multiple economic actors and, indeed, economic actors in the relevant market are entitled to access to the good.[45]

A further defining feature of organizations is that organizational action typically consists in what I have elsewhere termed a *multilayered structure of joint actions.*[41] One illustration of a layered structure of joint actions is a firm competing in a market-place. Suppose at an organizational level a number of joint actions ("actions") are severally necessary[46] and jointly sufficient to achieve some collective end. Thus, the "management action" of the home loans management team in a bank in setting the interest rates of the bank's home loans, the "compliance action" of the bank's legal team in ensuring the loans and their associated lending processes are compliant with the relevant laws and regulations, and the "sales action" of the home loans sales team in the provision of home loans in accordance with sales targets might be severally necessary and jointly sufficient to achieve the collective end of maximizing the bank's profits from home loans; these "actions" taken together constitute a joint action.

At the first level, there are individual actions directed to three distinct collective ends: the collective ends of (respectively) setting the interest rates, ensuring compliance, and meeting home loan targets. So at this level, there are three joint actions, namely the members of the management team setting interest rates, the members of the legal team ensuring compliance, and the members of the sales team meeting sales targets. However, taken together these three joint actions constitute a single joint action. The collective end of this second level joint action is to maximize revenue from home loans; and from the perspective of this second-level joint action, and its collective end, these (first-level joint) constitutive actions are (second-level) individual actions. I note that typically in organizations not just the nature but the quantum of the individual contributions made to the collective end will differ from one agent to another.

I have argued that collective moral responsibility is to be understood as joint moral responsibility: the joint moral responsibility of individual human actors engaged in morally significant joint actions (or omissions). I have further argued that the notion of joint action can be enriched so as to encompass action in accordance with joint institutional mechanisms (e.g., benchmarks such as libor) and organizational action, that is, multilayered structures of joint action. The upshot of this analysis is that individual human actors are,

45. Indeed, they have a joint right to the good. See Miller, *Moral Foundations of Social Institutions*, Chapter 2. Note that from the fact that one is entitled to access to a good it does not follow that one does not have to pay for it.

46. Here there is simplification for the sake of clarity. For what is said here is not strictly correct, at least in the case of many actions performed by members of organizations. Rather, typically some threshold set of actions is necessary to achieve the end; moreover, the boundaries of this set are vague.

at least in principle, collectively (jointly) morally responsible for morally significant organizational action.[47]

Accordingly, given that "the action" of (say) a bank in maximizing its revenue from home loans in a given period is to be understood as a multilayered structure of joint actions, and given this joint action is morally significant, then the various participants in it are collectively (jointly) morally responsible for its outcome. Here, it is important to note that within the set of individuals who are collectively morally responsible for some outcome, the degree of individual responsibility that some have (jointly with others) might be greater than the degree of individual responsibility that those others have; for example, managers will typically have a higher degree of individual responsibility than their subordinates. Moreover, if the contribution of some individuals is minute and they are only very indirectly connected to some morally significant outcome, then their degree of moral responsibility may well diminish to the point of nonexistence. And, of course, if some individual members of an organization did what they could to avoid participating in a multilayered joint action with an adverse outcome then these individuals may well not have any share in the collective moral responsibility for that outcome.[48]

Further, in some cases of collective moral responsibility, no one is *fully* morally responsible for the adverse outcome; rather each has a share, so to speak, of the collective moral responsibility in question. The GFC is a case in point. No single individual (or, for that matter, organization) is *fully* morally responsible for the credit crisis, housing bubbles, near global recession, and so on constitutive of the GFC. This is, of course, not to say that no one has *any* morally responsibility. On the conception of collective moral responsibility as joint moral responsibility, each member of the salient group in question must have *some* degree of moral responsibility (jointly with the others).[49]

Naturally, multiple individuals could be collectively *causally* responsible for some adverse outcome without any individual having any *moral* responsibility (notwithstanding his or her individual causal responsibility). Nineteenth-century—as opposed to, say, twenty-first-century—contributors to human induced harmful global climate change are a case in point; nineteenth-century contributors did not know, and could not have known, the harm they were causing. Moreover, even if a set of individuals do know that they are

47. This theoretical standpoint is not to be confused with the view that organizations and other collective entities can be reduced to the individual human organizational actors and their individual actions. The latter view is surely incorrect. Moreover, there are complexities here that I cannot pursue for reasons of space. I have discussed these complexities elsewhere.

