THE RETURN OF THE ROGUE

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The "rogue trader"—a famed figure of the 1990s—recently has returned to prominence due largely to two phenomena. First, recent U.S. mortgage market volatility spilled over into stock, commodity, and derivative markets worldwide, causing large financial institution losses and revealing previously hidden unauthorized positions. Second, the rogue trader has gained importance as banks around the world have focused more attention on operational risk in response to regulatory changes prompted by the Basel II Capital Accord. This Article contends that of the many regulatory options available to the Basel Committee for addressing operational risk it arguably chose the worst: an enforced self-regulatory regime unlikely to substantially alter financial institutions' ability to successfully manage operational risk. That regime also poses the danger of high costs, a false sense of security, and perverse incentives. Particularly with respect to the low-frequency, high-impact events—including rogue trading—that may be the greatest threat to bank stability and soundness, attempts at enforced self-regulation are unlikely to significantly reduce operational risk, because those financial institutions with the highest operational risk are the least likely to credibly assess that risk and set aside adequate capital under a regime of enforced self-regulation.

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INTRODUCTION

The rogue trader—a figure that captured public attention in the 1990s[1]—has returned to the spotlight, largely due to two phenomena. First, market volatility stemming from problems in the U.S. mortgage market spilled over into stock, commodity, and derivative markets worldwide, causing large losses at many financial institutions and bringing to light previously hidden unauthorized positions. As a result, a number of financial institutions, including Société Générale, recently have disclosed large rogue trading losses. The French investment, banking, and financial services group revealed in January 2008 that a junior trader, Jerome Kerviel, had lost over $7 billion on unauthorized trades in equities and equity index futures, becoming the largest rogue trader in history.[2] More broadly, the debilitating losses at many financial institutions in the wake of the current credit crisis—while not specifically attributed to rogue employees—have been blamed to a large extent on lax internal controls and oversight, combined with an industry culture that sacrificed prudent risk management in the pursuit of superior profits.[3]

Second, the rogue trader has returned to prominence due to domestic and international regulatory changes that have forced banks worldwide to focus more attention on operational risk, an important component of which is rogue trading. Specifically, the Basel II Capital Accord requires banks to include in their capital charges amounts sufficient to protect against anticipated operational losses, including losses from unauthorized trades, transforming what was once a residual risk category into a growing multi-billion dollar risk management industry.[4]

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1. For example, numerous popular books and movies memorialized infamous rogue traders of the decade, such as Nick Leeson and Joseph Jett. *See generally* LUKE HUNT & KAREN HEINRICH, BARINGS LOST: NICK LEESON AND THE COLLAPSE OF BARINGS PLC (1996); JOSEPH JETT & SABRA CHARTRAND, BLACK AND WHITE ON WALL STREET: THE UNTOLD STORY OF THE MAN WRONGLY ACCUSED OF BRINGING DOWN KIDDER PEABODY (1999); NICK LEESON & EDWARD WHITLEY, ROGUE TRADER: HOW I BROUGHT DOWN BARINGS BANK AND SHOOK THE FINANCIAL WORLD (1996); JUDITH H. RAWNSLEY, TOTAL RISK: NICK LEESON AND THE FALL OF BARINGS BANK (1995); ROGUE TRADER (Miramax 1999).

2. Other reported losses include: MF Global ($141.5m), Caisse d'Epargne (EUR 600m), Crédit Agricole (EUR 250m), Credit Suisse (CHF 2.86bn), Lehman Brothers (undisclosed amount), Merrill Lynch ($18m), and Morgan Stanley ($120m). Scheherazade Daneshkhu, *Caisse d'Epargne in €600m Loss on Derivatives*, FIN. TIMES, Oct. 18, 2008, at 20; Associated Press, *Rogue Wheat Trader Blamed for $141 Million Loss*, N.Y. TIMES, Feb. 28, 2008, *available at* http://www.nytimes.com/2008/02/28/business/apee-wheat.html; Louise Story, *A Question of Value*, N.Y. TIMES, June 20, 2008, at C1.

3. Eric Dash & Julie Creswell, *The Reckoning: Citigroup Saw No Red Flags even as It Made Bolder Bets*, N.Y. TIMES, Nov. 23, 2008, *available at* http://www.nytimes.com/2008/11/23/business/23citi.html (blaming Citigroup's $65 billion loss on poor risk controls, lax oversight, and a corporate culture that emphasized greater risk taking in an attempt to expand market share and profits).

4. CELENT, OPERATIONAL RISK MANAGEMENT: THREE, TWO, ONE . . . LIFTOFF? 4 (2006), http://www.celent.com/reports/OpRiskMgmt2006/OperationalRiskMarket.pdf (predicting a growth in operational risk management expenditures at a compound annual rate of 5.5%, from $992 million in 2006 to $1.16 billion in 2009).

With this move, the Bank for International Settlements located operational risk management squarely within the category of "enforced self-regulation," also sometimes referred to as "responsive regulation," "negotiated governance," or "collaborative governance." Although the Basel II Accord requires banks to protect against potential operational losses by holding capital specifically allocated for that purpose, it also gives them an unprecedented amount of flexibility in choosing how to measure operational risk and the resulting capital requirement. For example, under the Advanced Measurement Approach (AMA)—the most liberal of the three approaches available to banks for calculating the operational risk capital charge—banks are allowed to choose their own methodology for assessing operational risk.

Critics have raised a number of objections to the Basel II operational risk provisions, including a lack of definitional clarity, concerns over data scarcity, and objections that the necessary modeling techniques are insufficiently developed. Few, however, have examined the Basel II operational risk requirements as a species of enforced self-regulation with its attendant costs and benefits. Theories of enforced self-regulation have been extremely influential, both in the academic community and among regulatory agencies, courts, and legislatures. Indeed, the international banking community itself embraced enforced self-regulation in 1996, when the Basel Committee allowed regulatory minimum capital requirements covering the market risk exposures arising from banks' trading activities to be based on banks' own internal risk measurement models. Although this move was widely supported by both regulators and the banking industry at the time, whether such broad-based support will survive the current financial crisis, which many blame on faulty market and credit risk modeling, remains to be seen.[5]

Many researchers, including this author, have criticized enforced self-regulatory regimes in other contexts on a variety of grounds. This is not to suggest that enforced self-regulation can never provide meaningful benefits. In theory, enforced self-regulation provides an opportunity for innovation and creativity in establishing workable and cost-effective solutions to the problem of operational risk management. Moreover, under certain conditions, this goal appears to have been achieved in practice by some, though far from all, enforced self-regulatory regimes.

Assessing the success of enforced self-regulation, however, presents measurement problems, mixed empirical results, and substantial debate among researchers. In short, even many proponents of enforced self-regulation concede

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5. *See, e.g.*, Dash & Creswell, *supra* note 3, at 4 (reporting from anonymous sources that Citigroup's risk models—like those of many other financial institutions—never accounted for the possibility of a steep nationwide downturn in the housing market and concluded that the possibility of substantial defaults on its subprime portfolio was so remote that it was not included in scenario analyses); Steve Lohr, *Wall Street's Extreme Sport*, N.Y. TIMES, Nov. 5, 2008, at B1; Joe Nocera, *Risk Management*, N.Y. TIMES MAG. (Jan. 2, 2009), *available at* http://www.nytimes.com/2009/01/04/magazine/04risk-t.html?_r=1&scp=1&sq=%22joe%20nocera%22%20risk&st=cse (highlighting the debate between those who blame the current financial crisis on the reliance on statistical models, such as value-at-risk (VaR), that ignore extreme tail events and those who lay the blame on human error in using and interpreting the models).

that its efficacy is highly context-dependent and influenced by a number of factors, including the types of incentives and penalties provided by the regulation, the nature of the problem it is designed to address, and the particular characteristics of the regulated group.[6]

Leaving aside debates about enforced self-regulation's viability in other contexts, I argue in this Article that operational risk management is a particularly poor candidate for enforced self-regulation. The nature and scarcity of some types of operational loss events, combined with the relatively preliminary state of operational risk modeling, means that the enforcement arm of this particular enforced self-regulatory regime is apt to be lacking. Moreover, the absence of a general consensus regarding operational risk definition, modeling, measurement, and control methods means that the Basel II Accord leaves extraordinary room for internal and external interest groups to construct both an interpretation of the rules and containment strategies that enhance their position and well-being vis-à-vis the banking community. These interest groups have an incentive to emphasize (or over-emphasize) both the extent to which operational risk falls within the domain of their expertise and their ability to contain it. As will be shown, lawyers, accountants, and risk management experts—all of whom can credibly assert some expertise on the topic—are the primary catalysts involved in this process.[7]

Meanwhile, senior management of regulated banks have an incentive to signal compliance with the new capital rules, while containing costs and disrupting existing business practices as little as possible. As a result, the enforced self-regulation of operational risk under Basel II presents a danger of becoming more cosmetic than real, while consuming more resources than necessary for sub-par risk management, and diverting attention and resources from more effective uses.

Some Basel II critics go further, contending that operational risk regulation in any form is misguided because, in contrast to market risk, financial institutions have limited incentives to incur excess operational risk.[8] This criticism is apt for many of the high-frequency, low-impact events—such as routine employee misconduct and error—that are included under the rubric of operational risk. Financial institutions have an incentive to reduce risks of this type up to the point at which the costs equal the benefits, and there are no obvious indications that banks are not currently doing so.

However, with respect to an important sub-category of operational risk—rogue trading—the organizational incentives to incur risk at levels that are not socially optimal are similar to the incentives to incur socially suboptimal levels of market risk. That does not imply, however, that the existing regulatory mechanisms designed to control market risk can simply be transplanted to operational risk management. As elaborated in this Article, operational risk measurement and modeling is a newer field that has not yet reached the precision and sophistication of market risk measurement and modeling techniques, which,

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6. *See infra* notes 81–85 and accompanying text (discussing the mixed empirical research on enforced self-regulation).