48. I have dealt with these questions in detail elsewhere.

49. For arguments against collectivist theories of collective moral responsibility which allow the possibility of collective moral responsibility without any individual moral responsibility, or with collective moral responsibility above and beyond aggregate (and/or joint) moral responsibility, see Seumas Miller, "Against the Moral Autonomy Thesis," *Journal of Social Philosophy* 38, no. 3 (2007): 389–409; and Miller and Makela, "The Collectivist Approach to Collective Moral Responsibility," 634–51.

collectively causing harm, they may not be collectively moral responsible for that harm by virtue of not being able to organize themselves sufficiently to avert that harm, or at least unable to do so within the relevant time frame. This was arguably true in the late 1990s of government officials in relation to harmful human-induced climate change, even if it is no longer true.[50]

4. INSTITUTIONALLY EMBEDDING INDIVIDUAL AND COLLECTIVE MORAL RESPONSIBILITY IN FINANCIAL BENCHMARKS

The widespread and ongoing manipulation of financial benchmarks is a species of institutional corruption. Moreover, as I have argued elsewhere,[51] the corrupt condition of an institution or institutional mechanism exists only relative to some moral standards, which are definitional of the uncorrupted condition of that institution, including the moral character of the persons in institutional roles. Consider the uncorrupted libor process. It consists of truthful, well-founded submissions being made by various banks and a correct calculation being made in accordance with the averaging procedure. This otherwise morally legitimate institutional process is corrupted if one or more of its constitutive actions are not performed in accordance with the process as it is rightly intended to be. Thus, to understate or overstate one's estimations in the service of influencing the result of the process so as to enable one's traders to make profits is a corrupt action. In relation to moral character, consider an honest submitter who begins to make false libor submissions under the pressure of a corrupt senior management or a corrupt culture among the bank's traders. By engaging in such a practice, he risks the erosion of his moral character; he is undermining his disposition to act honestly.

Before proceeding further, it is important to clarify further the notion of institutionally embedding collective moral responsibility. It is also important to further clarify the relationship between individual and collective *moral* responsibility on one hand, and individual and collective *institutional* responsibility on the other. As a result, the relevant notion of the *distribution of individual moral responsibilities* in the context of the forms of collective moral responsibility in question will come into view.[52] I note that our concern here is principally with prospective rather than retrospective moral responsibility.

Collective moral responsibility can enter into the picture at three points (at least). First, there might be a collective moral responsibility to establish an institution or institutional mechanism, for example, to establish some

50. Seumas Miller, "Collective Responsibility, Epistemic Action and Climate Change," in *Moral Responsibility: Beyond Free Will and Determinism,* ed. Nicole A. Vincent, Ibo van de Poel and Jeroen van den Hoven (Heidelberg: Springer, 2011), 219–46.

51. Miller, *Moral Foundations of Social Institutions,* Chapter 5.

52. For more detail in relation to the following discussion, see Miller, *Moral Foundations of Social Institutions,* Chapters 2 and 4; and Miller, "Collective Moral Responsibility: An Individualist Account."

financial benchmark or other such as libor. Second, there might be a collective moral responsibility to reform an institution or institutional mechanism, for example, to redesign libor so as to ensure it is not subject to manipulation. Third, there is the collective moral responsibility of the various participants in such an established or redesigned institution or institutional mechanism to realize its collective end(s) and, thereby, generate its collective good(s).[53] In the case of financial benchmark corruption, it is primarily the second and third collective moral responsibilities that are in question.

Accordingly, prior to the redesigning of an institutional arrangement of the kind in question (e.g., libor), there is typically a collective moral responsibility to deal with some problem (e.g., institutional corruption). Moreover, those who have this collective, that is, joint, moral responsibility are quite often multiple and diverse—for example, submitters, bank managers, regulators, and members of the legislature. However, since the design and implementation of the institutional "solution" to the problem has not yet taken place, the collective moral responsibility of these agents is often relatively inchoate and, as a consequence, the accompanying individual moral responsibilities underspecified.

However, once the specific institutional arrangement—the joint institutional mechanism—has been redesigned and implemented matters are different. There is now not only a collective end which is a collective good (e.g., the provision of an *uncorrupted* interest rate benchmark), but also a specific institutional means to achieve this end (e.g., an independent administrator of the benchmark, an appropriate governance structure for the administrator, a reliable methodology for calculating the benchmark rates, and stringent oversight and disciplinary powers in relation to would-be manipulators). Importantly, the institutional rights and duties of the role occupants in this redesigned joint institutional mechanism have now been specified in a manner that—let us assume—ensures the scheme is no longer corrupted but rather reliably and consistently achieves its collective end. So the original somewhat inchoate collective moral responsibility to remedy the corruption (or other) problem has been discharged by means of a redesigned joint institutional mechanism which assigns specific institutional responsibilities.