7. *See* discussion *infra* Part II.C.2.

8. *See infra* notes 36–40 and accompanying text (discussing this and other objections to any form of operational risk regulation).

ironically, have themselves come under increasing fire as the current financial crisis deepens.[9] It does, however, suggest that operational risk regulation primarily should seek to control those operational events that market forces may not and that pose the greatest risk of bank failure and subsequent systemic problems. In other words, operational risk regulation is most valuable to the extent that it successfully addresses the low-frequency, high-impact operational events, such as rogue trading, that pose the greatest threat to bank safety and soundness.

Basel II's many critics have proposed a variety of alternatives to the accord's operational risk provisions that could prove workable in practice, including: the promotion of market-based alternatives such as insurance, industry mutuals, and alternative risk transfer mechanisms (ARTs);[10] basing the operational risk capital charge on nonfinancial metrics;[11] and foregoing a regulatory capital approach toward operational risk in favor of a focus on internal controls and regulatory supervision.[12] Others have argued more generally for financial regulation that decreases conflicts of interest within financial firms, including measures designed to better align secondary management incentives with the long-term interests of financial firms.[13] Building on those proposals, I contend in this Article that, of the many (admittedly imperfect) regulatory options for addressing operational risk available to the Basel Committee, it arguably chose the worst: an enforced self-regulatory regime that is unlikely to substantially alter the success with which financial institutions manage operational risk, and that carries with it the threats of high costs, a false sense of security, and perverse incentives.

Particularly with regard to the low-frequency, high-impact events that are the greatest operational risk concern to many, attempts at enforced self-regulation are unlikely to produce capital set-asides sufficient to avoid threats to bank

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9. *See* Nocera, *supra* note 5 (discussing this debate); discussion *infra* Part II.C.1. (detailing objections to VaR and demonstrating that modeling problems and possibilities for error and overreliance on statistical models are much greater in the context of operational risk than in the context of market risk, due to data scarcity and backtesting difficulties).

10. *See* discussion *infra* Part I.C. (considering market-based solutions to operational risk, including insurance).

11. Guy Ford & Maike Sundmacher, *Leading Indicators for Operational Risk: Case Studies in Financial Services* 6–8 (draft of Nov. 2004), *available at* http://ssrn.com/abstract=963235 (urging the consideration of non-financial indicators of operational risk in setting capital charges, such as the ratio of back-office to front-office personnel, the percentage of employee incentive-based compensation, measures of per-day trading activity by individual traders or groups of traders, and per-employee training expenditures).

12. *See, e.g.*, *Operational Risk Poses Challenges to Financial Institutions and Regulators*, KNOWLEDGE@WHARTON, July 3, 2002, http://knowledge.wharton.upenn.edu/article.cfm?articleid=582 (discussing the views of roundtable participants at the Wharton Financial Institutions Center that capital requirements are an ineffective mechanism for addressing operational risk, and that regulators would fare better by focusing on supervision or internal controls).

13. Steven L. Schwarcz, *Conflicts and Financial Collapse: The Problem of Secondary-Management Agency Costs*, 26 YALE J. ON REG. (forthcoming 2009) (manuscript on file with author).

stability and soundness, for the simple reason that the financial institutions with the highest operational risk levels are unlikely to assess the probability of such events at a meaningful level. In the case of rogue trading, this is often because the very persons charged with assessing such risk have determined to ignore the signs of increasing operational risk levels in pursuit of higher profits. As a result, those financial institutions with the highest operational risk levels may be the ones least likely to credibly assess that risk and set aside adequate capital under a regime of enforced self-regulation.

Although the Basel II operational risk provisions are unlikely to provide tangible benefits, they do pose the danger of great costs. Aside from the hard cash expended on Basel II compliance, which may be substantial, there is a danger that regulators, organizational stakeholders, and even industry participants may be lured into a false sense of confidence regarding operational risk levels. Moreover, Basel II may induce some organizations to "manage the model" in order to manipulate operational risk capital measures, rather than manage operational risk itself. Finally, the incentives fostered by Basel II to produce a numerical measure of operational risk may divert attention toward the high-frequency, low-impact events that are most easily quantified, and away from the more challenging aspects of operational risk, such as rogue trading, that may pose the greater threat to financial institution soundness and stability.

With Basel II, the international banking community had an opportunity to make real, if tentative, inroads toward controlling operational risk. By proceeding incrementally, the Basel Committee could have adopted a workable, cost-effective, and politically feasible approach to operational risk management with a relatively minimal disruption to the existing regulatory structure in most major banking countries. For example, by mandating the current "strongly encouraged" practice within the United States of two-week employee vacations,[14] and dedicating more resources to bank examinations specifically focused on potential sources of operational risk—such as quickly growing operations, earnings stemming from improbable sources, back and middle office issues, and follow-ups to concerns previously identified by regulators and exchanges[15]—Basel could take some preliminary steps toward meaningfully addressing operational risk concerns.

If the markets for operational risk insurance and ARTs continue to develop, future regulatory steps could include further incentivizing their use.[16] Finally, although more empirical study is needed to fully identify the extent to which nonfinancial metrics are reliable indicators of operational risks, measures such as the ratio of back- to front-office personnel, the percentage of employee incentive-based compensation, and per-day trading activity measures may prove

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14. *See infra* notes 235–37 and accompanying text (discussing the "strongly encouraged" two-week vacation rule).

15. *See* discussion *infra* Part III (elaborating on the role of each of these factors in large rogue trading incidents).

16. Banks using the AMA are currently allowed to mitigate their operational risk capital charge by up to 20% through insurance. *See infra* note 56 and accompanying text.

more reliable at predicting operational risk and resulting standards of capital adequacy than financial metrics derived through enforced self-regulation.[17]

Part I of this Article defines operational risk, distinguishing between two very different types: high-frequency, low-impact events, such as "fat fingers" errors, and low-frequency, high-impact (sometimes referred to as "tail") events, such as rogue trading, terrorism, and natural disaster. Part I also notes that the bulk of the criticisms leveled against the Basel II operational risk provisions, including the criticisms in this Article, apply primarily to tail events—the second category of operational risk. Part II examines the operational risk provisions of Basel II as a species of enforced self-regulation, briefly reviewing the literature on its effectiveness and contending that, regardless of one's opinions on the efficacy of enforced self-regulatory regimes in other contexts, operational risk is an especially poor candidate for enforced self-regulation.

Part III employs several recent and well-known rogue trading cases, with a particular focus on Jerome Kerviel at Société Générale, to illustrate a central point of this Article: prior to the pubic revelation of their massive rogue trading losses, it is highly unlikely that any of these institutions would have set aside meaningful capital to account for the risk of significant losses from unauthorized trades, because each had determined to ignore numerous warning signs of increasing operational risk levels. The Article concludes that, although it is too early to fully evaluate the effects of Basel II, which began a phased-in implementation in the United States on January 1, 2009, there are many reasons to doubt its ability to successfully control banks' operational risk levels in a cost-effective manner.[18]

I. DEFINING OPERATIONAL RISK

A. Operational Risk Generally

The concept of operational risk did not formally make its way into international banking standards until the Bank for International Settlements (BIS) adopted the second Basel Accord, known as "Basel II." The BIS, headquartered in Basel, Switzerland, is the international regulatory body for the world banking system.[19] Originally created in 1930 to manage Germany's reparations payments under the Treaty of Versailles, the primary modern role of the BIS is to promote

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17. *See* Ford & Sundmacher, *supra* note 11, at 6–8 (discussing some of these possibilities).

18. Basel II has been met with unexpected controversy and delay in the United States, only some of which is related to the operational risk provisions. As a result, the anticipated start date has been moved back several times, and the United States lags behind other advanced banking countries in terms of Basel II implementation progress. Richard J. Herring, *The Rocky Road to Implementation of Basel II in the United States*, 35 ATLANTIC ECON. J. 411, 427 (2007); David Keefe, *U.S. Core Banks Starting Basel II Tests by April Deadline*, GLOBAL RISK REGULATOR, Oct. 2008, *available at* http://www.globalriskregulator.com/article.php?pgkey=1873.

19. Jeffry M. Netter & Annette B. Poulsen, Operational Risk in Financial Service Providers and the Proposed Basel Capital Accord: An Overview 2 (2003) (unpublished manuscript, on file with author).

cooperation among the world's leading central banks and banking regulators, with the goal of promoting bank stability and soundness internationally.[20] The Basel Committee on Banking Supervision was established in 1974 as a subcommittee of BIS, with the goal of harmonizing bank supervisory standards internationally.[21] The Committee's recommendations are separately enacted into domestic law by each member country.[22]

The Basel Accord of 1988 ("Basel I"), which the United States implemented in 1991 through the Federal Deposit Insurance Corporation Improvement Act, defined for the first time international standards regarding risk-based capital requirements for banks.[23] In response to a variety of perceived problems with Basel I, however, the Basel Committee set out to revise it, leading to Basel II and the resulting inclusion of operational risk in bank capital requirements.[24]

Basel II defines operational risk as the "risk of loss resulting from inadequate or failed internal processes, people and systems or from external events."[25] The definition specifically includes legal risk and specifically excludes strategic and reputational risk.[26] In addition to rogue traders, brokers, and other employees, therefore, operational risk encompasses such varied hazards as losses associated with the theft or loss of sensitive customer data; software or hardware failures that disrupt normal business operations; settlement errors; damages awarded in court proceedings; penalties and fines imposed by member associations or regulatory bodies; and losses caused by natural or unnatural disasters, such as a terrorist attack, flood, or earthquake.[27]

Operational risk can be roughly divided into two very different categories of risk events. First are the high-frequency, low-impact events that plague the daily life of all business enterprises, including banks. For example, computers will crash, employees will slip and fall, and traders, brokers, and back-office personnel

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20. *Id.* For more on the BIS and Basel, see generally DANIEL K. TARULLO, BANKING ON BASEL: THE FUTURE OF INTERNATIONAL FINANCIAL REGULATION (2008).

21. Maike Sundmacher, *Operational Risk Capital Charges for Banks: Consideration and Consequences* 3 (May 2004), *available at* http://ssrn.com/abstract=963227.

22. Netter & Poulsen, *supra* note 19, at 2–3.

23. *Id.* at 3–5. Basel I linked bank capital requirements to measures of the riskiness of a firm's financial assets. *Id.*

24. *Id.* (discussing at greater length the criticisms of Basel I and the resulting push to revise it).

25. BASEL COMM. ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS: A REVISED FRAMEWORK—COMPREHENSIVE VERSION 144 (2006) [hereinafter INTERNATIONAL CONVERGENCE], *available at* http://www.bis.org/publ/bcbs128.htm.

26. *Id.* The Accord specifies that "legal risk includes, but is not limited to, exposure to fines, penalties, or punitive damages resulting from supervisory actions, as well as private settlements." *Id*. at n.97.

27. Carolyn Currie, *The Potential Effect of the New Basel Operational Risk Capital Requirements* 6 (Univ. of Tech. Sydney Sch. of Fin. & Econ. Working Paper No. 137, 2004), *available at* http://www.business.uts.edu.au/finance/research/wpapers/wp137.pdf; Netter & Poulsen, *supra* note 19, at 7–8.

will have what are sometimes referred to as "fat fingers" errors. That is, they will make honest and routine mistakes, such as hitting the wrong key during data entry or writing down an incorrect price in recording a trade or sale. As a general rule, these events are not significantly problematic for most institutions.[28]

In the second category are the low-frequency, high-impact events that spark much of the controversy surrounding operational risk regulation. Included in this category are high-level employee misconduct and fraud (including rogue traders and rogue brokers) and devastating natural or other disasters outside of a firm's control (such as the 2001 World Trade Center attacks or earthquakes and tropical storms that hit a financial center). As elaborated in Part II.C.1., below, the bulk of the criticism leveled against the Basel II operational risk provisions are directed at this second category of events.

Historically, one might say that operational risk has been the black sheep of the risk management industry. Traditionally a residual category of risk, anything not classified as credit or market risk was considered operational risk.[29] In fact, operational risk was not even mentioned in the Basel Accord of 1988, which first defined international risk-based capital standards for banks.[30] Nor was operational risk included in the 1996 amendment to Basel I, which expanded the risk-based capital requirements beyond credit risk (the focus of the 1988 Accord) to include the market risk of trading activities.[31]

This does not mean that operational risk did not exist prior to Basel II, or that banks and other financial institutions did not take measures to contain and control that risk. Indeed, the Committee explicitly recognized that financial institutions had already begun to treat operational risk as a serious category of potential loss, integrating the concept into their internal capital assessment and

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28. Recently, however, there have been examples of relatively large errors in this category. For example, in late 2005, a trader at Mizuho Financial Group, the securities arm of Japan's second largest bank, incorrectly passed on to the Tokyo Stock Exchange a customer order to sell one share of stock at JPY 610,000 as an order to sell 610,000 shares of stock at one yen. Mizuho had to buy back all of the shares it had mistakenly sold short, losing $350 million on the trade. *Morgan Stanley Fined $300,000 for $10.8 Billion Trade Mistake,* Toomre Capital Markets LLC, *available at* http://www.toomre.com/Morgan_Stanley_Fined. Similarly, in 2004, a Morgan Stanley employee incorrectly calculated and entered an order to buy a basket of shares valued at $10.8 billion, instead of the $10.8 million needed to hedge an outstanding position. Although the error was quickly caught and the order cancelled, the New York Stock Exchange fined Morgan Stanley $300,000, citing insufficient internal controls. *Id*. The difference between these events and those in category two, as shown by these examples, is that because the error is unintentional, it typically is reported or caught—and thus corrected—right away, limiting losses to a manageable amount.

29. Credit risk is the risk of loss due to counterparty default. Market risk is the risk of loss due to changes in asset prices.

30. *See* BASEL COMM. ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS (1988), *available at* http://www.bis.org/publ/bcbs04a.pdf?noframes=1.

31. BASEL COMM. ON BANKING SUPERVISION, AMENDMENT TO THE CAPITAL ACCORD TO INCORPORATE MARKET RISKS 1 (1996) [hereinafter AMENDMENT TO THE CAPITAL ACCORD], *available at* http://www.bis.org/publ/bcbs24.pdf.

allocation decisions.[32] But the notion of operational risk as a separate risk category, amenable to data collection, modeling, and quantification is a relatively new one spurred by a variety of factors, including Basel II's mandate that banks set aside adequate capital to weather anticipated operational losses.

The impetus behind the inclusion of operational risk in the Basel II Accord appears to be a perception of rising operational risk levels within banking institutions. In part, that perception is attributable to high-profile operational risk losses, such as the Nick Leeson rogue trading scandal at Barings Bank and the World Trade Center attacks, both of which focused attention on the possibility of ruinous operational losses.[33]

However, business developments in the banking community with the capacity to increase operational risk also prompted more industry and regulatory concern. For example, the growing number of large-scale bank mergers stressed newly integrated systems; banks increasingly became high-volume service providers; the growing use by banks of financial products, such as derivatives, designed to reduce market or credit risk increased operational risk; and banks increased their volume of e-commerce, automated technology, and outsourcing.[34] Finally, developments related to modeling the types of low-frequency events characteristic of some types of operational risk enabled advances in operational risk quantification that spurred some institutions to attempt to account for operational risk in a more systematic manner.[35]

Despite these developments, some observers contend that operational risk regulation in any form is misguided. First, some have argued that, unlike more traditional risk categories such as market risk, increases in operational risk do not increase profit potential.[36] As a result, there is no incentive for banks to increase operational risk in pursuit of higher profits, making operational risk regulation unnecessary. It is true that the institutional calculation regarding optimal risk levels is somewhat different for operational risk than is the case with more traditional risk categories, such as market risk. The incentive for banks to incur excessive

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32. BASEL COMM. ON BANKING SUPERVISION, WORKING PAPER ON THE REGULATORY TREATMENT OF OPERATIONAL RISK 1 (2001), *available at* http://www.bis.org/publ/bcbs_wp8.pdf.

33. Douglas G. Hoffman, MANAGING OPERATIONAL RISK xxv (2002) (attributing regulatory and financial firms' interest in operational risk to the Nick Leeson and World Trade Center incidents).

34. *Id.*

35. *See, e.g.*, Volker Jentsch et al., *Extreme Events: Magic, Mysteries, and Challenges*, *in* EXTREME EVENTS IN NATURE AND SOCIETY 1, 8–9 (Volker Jentsch et al. eds., 2006); Laurens de Haan & Ana Ferreira, EXTREME VALUE THEORY: AN INTRODUCTION vii (2006) (discussing advances in extreme value theory as a means of modeling the probability of infrequent events); Kay Giesecke, et al., *Measuring the Risk of Extreme Events* (2005), available at http://www.mathematik.uni-leipzig.de/~tschmidt/gsw2005RiskofExtremeEvents.pdf; *see also* sources cited *infra* note 42.

36. *See, e.g.*, Michel Crouhy et al., *Insuring Versus Self-Insuring Operational Risk: Viewpoints of Depositors and Shareholders*, 12 J. OF DERIVATIVES 51, 51 (2004); J. David Cummins & Paul Embrechts, *Introduction: Special Section on Operational Risk*, 30 J. BANKING & FIN. 2599, 2600 (2006).

market risk is obvious: the potential for higher returns. In contrast, there are no obvious benefits to banks from increasing the risk that employees will steal or that systems will crash. In theory, at least, banks should reduce these risks up to the point where costs equal benefits.

I argue in this Article, however, that this assumption is flawed for a very important sub-category of operational risk: rogue trading. Banks may very well have an incentive to incur rogue trading risk at levels that are not socially optimal. A variety of theories (and some limited empirical evidence) suggest that the same factors that increase the probability of rogue trading may also create more profitable traders.[37] As a result, there is likely a mismatch between organizational incentives and the socially optimal level of operational risk within banking institutions. Moreover, to the extent that unauthorized trading activity may function at some firms as a means to provide plausible deniability while avoiding increased regulatory minimum capital requirements stemming from excessive market risk or position sizes, then the organizational incentives to incur rogue trading risk are similar to the incentives to incur market risk.[38]

Second, it is sometimes argued that operational risk is highly context-dependent and driven by forces unique to each institution. As a result, operational risk is diversifiable.[39] Moreover, banks that manage operational risk most poorly will be punished, and eventually eliminated, by the marketplace. The market is thus self-correcting so far as operational risk is concerned, obviating the need for regulatory intervention. Although the true causes of and potential for contagion effects stemming from individual bank failure are debatable,[40] the prospect of bank failure as a disciplining mechanism naturally takes on a very different significance in today's atmosphere of market crisis, massive bank bailouts, and potential nationalizations than might have been the case even a few years ago. Recent events have starkly demonstrated both the ability and willingness of banking institutions to incur dangerous risk levels and the inability of governments to simply stand by as passive observers when those risk appetites lead to bank collapse, at least when such collapse occurs on a broad scale or at institutions considered too big to fail. For these reasons, this Article does not question the basic premise of operational risk regulation, concluding instead that the particular method employed to combat

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37. *See infra* notes 138–46 (discussing this research in greater detail).

38. *See* discussion *infra* Part III (exploring this possibility in the context of several specific rogue trading incidents).