Notice that whereas each institutional role occupant has an *individual* institutional responsibility (e.g., to provide accurate transactional data), it is the combination of all the contributing institutional actors (e.g., the providers of data, those who apply the methodology, the regulators of the administrator) that realizes the collective end of the (now presumably uncorrupted) joint institutional mechanism. Accordingly, each institutional actor is not only discharging his individual institutional responsibility; each is also (simultaneously) doing his or her part to jointly discharge the *collective* institutional responsibility of the joint institutional mechanism, for example, to provide an uncorrupted financial benchmark.[54]

53. See Miller, *Moral Foundations of Social Institutions*.

54. The benchmark qua joint institutional mechanism also involves the users of the benchmark. However, users qua users do not have moral responsibilities *vis-à-vis* mechanism in the same sense.

Moreover, these individual and collective *institutional* responsibilities are *also* individual and collective *moral* responsibilities; or, at least, they are if we assume the joint institutional mechanism in question realizes a collective good, does not involve any rights violations, is fair and reasonable, and so on. Thus, in the case of libor, the individual institutional responsibility of the submitters is also an individual moral responsibility. Again, the collective institutional responsibility on the part of submitters, managers, and so on in multiple banks, members of the administrative agency, and on the part of bank regulators, and so on—discharged by way of each discharging their individual institutional responsibilities jointly with the others—is also a collective (i.e., joint) moral responsibility.

It should now be evident what is meant by institutionally embedding collective moral responsibility. The original somewhat inchoate collective moral responsibility, and its accompanying underspecified individual moral responsibilities, have now been transformed by way of an institutional arrangement into a collective moral responsibility with specific content and an accompanying set of well specified individual moral responsibilities (the moral rights and duties definitive of the redesigned constitutive institutional roles).

Notice that the notion of collective moral responsibility in play here, that is, joint moral responsibility, applies vertically as well as horizontally (so to speak). It applies vertically in so far as the collective moral responsibility in question involves the joint actions of individuals at different levels in hierarchical organizations, for example, submitters and their managers. Here, there is a need to recall the conception outlined in Section 3 above of organizational action as multilayered structures of joint action. This conception makes possible the ascription of collective (joint) moral responsibility to members of an organization engaged in organizational action. Likewise the related conception of a joint procedural mechanism outlined in Section 3 makes possible the ascription of collective (joint) moral responsibility to participants in various subinstitutional mechanisms, such as the libor benchmark-setting process.

Notice further that the distribution of individual *moral* responsibilities in a joint institutional mechanism mirrors the distribution of individual *institutional* responsibilities in that mechanism. Roughly speaking, each discharges his or her individual moral responsibility in so far as he or she discharges his or her individual institutional responsibility. Moreover, in doing so each contributes to discharging—jointly with the others—the collective moral responsibility (which mirrors the collective institutional responsibility of the mechanism).

Accordingly, the notion of the distribution of individual moral responsibilities typically in play is not essentially a quantitative one. So, *in general,* it is misleading to assume that there is some quantum of collective moral responsibility which is to be distributed by analogy with (say) the distribution of a stack of cement bags among a team of laborers in a loading bay—each laborer being required to load some minimum number of bags so as to ensure the whole stack is loaded. Rather, the distribution of responsibilities is to be thought of more in terms of the notion of a division of labor. For example,

it is the responsibility of some actors to make correct submissions and that of others to unearth benchmark manipulation if it is taking place.

Nevertheless, in contexts of collective institutional and moral responsibility, some individual institutional and moral responsibilities are more important than others; some participants have a responsibility to make a greater contribution than others. For example, the occupant of a position of institutional authority typically has—other things being equal—a greater extent of individual institutional and moral responsibility for institutional outcomes than one of her subordinates.

In general, whereas any given participant in such an institutional joint mechanism is only partially morally responsible for the realization of the collective good realized by the mechanism, each is, nevertheless, fully morally responsible for their own individual contribution. However, this is not necessarily the case. For example, a subordinate may have diminished individual moral responsibility for his institutional action which would have untoward moral consequences if he carried it out under a (lawful) instruction from a superior.

In this overall context of institutionally embedding collective moral responsibility, let us now turn to some of the specifics of the institutional redesign of the financial benchmarks in question—redesign undertaken to combat their corruption. Here, I reiterate that my notion of collective responsibility is that of relational individual responsibility; it is not the notion of collective responsibility which attaches to the collective *per se* and, therefore, as critics have pointed out, enables individuals to avoid or evade responsibility.[55] I also note that Wheatley himself stressed the importance of collective responsibility to the integrity of the libor process.[56]

The various benchmark corruption scandals we have been considering can be viewed in each case principally as a failure of collective moral responsibility at a number of levels and not, therefore, as simply an aggregate of failures of individual moral responsibility as, for example, the "rotten apple" theory would have it. Importantly, and as noted by the Wheatley Review, there is a collective institutional responsibility on the part of libor submitters to provide well-founded, truthful submissions and, thereby, arrive at correct libor rates. It was this collective *institutional* responsibility—and, given the moral significance in terms of the resulting harm, breach of trust, and so on, collective *moral* responsibility—which those who engaged in false submissions failed to discharge and, in so failing, corrupted the libor process. What is remarkable is that pre-Wheatley it was probably not a legal offense to engage in libor interest-rate rigging; evidently, bank robbery was regarded as one thing, but robbery by bankers quite another. So criminalizing libor interest-rate rigging is an obvious quite specific required piece of institutional redesign.