39. J. David Cummins et al., *The Market Value Impact of Operational Loss Events for U.S. Banks and Insurers*, 30 J. BANKING & FIN. 2605, 2610 (2006) (stating that some opponents of regulating operational risk take the position that it is idiosyncratic "earnings 'noise' that can be diversified away by shareholders"); *Measuring Operational Risk: A Reality Check*, RISK, Sept. 2003, http://www.risk.net/public/showPage.html?page=17969.

40. Olivier De Bandt & Philipp Hartmann, *Systemic Risk: A Survey*, pt. 4 (European Central Bank Working Paper No. 35, Nov. 2000) (defining and discussing contagion effects, the limited empirical research regarding its existence in most markets, and the difficulty of developing empirical tests that can make a clear distinction between pure contagion and crises caused by common shocks or rational revisions of depositor or investor expectations when information is asymmetric).

excessive operational risk is likely to be both ineffective and unworkable, and that Basel had at its disposal better options for regulating operational risk.

B. The Three Measurement Approaches

Including an operational risk measure in banks' capital charges was not without challenges for the Basel Committee. Unlike market and credit risk, which had been measured and quantified for some time, and for which sophisticated models and relatively extensive data had been developed,[41] operational risk measurement was—and, indeed, still is—in its infancy.[42] As stated by the Basel Committee:

> Approaches to the measurement of operational risk continue to evolve rapidly, but are unlikely to attain the precision with which market and credit risk can be quantified. This poses obvious challenges to the incorporation of a measure of operational risk within the minimum capital requirement.[43]

Recognizing the challenge associated with operational risk quantification, the Basel Committee adopted three different measurement approaches that represent a sliding scale of trade-offs between complexity and flexibility. Under the AMA, banks use their own risk metrics for calculating the operational risk capital requirement, including loss data, scenario analysis, and risk mitigation measures.[44] Although the AMA is the most complex measure of the three, it also provides the greatest flexibility. As stated by the Basel Committee:

> On the other hand, *the Committee is prepared to allow an unprecedented amount of flexibility to banks in choosing how to measure operational risk* and the resulting capital requirement. Under the [AMA], *banks will be permitted to choose their own methodology for assessing operational risk,* so long as it is sufficiently comprehensive and systematic. The extent of *detailed standards and criteria for use of the AMA are minimal in an effort to spur the development of innovative approaches*, although the

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41. Ironically, the recent financial crisis has starkly demonstrated the shortcomings in financial institutions' attempts to quantify and control even the traditional risk categories of market and credit risk.

42. This is not to deny the many advances in operational risk quantification that have occurred in recent years. *See, e.g.*, V. Chavez-Demoulin et al., *Quantitative Models for Operational Risk: Extremes, Dependence and Aggregation*, 30 J. BANKING & FIN. 2635, 2636 (2006) (discussing quantitative advances relevant to operational risk measurement, including Extreme Value Theory and dependence modeling); J. David Cummins & Paul Embrechts, *Introduction: Special Section on Operational Risk*, 30 J. BANKING & FIN. 2599 (2006) (reviewing recent work on operational risk modeling). As discussed below, however, operational risk modeling and measurement continues to present many challenges. *See* discussion *infra* Part II.C.1.

43. BASEL COMM. ON BANKING SUPERVISION, OVERVIEW PAPER FOR THE IMPACT STUDY 7, ¶ 43 (2002).

44. Netter & Poulsen, *supra* note 19, at 18–19.

> Committee intends to review progress in regard to operational risk approaches on an ongoing basis.[45]

Use of the AMA is subject to supervisory approval and is conditioned upon the bank meeting a variety of qualitative and quantitative factors.[46] In the United States, banking institutions and bank holding companies with more than $250 billion in total consolidated assets or with foreign exposures greater than $10 billion are required to use the AMA, while others meeting certain qualifications can opt to use it.[47]

Providing less flexibility is the Standardized Approach (TSA), available to banks meeting certain qualitative criteria. Under TSA, different business lines are assigned individual gross activity measures, which are then multiplied by a fixed multiple (or "beta"), ranging from 0.12 to 0.18, determined by the regulator.[48] Finally, the Basic Indicator Approach (BIA) is a default approach, designed for banks that do not qualify to use one of the more sophisticated approaches. Under the BIA, the required minimum regulatory capital is equal to a fixed multiple (0.15) of gross income. Although the BIA is thus the simplest of the three measures, it is also the least sensitive and is intended to result in the most onerous capital charge.[49] According to the Basel Committee, "[i]nternationally active banks and banks with significant operational risk exposures (for example, specialized processing banks) are expected to use an approach that is more sophisticated than the Basic Indicator Approach and that is appropriate for the risk profile of the institution."[50]

While the AMA thus relies on internally generated data, models, and methodologies, the BIA and TSA capital requirements are determined exclusively by regulatory authorities. The assumption behind this multi-tiered approach is that banks will incur a lower capital charge as they move across the spectrum of measurement approaches from less sophisticated to more sophisticated. Banks thus should incur the highest capital charge under the BIA, a lower charge under TSA, and the lowest of all under the AMA. The rationale behind this menu of choices is that institutions will seek to improve their risk management systems and procedures in the hopes of qualifying for a more flexible approach that reduces the required capital charge. The resulting assumption is that banks will have an

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45. BASEL COMM. ON BANKING SUPERVISION, *supra* note 43, at 7–8, para. 44 (emphases added).

46. INTERNATIONAL CONVERGENCE, *supra* note 25, at 149–52.

47. *See* FED. RESERVE BD., JOINT FINAL RULE AND SUPPORTING BOARD DOCUMENTS: RISK-BASED CAPITAL STANDARDS: ADVANCED CAPITAL ADEQUACY FRAMEWORK–BASEL II 661 (2007), *available at* http://www.federalreserve.gov/generalinfo/Basel2/FinalRule_BaselII/TechnicalOverview.pdf. As of March 31, 2008, about a dozen U.S. banks would have been required to use the AMA under these standards. *See Bank and Thrift Holding Companies with the Most Assets*, AM. BANKER, July 23, 2008, *available at* http://www.americanbanker.com/ranking-the-banks.html. Since that time, however, the industry has experienced significant change and is likely to continue to do so.

48. INTERNATIONAL CONVERGENCE, *supra* note 25, at 146–47.

49. *Id.* at 144–45.

50. *Id.* at 144.

incentive to incur the charges to move from the BIA to TSA, and then, if the size and type of their operations warrant it, to the AMA.[51]

Some researchers, however, have demonstrated that this assumption is flawed under certain conditions. For example, if a bank generates the bulk of its revenue in a high-beta business, then its capital charge could increase by moving from the BIA to the more fine-grained measures of TSA. For such a bank, there is no regulatory incentive to improve internal operational risk controls.[52]

Moreover, although this Article's focus is a critique of Basel II as a species of enforced self-regulation (and, therefore, specifically a critique of the AMA), it is worth noting that some researchers have criticized the BIA and TSA as similarly unworkable, ineffective, and creating potentially perverse incentives. For example, some argue that the TSA may incentivize banks to shift resources from high-beta business lines to low-beta lines, in an attempt to reduce their capital charge.[53] In addition, it has been demonstrated that under the BIA, the regulatory minimum operational risk capital for National Australia Bank (NAB) would have steadily decreased from 2001 to 2004—a time period during which a group of rogue traders lost $360 million in foreign exchange trading. As a result, not only would NAB's operational capital charge have been at its lowest in 2004, when the rogue trading losses were discovered, but the steady decrease in the capital charge over time would have given the false impression that operational risk was decreasing, creating a false sense of security.[54] Similarly, researchers have shown that neither the BIA nor TSA would have captured the true risk levels of John Rusnak's unauthorized trading activity at Allied Irish Bank (AIB), because the net income from trading operations increased by only a small percentage during the relevant time frame.[55]

C. Insurance and Other Market-Based Solutions

At present, all market-based solutions to operational risk management appear imperfect. These solutions (or, more accurately, potential future solutions) include insurance, industry mutuals, and specialized bonds.

Banks using the AMA are allowed to mitigate their operational risk capital charge through insurance by up to 20% of the total amount calculated under the AMA.[56] However, many operational risk events are either uninsurable or only partially insurable, and there appears to be undercoverage even in those areas

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51. Maike Sundmacher, *The Basic Indicator Approach and the Standardised Approach to Operational Risk: An Example- and Case Study-Based Analysis* 4–5 (2007), *available at* http://ssrn.com/abstract=988282.

52. *Id.* at 4–5.

53. *Id.*

54. *Id.* at 10; *see also infra* notes 189–232 and accompanying text (discussing the NAB affair in greater detail).

55. Sundmacher, *supra* note 21, at 19; *see also infra* notes 193–207 and accompanying text (discussing the Rusnak/AIB case).

56. INTERNATIONAL CONVERGENCE, *supra* note 25, at 155. Basel imposes certain further restrictions relating to the quality of the insurer and the specific policy provisions. *Id.*

(such as rogue trading) where policies are available.[57] This lack of coverage has been attributed to a variety of causes, including high premiums, high deductibles, low coverage limits, the uncertainty and delay associated with insurance payouts, and an unwillingness on the part of financial institutions to concede that their internal controls may be inadequate to deter rogue employees.[58] Moreover, some critics argue that insurance is an opaque and inefficient mechanism for pricing operational risk.[59]

To illustrate, it is unlikely that Société Générale will be able to claim on its insurance policy for Jerome Kerviel's $7 billion rogue trading loss. Like most institutions, Société Générale has a fidelity bond that covers the firm against losses arising from employee fraud undertaken for personal gain.[60] As with most rogue traders, however, Kerviel undertook his unauthorized activity for the purpose of increasing the bank's trading profits (although his actions also increased his yearly bonus). His losses, therefore, are likely excluded from coverage under such a policy. Nick Leeson's losses at Barings were excluded from coverage for the same reason.[61]

Rogue trading insurance policies do exist, having been first introduced by Lloyd's shortly after the Nick Leeson scandal at Barings. Like many firms, however, Société Générale reportedly does not have such coverage.[62] In any event, such policies typically offer only about GBP 200 million of coverage—an amount insufficient to cover the most serious rogue trading losses and too small to make even a dent in Kerviel's massive losses.[63] Reports are mixed on whether the Société Générale affair is likely to advance or stifle the operational risk insurance

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57. Netter & Poulsen, *supra* note 19, at 15, 26 n.4 (reporting that in a recent survey of fifty-five financial institutions by the RMA, International Swaps & Derivatives Association, and British Bankers' Association, the respondents reported insurance recovery in 12.2% of all operational loss events, including 36.1% of the highest magnitude loss events, and that when recovery occurred it averaged 81.6% of the total loss).

58. Adrian Ladbury, *SocGen Affair Ups Demand for 'Rogue Trader' Coverage*, BUSINESS INSURANCE, Feb. 11, 2008, *available at* http://www.businessinsurance.com/cgi-bin/article.pl?articleId=24039; Lloyds, *Société Générale, Rogue Trading, and a Little Solution Called Insurance*, Jan. 29, 2008, http://www.lloyds.com/News_Centre/Features_from_Lloyds/Societe_Generale_rogue_trading_and_a_little_solution_called_insurance_29012008.htm; *Operational Risk*, AMBIT ERISK, http://www.erisk.com/Learning/JigSaw/OperationalRisk.asp (last visited Jan. 11, 2009).

59. *See, e.g.*, Michel Crouhy et al., *Insuring Versus Self-Insuring Operational Risk: Viewpoints of Depositors and Shareholders*, 12 J. OF DERIVATIVES 51, 54 (Winter 2004) (formally demonstrating that the question of when to insure against operational risk losses is a complex one, determined by a number of factors including the bank's capital structure, the type of loss in question, the expected return on assets, and the risk neutral probability of the operational risk event); *Operational Risk*, *supra* note 58.

60. Lloyds, *supra* note 58. In addition, many firms have personal indemnity coverage with a dishonesty extension that covers losses of client funds arising out of employee dishonesty. *Id.* Most rogue traders, however, lose money on proprietary trading.

61. *Id.*

62. *Id.*

63. *Id.*; Ladbury, *supra* note 58.

market, with some sources predicting increased demand and others predicting more caution by insurers in their willingness to write such policies.[64]

Although some industry observers hold out hope that an industry mutual or collective of some sort could improve on the shortcomings of traditional insurance, the advantages and disadvantages of this possibility have been seriously debated for over a decade, without sufficient interest by major global financial institutions to render the solution viable.[65] Impediments to an industry mutual include concerns regarding confidentiality and the risk profiles of other institutions, as well as an unwillingness to fund competitors' losses.[66] Most believe that the Société Générale crisis will only compound these fears, leaving "not a hope" for the possibility of an industry mutual in the near future.[67]

Finally, there is increasing optimism in some quarters regarding Alternative Risk Transfer mechanisms (ARTs) for operational risk, although such products currently exist only in concept.[68] Operational risk ARTs would likely resemble a catastrophe bond, issued by individual financial institutions and paying an above-market interest rate. In the event of a defined operational event, interest payments would cease.[69] Although much work is still needed to make this concept a reality, the irony that the same complex financial products contributing to operational risk growth may provide its means of containment is not lost on some industry observers.[70]

II. OPERATIONAL RISK AS ENFORCED SELF-REGULATION

With the inclusion of operational risk measures, particularly the AMA, into banks' capital charges, the international banking community moved squarely into the realm of enforced self-regulation, a type of responsive regulation. Section A of this Part briefly describes enforced self-regulation, comparing it to and distinguishing it from other brands of responsive regulation. Section B offers a critique of enforced self-regulation, reviewing recent empirical work in the area. Section C argues that operational risk is a particularly poor candidate for enforced self-regulation.

A. Responsive and Enforced Self-Regulation

Sometimes referred to as "negotiated governance," "tit for tat regulation," or "collaborative governance," responsive regulation seeks to improve the regulatory process by providing a greater governance role to the regulated group

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64. *Compare* Lloyds, *supra* note 58 (predicting greater demand), *with* Ladbury, *supra* note 58 (predicting greater caution among insurers); *Lloyd's on Rogue Traders*, INS. J. (July 1, 2008) (quoting Daniel Butler, Executive Director at Aon, as stating, "[w]e have had a handful of inquiries about coverage for unauthorized trading events but we haven't seen a huge surge in demand since SocGen").

65. Ladbury, *supra* note 58.

66. *Id.*

67. *Id.*

68. *Operational Risk*, *supra* note 58.

69. *Id.*

70. *Id.*

and, sometimes, other interested parties.[71] In doing so, responsive regulation aims to transcend the long-standing regulation versus deregulation debate. As articulated by Professors Ian Ayres and John Braithwaite:

> By credibly asserting a willingness to regulate more intrusively, responsive regulation can channel marketplace transactions to less intrusive and less centralized forms of government intervention. Escalating forms of responsive regulation can thereby retain many of the benefits of laissez-faire governance without abdicating government's responsibility to correct market failure.[72]

To accomplish this objective, Ayres and Braithwaite propose a pyramid regulatory structure, under which the base of the pyramid—that is, the bulk of the regulatory action—consists of industry self-regulation. The next block of the pyramid is dedicated to enforced self-regulation, followed by command and control regulation with discretionary punishment, and finally at the top of the pyramid (representing the smallest portion of regulatory activity) is command regulation with non-discretionary punishment.[73] Although the Ayres and Braithwaite articulation of responsive regulation is the best-known and most influential, the literature on responsive regulation and its many variations is vast, nuanced, and spans numerous fields, including law, management and environmental sciences, political science, and sociology.[74]

Under enforced self-regulation, the state works with individual firms to establish regulations (such as the operational risk capital charge under the AMA) that are specifically designed for that firm.[75] In order to avoid more severe and less tailored regulations imposed by the state (such as the BIA and TSA under Basel II), each firm must propose its own regulatory standards.[76] Those standards are then enforced primarily within the firm itself, through the establishment of an independent internal compliance group. The state's primary role in enforcement involves ensuring that the internal compliance group remains independent, and conducting audits to ensure that it performs its assigned compliance task.[77] Internal compliance, with the threat of escalating state involvement as a backup, thus lies at the heart of the enforced self-regulation paradigm. As described by Professors Ayres and Braithwaite:

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71. *See generally* IAN AYRES & JOHN BRAITHWAITE, RESPONSIVE REGULATION: TRANSCENDING THE DEREGULATION DEBATE (1992); *see also* ROBERT A. KAGAN, ADVERSARIAL LEGALISM: THE AMERICAN WAY OF LAW 241 (2003).

72. AYRES & BRAITHWAITE, *supra* note 71, at 4–5.

73. *Id.* at 38–39.

74. *See, e.g.*, Vibeke Lehmann Nielson & Christine Parker, Testing Responsive Regulation in Regulatory Enforcement 2–3 (2008) (manuscript on file with author) (reviewing some of this literature); ROBERT BALDWIN & MARTIN CAVE, UNDERSTANDING REGULATION: THEORY, STRATEGY, AND PRACTICE 39–41, 99–101 (1999) (same).

75. AYRES & BRAITHWAITE, *supra* note 71, at 101. This is distinguished from industry co-regulation, under which industry associations self-regulate, with some government oversight and enforcement. *Id.* at 102.

76. *Id.*

77. *Id.* at 106.

> [E]nforced self-regulation envisions that in particular contexts it will be more efficacious for the regulated firms to take on some or all of the legislative, executive, and judicial regulatory functions. As self-regulating legislators, firms would devise their own regulatory rules; as self-regulating executives, firms would monitor themselves for noncompliance; and as self-regulating judges, firms would punish and correct episodes of noncompliance.[78]

The goal of this more collaborative and less authoritative regulatory approach is to foster more efficient, effective regulation through greater involvement in the governance process by a variety of interested groups, including the regulated group. Theories of enforced self-regulation have influenced a wide range of U.S. legal regimes in recent decades, including environmental, tort, securities, employment discrimination, corporate, organizational sentencing, and health care law.[79]

Ayres and Braithwaite are careful to note, however, that the state's continuing readiness to impose harsher sanctions is a critical element to the success of enforced self-regulation. The retention of public enforcement, in the form of detecting and punishing deviations of these privately written conduct codes, is thus essential to effectively achieving the goals of enforced self-regulation.[80]

B. The Enforced Self-Regulation Critique

Many, including this author, have criticized enforced self-regulation or similar internal compliance-based regulatory or liability mitigation schemes in other contexts on a variety of grounds. First, as an empirical matter, enforced self-regulation and its internal compliance-based brethren fare poorly in many studies.[81] Although some studies suggest positive effects from such measures,[82]

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78. *Id.* at 103.

79. *See generally* Lawrence A. Cunnigham, *The Appeal and Limits of Internal Controls to Fight Fraud, Terrorism, Other Ills*, 29 J. CORP. L. 267 (2004) (discussing this trend); Kimberly D. Krawiec, *Cosmetic Compliance and the Failure of Negotiated Governance*, 81 WASH. U. L.Q. 487, 487 (2003) (same); John S. Moot, *Compliance Programs, Penalty Mitigation and the FERC*, 29 ENERGY L.J. 547, 559–67 (2008) (discussing recent developments in compliance-based regulation and mitigation measures by the DOJ, SEC, EPA, and FERC).