55. U.K. Parliamentary Commission on Banking Standards, *Changing Banking for Good,* vol. 1 (London: House of Commons, 2013), 8.

56. Wheatley, "Pushing the Reset Button on Libor."

Institutionally embedding collective moral responsibility is primarily an exercise in respect of prospective, as opposed to retrospective, moral responsibility. Accordingly, it requires that matters of institutional redesign, implementation, and ongoing compliance be attended to.

At the micro level, there is a need to specify the collective good realized by joint institutional mechanisms such as benchmarks. In the case of financial benchmarks, such as libor and WM/Reuters reference rates, if methodologically sound and uncorrupted, they summarize complex transactional data in a manner that enables those relying on them to make well-founded financial judgments. However, the worth of these putative collective goods is itself dependent on the purposes served by the financial markets in question. If, for example, benchmarks were to be utilized purely or even primarily in the service of speculative trading, then, arguably, the integrity of benchmarks would be of questionable value because the financial practice which they helped to sustain was itself of questionable value.

Moreover, at the micro level, there is a range of structural and regulatory reforms that should be devised and implemented to combat corruption of financial benchmarks. As already noted, these include ensuring that the administrator is independent, the methodology for generating the benchmarks appropriate and reliable, and there is an adequate enforcement mechanism. The Monetary Authority of Singapore proposed a quite detailed set of measures in relation to administrator governance and enforcement in particular.[32] They included criminal and civil sanctions for manipulating financial benchmarks, regulatory oversight of benchmarks deemed to have systemic importance, licensing of administrators and submitters of key benchmarks, establishing arrangements for monitoring and surveillance of benchmark submissions, codes of conduct for submitters, and the appointment of an external auditor to conduct annual independent review of submitter's benchmark submissions.

Although such microstructural redesign of the joint institutional mechanism is necessary, for reasons outlined above it is not sufficient. There is also a need for macrostructural reform and a need also to address unhelpful elements of institutional culture. By way of concluding this article, I offer a brief description of some of the possible institutional redesign measures in these two areas.[57]

In relation to macrostructural redesign, a number of problems and possible solutions are salient. Take lopsided power structures (e.g., banks that are too big to regulate) and the related problem of a small number of dominant banks able to unduly influence interest and exchange rates in specific markets. Here, there is evidently a need for downsizing, possibly by splitting the investment from the retail arm of banks to form two separate institutions.[58] There may also be a need to provide additional resourcing to regulatory authorities and to give them more intrusive powers of investigation, if

57. I have discussed these in detail elsewhere.

58. Perhaps, in accordance with the so-called Volcker Rule originally within the Dodd-Frank Wall Street Reform and Consumer Protection Act but subsequently watered down.

they are to satisfactorily play their part in the joint effort to combat corruption. Here, I take it that combating corruption is a joint activity on the part not only of the regulator but also the regulated. Anti-corruption measures cannot possibly succeed if compliance with them is wholly dependent on the efforts of the personnel in enforcement agencies. There is also the possibility of mobilizing consumers and clients by way of facilitating class actions. The responses of the "victims" of corruption are important in combating it, as is the case in combating crime more generally.

Currently, the large global banks are market actors primarily driven by the profit motive. Contrary to current ideology, this is not inevitable. At any rate, in this current environment, the pervasive culture in these organizations—for example, among traders remunerated in large part on the basis of bonuses—tends to be reflective of this and tends also not to be sufficiently responsive to relevant ethical principles. So there is an issue of institutional culture change, albeit one that would depend in large part on macrostructural changes.

Whether or not the members of some organization internalize the *desirable* ends and principles of an organization—as opposed to undesirable ones—is in part a matter of institutional culture. Institutional culture is in turn dependent on the extent to which the collective moral responsibility to achieve desirable ends, and eschew corrupt practices, is embedded in the organization by way of explicit institutional mechanisms (e.g., formal continuing education programs in professional ethics, whistleblower protection schemes, remuneration systems that do not encourage excessive risk taking) and implicit practices (e.g., managers who acknowledge their mistakes, employees who are unafraid to voice their concerns). Accordingly, there are various measures that could be looked at in relation to institutional culture change at the organizational level (as well as, as already stressed, at the macro-institutional level).