80. AYRES & BRAITHWAITE, *supra* note 71, at 103.

81. *See, e.g.*, Krawiec, *supra* note 79, at 511–16 (summarizing some of this research); Kimberly D. Krawiec, *Organizational Misconduct: Beyond the Principal-Agent Model*, 32 FLA. ST. U. L. REV. 571, 596 (2005) (same); Christine Parker & Vibeke Lehmann Nielsen, *Corporate Compliance Systems: Could They Make Any Difference?*, ADMIN. & SOC'Y, Dec. 2008, at 1, 4–7 (same).

82. *See, e.g.*, Lori Snyder Bennear, *Evaluating Management-Based Regulation: A Valuable Tool in the Regulatory Toolbox?*, *in* LEVERAGING THE PRIVATE SECTOR: MANAGEMENT-BASED STRATEGIES FOR IMPROVING PRIVATE SECTOR ENVIRONMENTAL PERFORMANCE 51–86 (Cary Coglianese & Jennifer Nash eds., 2006) (finding significant reductions in toxic chemical levels at plants subject to mandated pollution prevention planning as compared to plants not subject to such laws); Cary Coglianese & Jennifer Nash, *Management-Based Strategies: An Emerging Approach to Environmental Protection*, *in* LEVERAGING THE PRIVATE SECTOR 3 (reviewing a variety of studies on the effectiveness of

others find only minimal, mixed, or no effects.[83] Moreover, even many studies establishing a correlation between enforced self-regulation or internal compliance-based regimes and the behavior to be controlled are unable to conclude whether the internal compliance measures themselves, as opposed to some other factor (such as managerial commitment to improvement or increased regulator or third party scrutiny), drive the outcome.[84] Although this empirical literature is too voluminous, nuanced, and complex to fully elucidate here, one can conclude from this body of work that even many advocates of enforced self-regulation concede that its effectiveness is context-dependent and determined by any number of factors, including the incentives and penalties provided by the regulation, the nature of the problem the regulation seeks to address, and the characteristics of individual regulated firms, such as senior management's commitment to improvement.[85]

Second, as elaborated below, enforced self-regulation can be very expensive. For example, both the Clean Air Act and section 404 of the Sarbanes–Oxley Act of 2002 (Sarbanes–Oxley), each of which contains substantial enforced

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management-based measures, many of which found significant, positive results); Parker & Nielsen, *supra* note 81, at 3 (studying 999 larger businesses in Australia and finding that "the compliance management system structures promoted by regulators are one important influence on compliance management in practice, but not the only one").

83. *See, e.g.*, Cary Coglianese & David Lazer, *Management-Based Regulation: Prescribing Private Management to Achieve Public Goals*, 37 L. & SOC'Y REV. 691, 696–700 (2003) (reviewing the empirical evidence on the success of management-based regulation in connection with food safety, chemical accident regulation, and pollution prevention and finding some indications of the success of management-based approaches, but other evidence that the regulations, at least as operationalized, are not working as predicted); Robert A. Kagan, *Environmental Management Style and Corporate Environmental Performance*, *in* LEVERAGING THE PRIVATE SECTOR, *supra* note 82, at 31, 31–48 (reporting on a study of fourteen pulp mills in Australia, New Zealand, British Columbia, and the United States, and determining that "over time, the largest gains in environmental performance in the industry have stemmed not from enlightened corporate management *per se* but from periodic tightening of environmental standards mandated by governments"); Alexandra Kalev et al., *Best Practices or Best Guesses? Diversity Management and the Remediation of Inequality*, 71 AM. SOC. REV. 589, 611 (2006) (using federal data and survey data covering 708 private sector establishments from 1971 to 2002 and finding that diversity training and diversity evaluations have no impact on levels of female and minority representation in management; mentoring and networking programs show modest effects; and affirmative action plans, diversity committees, and diversity staff show positive effects); Parker & Nielsen, *supra* note 81, at 3 (concluding that "good management and good values are likely to be more important than formal systems at influencing compliance management in practice and, ultimately, actual compliance").

84. *Cf.* Kagan *supra* note 83, at 42–43 (attributing improvements associated with management-based measures primarily to tighter environmental standards and individual management commitment, rather than primarily to the measures themselves); Parker & Nielsen, *supra* note 81, at 27 (questioning the causal direction of empirical findings that better compliance systems are correlated with a culture of compliance, which is considered an essential element of actual compliance).

85. Coglianese & Nash, *The Promise & Performance of Management-Based Strategies*, *in* LEVERAGING THE PRIVATE SECTOR, *supra* note 82, at 261.

self-regulation components, have been criticized as costing far more than initially anticipated.[86]

Third, information asymmetry between regulator and regulated can lead to "cosmetic compliance" that looks good on paper but does little to address the underlying behavior.[87] For example, some studies have concluded that many common elements of enforced self-regulatory regimes—including ethics and conduct codes, and some types of employee training—are of limited effectiveness in combating the underlying conduct at issue.[88] As with other research on enforced self-regulation, however, the findings are mixed, with some studies showing

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86. *See, e.g.*, *id.* at 253 (stating that future research will need to determine whether management-based regulations are cost-justified and reporting that "some businesses have consumed tens of thousands of management hours complying with the paperwork associated" with some management-based systems); Accidental Release Prevention Requirements: Risk Management Programs Under Clean Air Act, Section 112(r)(7), 60 Fed. Reg. 13,526, 13,541–45 (Mar. 13, 1995) (to be codified at 40 C.F.R. pt. 68) (discussing the amount of time and money invested in paperwork requirements under the Clean Air Act); COMM. ON CAPITAL MARKETS REGULATION, INTERIM REPORT 19, 127 (Nov. 30, 2006), *available at* http://www.capmktsreg.org/pdfs/11.30Committee_Interim_ReportREV2.pdf (criticizing the high costs of the Sarbanes–Oxley Act § 404).

87. John C. Coffee, Jr., *"Carrot and Stick" Sentencing: Structuring Incentives for Organizational Defendants*, 3 FED. SENT'G REP. 126, 127 (1990) (noting the possibility that "a perverse incentive may arise to invest in cosmetic monitoring—that is, monitoring that has no real impact on employee behavior, but that looks good at sentencing if the corporation is ever convicted"); Krawiec, *supra* note 79 (warning of "cosmetic compliance"); Donald C. Langevoort, *Monitoring: The Behavioral Economics of Corporate Compliance with Law*, 2002 COLUM. BUS. L. REV. 71, 106 ("[T]he objective indicators of a values-based program are also easy to mimic, making it difficult to separate out the sincere programs from the fakes.").

88. Susan Bisom-Rapp, *An Ounce of Prevention Is a Poor Substitute for a Pound of Cure: Confronting the Developing Jurisprudence of Education and Prevention in Employment Discrimination Law*, 22 BERKELEY J. EMP. & LAB. L. 1, 31–38 (2001) (reviewing studies of the effectiveness of sexual harassment training and concluding that there is "no scientific basis . . . that harassment training fosters employee tolerance and greatly alters workplace culture"); Kalev et al., *supra* note 83, at 590, 611 (finding that diversity training and diversity evaluations have no impact on levels of female and minority representation in management and that mentoring and networking programs show only modest effects); Marie McKendall et al., *Ethical Compliance Programs and Corporate Illegality: Testing the Assumptions of the Corporate Sentencing Guidelines*, 37 J. BUS. ETHICS 367, 380 (2002) (implementing a longitudinal study and finding that the presence of OSG-recommended compliance structures do not reduce the incidence of OSHA violations); M. Cash Mathews, *Codes of Ethics: Organizational Behavior and Misbehavior*, *in* 9 RESEARCH IN CORPORATE SOCIAL PERFORMANCE AND POLICY 107, 108–09, 125 (William C. Frederick & Lee E. Preston eds., 1987) (examining the incidence of civil and administrative actions taken by four federal regulatory agencies against 485 corporations from 1973 through 1980 and concluding that "there is little relationship between codes of conduct [and their enforcement mechanisms] and corporate violations"); M. Schwartz, *The Nature of the Relationship Between Corporate Codes of Ethics and Behaviour*, 32 J. BUS. ETHICS 247, 253 (2001) (concluding that although ethics codes may have the potential to alter employee behavior, "this appears to take place on very rare occasions").

positive effects for at least some internal compliance mechanisms.[89] Such mixed findings have led several researchers to question whether at least some self- and enforced self-regulation is more effective at staving off more onerous mandatory performance-based rules than at reforming behavior.[90]

Finally, there is an incentive for various interest groups to use enforced self-regulation as a profit opportunity. For convenience, those interest groups are hereafter referred to as "legal intermediaries," because they frequently act as middlemen between the enactment of new legal rules and their interpretation and implementation.

When business or financial institutions become subject to a new regulation, such as the operational risk requirements of Basel II, that regulation is subjected to an internal and external process by which the new law gains content. Although this is true to some extent with nearly all laws (which frequently are ambiguous, poorly articulated, or subject to differing interpretations) it is particularly true with respect to enforced self-regulatory regimes, such as Basel II, which are purposely left open-ended in an effort to provide latitude and encourage innovation in interpretation and implementation.[91]

Whereas advocates of enforced self-regulation celebrate such open-ended guidelines as an opportunity for the negotiation of creative solutions to governance problems, critics predict a different outcome. Analogizing to the literature on incomplete contracts, some observers warn that the open-ended law characteristic of enforced self-regulation presents a potentially dangerous opportunity for strategic renegotiation by those with the greatest stake in the contested meaning of law—the regulated group and various interest groups within and without it.[92]

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89. *See, e.g.*, Kalev et al., *supra* note 83, at 611 (finding that affirmative action plans, diversity committees, and diversity staff all positively impact the representation of women and minorities in senior management positions); Parker & Nielsen, *supra* note 81, at 24–26 (finding that six of twenty-one internal compliance system elements—a written compliance policy, a dedicated compliance function, a clearly defined system for handling customer/client complaints, a clearly designed system for handling compliance failures, compliance training for new employees, and review of the compliance system by an external consultant—were associated with better compliance management in practice).

90. Susan Bisom-Rapp, *Bulletproofing the Workplace: Symbol and Substance in Employment Discrimination Law Practice*, 26 FLA. ST. U. L. REV. 959, 967–76 (1999) (arguing that many employers adopt minimally disruptive symbolic antidiscrimination compliance policies and procedures that result in little, if any, substantive change in the employment environment); Jason Scott Johnston, *The Promise and Limits of Voluntary Management-Based Regulatory Reform: An Analysis of EPA's Strategic Goals Program*, *in* LEVERAGING THE PRIVATE SECTOR, *supra* note 82, at 167–200 (arguing that self-interest in forestalling regulation was part of the motive for the creation of the metal-finishing Strategic Goals Program, but that this motive does not preclude the possibility that the program successfully reduced environmental damage at a lower cost than EPA top-down regulation); Krawiec, *supra* note 79, at 489–90 (documenting this possibility across several different legal regimes); PETER W. MORGAN & GLENN H. REYNOLDS, THE APPEARANCE OF IMPROPRIETY: HOW THE ETHICS WARS HAVE UNDERMINED AMERICAN GOVERNMENT, BUSINESS, & SOCIETY 73–98 (1997) (tracing the birth of the compliance industry).

91. Krawiec, *supra* note 79, at 516–22.

92. *Id.* at 522–37 (detailing this negotiation process).

Although policymakers retain the authority to reject these gap-filling interpretations as inconsistent with the initial regulatory contract, policymakers have limited time, expertise, and incentives to differentiate ex post a self-serving or inefficient interpretation from one that best serves the public interest. As a result, self-interested private actors with a stake in the interpretation of regulatory policy may influence policy and implementation substantially, appropriating more than their fair share of the social benefits of legal policy, and undermining its efficacy and efficiency in the process.[93]

To illustrate, researchers have noted the role played by various legal intermediaries, including accountants,[94] lawyers,[95] human resources personnel,[96] and psychiatrists,[97] in interpreting and implementing ambiguous statutes or legal

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93. *Id.*

94. Max Bazerman, JUDGMENT IN MANAGERIAL DECISION MAKING 2 (4th ed. 1998) (arguing that audit failure is inevitable because it is psychologically impossible for auditors to maintain objectivity in the face of self-serving bias); Max H. Bazerman et al., *Why Good Accountants Do Bad Audits*, 80 HARV. BUS. REV. 97, 98 (2002); Stephen J. Mezias, *An Institutional Model of Organizational Practice: Financial Reporting at the Fortune 200*, 35 ADMIN. SCI. Q. 431, 435 (1990) (noting that accountants may have played a role in the diffusion and institutionalization of certain financial reporting practices across Fortune 200 corporations).

95. Lauren B. Edelman et al., *The Endogeneity of Legal Regulation: Grievance Procedures as Rational Myth*, 105 AM. J. SOC. 406, 412–14 (1999) [hereinafter, *The Endogeneity of Legal Regulation*] (detailing the roles of personnel and legal professionals in the diffusion and institutionalization of grievance procedures as a response to EEO law); Lauren B. Edelman et al., *Professional Construction of Law: The Inflated Threat of Wrongful Discharge*, 26 LAW & SOC'Y REV. 47, 60–62 (1992) [hereinafter *Professional Construction of Law*] (discussing overstatements of legal risk by HR personnel and legal practitioners, as well as remedies to such risk within each group's respective area of expertise); Donald C. Langevoort & Robert K. Rasmussen, *Skewing the Results: The Role of Lawyers in Transmitting Legal Rules*, 5 S. CAL. INTERDISC. L.J. 375, 375 (1997) (predicting that lawyers will systematically overstate legal risk when advising clients).

96. *See, e.g.*, James N. Baron et al., *War and Peace: The Evolution of Modern Personnel Administration in U.S. Industry*, 92 AM. J. SOC. 350, 373–77 (1986) (tracing a proliferation of certain personnel practices, such as job evaluation and promotion testing, to attempts by personnel professionals to establish and maintain their strategic position within firms during the 1940s, a time when union activity was on the rise, and personnel professionals marketed themselves as having the ability to constrain union power); Frank Dobbin & Erin Kelly, *How to Stop Harassment: The Professional Construction of Legal Compliance in Organizations*, 112 AM. J. SOC. 1203, 1204 (2007) (studying the role played by personnel professionals in the development and acceptance of internal grievance procedures as a defense to organizational liability in sexual harassment cases); Edelman et al., *Professional Construction of Law*, *supra* note 95, at 60–62 (discussing the role of HR personnel as legal intermediaries); Edelman et al., *The Endogeneity of Legal Regulation*, *supra* note 95, at 412–14 (same).

97. *See* Daniel J. Givelber et al., Tarasoff*: Myth and Reality: An Empirical Study of Private Law in Action*, 1984 WIS. L. REV. 443, 446–48 (arguing that psychiatric professional associations interpreted *Tarasoff v. Regents of the University of California*, 551 P.2d 334 (Cal. 1976), a case holding that psychotherapists owe a duty of care to third parties whom their patients have threatened to harm, in a manner that reflects the concerns of mental health care professionals and that this interpretation eventually became settled law).

rulings in a manner that furthers their professional self-interest. As demonstrated in Part II.C., below, there is already substantial jockeying by legal intermediaries—including lawyers, accountants, and risk management experts—over the meaning and implementation of Basel II's operational risk provisions.

C. Operational Risk and Enforced Self-Regulation—A Bad Combination

Leaving aside debates on the efficacy of enforced self-regulation in other contexts, I argue in this Section that operational risk is an especially poor candidate for enforced self-regulation. As shown in Subsection 1 of this Section, problems of data scarcity, modeling uncertainty, and the context-dependent nature of many operational risk events mean that the enforcement element of the enforced self-regulation model will likely face severe problems in the case of operational risk management. Moreover, as demonstrated in Subsection 2 of this Section, these same problems leave extraordinary room under Basel II for regulated banks and their legal intermediaries—particularly lawyers, accountants, and risk management experts—to define the terms of Basel II in a manner that furthers professional self-interest, rather than the public interest.

1. The Measurement Challenge

Basel II was not the first foray by the international banking community into enforced self-regulation. In 1996, the Basel Committee made a significant break with prior practice by permitting regulatory minimum capital requirements covering market risk exposures arising from banks' trading activities to be based on banks' own internal risk measurement models.[98] Both regulators and the banking community widely supported this move at the time, but it is considered by many to fundamentally differ from the later operational risk provisions of Basel II.

First, by 1996, market risk modeling was in a fairly advanced state and many financial institutions had devoted considerable resources toward developing value-at-risk (VaR) models to measure potential losses in their trading portfolios.[99] As previously discussed, operational risk models have not yet reached this level of precision or sophistication.[100] Moreover, market risk models are considered more amenable to backtesting than are operational risk models. As a result, market risk may be more suitable than operational risk to a regulatory approach of delegation

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98. Beverly J. Hirtle et al., *Using Credit Risk Models for Regulating Capital: Issues and Options*, 7 ECON. POL'Y REV. 19, 19 (2001).

99. *Id.*

100. *See, e.g.*, Jose A. Lopez, *U.S. Supervisory Standards for Operational Risk Management*, FED. RES. BD. S.F. ECONOMIC LETTER 1 (May 4, 2007), *available at* http://www.frbsf.org/publications/economics/letter/2007/el2007-11.html (stating that "operational risk is a relatively new field, so understandably financial institutions have made less progress in developing formal models for it"); BASEL COMM. ON BANKING SUPERVISION, OBSERVED RANGE OF PRACTICE IN KEY ELEMENTS OF ADVANCED MEASUREMENT APPROACHES (AMA) 22 (Oct. 2006) [hereinafter OBSERVED RANGE], *available at* http://www.bis.org/publ/bcbs131.htm (noting that "[w]hile the industry has made significant progress in modeling operational risk, limited internal data and significant differences in loss experiences across banks, and across business lines, make it difficult to determine preferred models").

of authority to financial institutions followed by oversight as a substitute for "top down" regulation.[101]

To illustrate, both risk managers and regulators rely on backtesting to check the validity of VaR models. VaR, which was sanctioned by the Basel Committee in 1996 as the standard measure of risk, measures the maximum possible loss of a portfolio over a given period of time at a specified confidence level.[102] The bank's internal risk measurement model is used to calculate VaR, which is then reported to the bank supervisor daily, along with realized profit and loss figures.[103] From this information, the bank supervisor can backtest the model for validity. If the number of exceptions, or tail losses, that exceed VaR are too high, an automatic increase in the capital requirement results.[104] Relative to market risk, however, the number of operational tail events may be quite small or nonexistent, rendering this backtesting process difficult.

Whether the prior consensus on the amenability of market risk to enforced self-regulation will survive the current financial crisis, which many blame on faulty market and credit risk models, remains to be seen. As the crisis deepens, antagonism to VaR and other statistical methods for modeling market risk exposures has intensified in some quarters.[105] Whereas critics argue that VaR's focus on more probable, quantifiable events causes some institutions to ignore the more improbable events that sparked the current financial crisis and other well-known risk management mishaps, VaR defenders contend that the fault lies not with mathematical models, but with human error.[106] Whatever the shortcomings, if any, posed by current methods for modeling and assessing market risk levels, there appears to be little dispute that operational risk presents significant modeling and data collection challenges not posed by market and credit risk measurement. This is particularly true with regard to the low-frequency, high-impact operational events, such as rogue trading.

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101. Michael Power, *The Invention of Operational Risk*, 12 REV. INT'L POL. ECON. 577, 585–86 (2005). *But see* Andre Lucas, *Evaluating the Basel Guidelines for Backtesting Banks' Internal Risk Management Models*, 33 J. MONEY, CREDIT & BANKING 826, 831, 842 (2001) (demonstrating that, under current supervisory requirements, banks are prone to underreport their market risk and that much higher penalties are required to align banks' preferences with those of the supervisor); *infra* notes 205–09 and accompanying text (discussing the manipulation and misreporting of VaR at various banks).

102. Lucas, *supra* note 101, at 829. For banks, the Basel guidelines specify a time horizon of ten days and a confidence interval of 99%. In other words, banks' VaR models must measure the maximum loss that can occur with a 99% probability during any ten-day period. AMENDMENT TO THE CAPITAL ACCORD, *supra* note 31, at 44.

103. Lucas, *supra* note 101, at 829.

104. *Id.* at 830 (describing this backtesting process and the resulting possible penalties in detail).

105. *See* Nocera, *supra* note 5 (discussing this debate).

106. *Id.*; *see also* Philippe Jorion, *Risk Management Lessons From Long-Term Capital Management*, 6 EUR. FIN. MGMT. 277 (2000) (noting that VaR was widely blamed for the failure of Long-Term Capital Management, and demonstrating the methods by which LTCM exploited weaknesses in its risk management system to generate what appeared to be arbitrage profits based on recent history that were also bets on extreme events).

Finally, operational risk is significantly more context-dependent than either market or credit risk, being driven largely by complex human factors that vary from scenario to scenario and that are subject to influence by bank management.[107] Again, this is especially true of low-frequency, high-impact events like rogue trading that many consider the greatest operational risk challenge.

Operational risk modeling is made even more challenging by the lack of sufficient data. The insufficiency of internal loss data is demonstrated by the Loss Data Collection Exercise and Quantitative Impact Study, conducted by U.S. federal bank and thrift regulatory agencies in 2004.[108] Those studies found that for most of the twenty-three banks studied, the median number of operational risk events was less than 200, with only four banks reporting more than 2,500 losses with values over $10,000.[109] Most of the reported losses were concentrated in a limited number of business lines, particularly fines by securities regulators.[110]

Most regulated banks thus possess insufficient internal data to assess operational risk at high levels of statistical certainty, and the problem is particularly acute with regard to low-frequency, high-impact events. This concern was best summarized by Basel itself in its range of practices survey, which concluded that:

> It is generally accepted that the severity of operational risk loss data tends to be heavy-tailed and methodologies for modelling operational risk must be able to capture this attribute. This is particularly challenging for many banks, as most have relatively scant datasets and few, if any, tail events.[111]

To compensate for this dearth of internal data, the Basel II Accord also permits the use of external operational loss data, gathered from outside sources such as industry consortia, third-party vendors, and media outlets.[112] External risk data present other problems, however. First, there is a reporting bias in external data. Some researchers have found, for example, that losses as large as $100

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107. Cummins et al., *supra* note 39, at 2610 (stating that some opponents of regulating operational risk take the position that it is idiosyncratic "earnings noise" that can be diversified away by shareholders); Holmes, *supra* note 39.

108. FED. RESERVE SYS. ET AL., RESULTS OF THE 2004 LOSS DATA COLLECTION EXERCISE FOR OPERATIONAL RISK, May 12, 2005, at 1, *available at* http://www.bos.frb.org/bankinfo/qau/papers/pd051205.pdf.

109. *Id.* at 7; Patrick McConnell, *Operational Risk Capital Under Basel II – Dead on Arrival?*, RISK MGMT. (Australia), June 21, 2007, *available at* http://www.riskmanagementmagazine.com.au/articles/39/0C04DA39.asp?Type=124&Category=1240.

110. FED. RESERVE SYS. ET AL., *supra* note 108, at 9, 30–31.

111. OBSERVED RANGE, *supra* note 100, at 26; *see also* Patrick De Fontnouvelle et al., *Capital and Risk: New Evidence on Implications of Large Operational Losses*, 38 J. MONEY, CREDIT & BANKING 1819, 1821 (2006) (stating that "[d]ata sparseness is a particular problem if the size distribution of operational losses is heavy-tailed (as it appears from our results), as it is difficult to estimate the tails of such distributions using small data sets").

112. Lopez, *supra* note 100, at 2; OBSERVED RANGE, *supra* note 100, at 26–28.

million may never be publicly disclosed.[113] Statistical techniques must account for this bias in order to produce credible estimates of operational risk.[114] Moreover, bank management must be able to determine the extent to which external loss data is comparable to their own risk exposures.[115]

In light of these data challenges, banks must employ two other operational risk assessment mechanisms under Basel II: scenario analysis and business environment and internal control factors (BEICFs).[116] Scenario analysis is a method of estimating the impact of hypothetical but plausible extreme events. As such, it can allow banks to account for tail events for which there is no or limited existing data.[117] However, the Basel range of practices survey found that banks' use of scenario analyses varied widely, with some banks using it not at all and others using primarily scenario analysis, rather than internally or externally generated data, to account for operational risk.[118] As to BEICFs, such as "business line rate of growth, new product introductions, findings from the challenge process (e.g., internal audit results), employee turnover and system downtime," the Basel range of practices survey found that very few banks had "determined how to quantify their impact on operational risk" measures.[119]

In sum, the significant quantification challenge posed by operational risk (particularly tail events, including rogue trading) has yet to be resolved to the satisfaction of many industry observers. As noted by one commentator just months prior to the anticipated Basel II implementation date for most member countries, "even at [this] late stage, there is no industry consensus on how to model operational risk and to calculate operational risk capital."[120] Indeed, Basel's own earlier range of practices study found a "wide range" of operational risk modeling practices across the banking industry and warned that this "raises the possibility that banks with similar risk profiles could hold different levels of capital under the AMA if they rely on substantially different modeling approaches and assumptions."[121]

2. The Profit Opportunity

The lack of a general consensus described in the prior Subsection 1 regarding operational risk definition, modeling, measurement, and control methods means that the Basel II Accord leaves room for definition and negotiation among regulated banks' internal and external agents. This includes bank management,

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113. De Fountnouvelle et al., *supra* note 111, at 1822.
114. *Id.*
115. Lopez, *supra* note 100, at 2.
116. *Id.* at 2–3.
117. OBSERVED RANGE, *supra* note 100, at 26.
118. *Id.* at 27.
119. *Id.* at 14; Lopez, *supra* note 100, at 3.
120. McConnell, *supra* note 109; *see also* Cummins & Embrechts, *supra* note 42, at 2602 (stating that "[s]tatistical uncertainty of the individual VaR estimates together with little knowledge on the interdependence between different classes imply a very high level of non-robustness of the final estimates"). As noted *supra* note 18, controversy and implementation problems have delayed the effective Basel II date in the United States.
121. OBSERVED RANGE, *supra* note 100, at 26.

who have an interest in the interpretation and implementation of Basel II's provisions, and legal intermediaries—particularly lawyers, accountants, and risk management experts, each of whom can credibly assert some expertise on the topic. As stated by Michael Power, "[o]perational risk as a broadly defined boundary object provides opportunities for internal agents, such as lawyers and accountants, to redefine and reposition their work in terms of risk management."[122]

Accountants, for example, may seek to define operational risk as primarily related to internal controls and auditing functions. The comments of one industry observer illustrate the internal control conception well: "I do not think that BIS or any other regulatory authority can come up with any rules for how much capital banks can hold against operational risk. The first line of defense for such risk is internal controls."[123] As stated by another, "operational risk management is about internal controls, not about quantification and capitalization."[124]

Lawyers, in contrast, may package operational risk management in terms of organizational governance and legal compliance issues. As stated by one author on a legal website, for example, "[g]iven how quickly inappropriate practices can lead to significant losses and reputational consequences, the legal and compliance function in financial institutions must be vigilant and active in assisting in the identification, monitoring and mitigation of operational risks."[125]

Both the auditor's internal control conception and the lawyer's legal compliance conception of operational risk management are in contrast to the view of operational risk embraced by most risk management specialists. Such specialists, trained in financial economics and possessing quantitative and modeling skills and training, tend to view operational risk as a poor cousin to market and credit risk, amenable someday—with sufficient attention and effort—to measuring, modeling, and testing.[126] As lamented by one risk management expert commenting on the blurring of risk management with compliance and audit functions, "[i]n many organisations risk management has been subsumed into the audit organisation and there are a growing number of 'risk management' consultancies that are offshoots of external auditing firms."[127]

None of this is meant to suggest that senior management of banking institutions are uninvolved in constructing the meaning of operational risk under Basel II, bringing their own interests to bear in the interpretation. Those interests include defining operational risk and its management under Basel II in a manner

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122. Power, *supra* note 101, at 585.

123. Netter & Poulsen, *supra* note 19, at 21.

124. Penny Cagan, *Standard Operating Procedures*, ERISK.COM, Mar. 2001, at 2, http://www.erisk.com/ResourceCenter/Features/StandardOps.pdf.

125. *Operational Risk Management in Global Banking Organisations—A Legal and Compliance Perspective*, WHO'S WHO LEGAL, May 1, 2008, http://www.whoswholegal.com/news/article/556/operational-risk-management-global-banking-organisations-legal-compliance-perspective.

126. Power, *supra* note 101, at 585–86.

127. Bill Sharon, *Operational Risk Management: The Difference Between Risk Management and Compliance*, CONTINUITY CENT., Sept. 16, 2005, http://www.continuitycentral.com/feature0243.htm.

that maximizes predictability and minimizes costs, especially the costs of any alterations to a profitable trading environment.[128]

Understanding the significance of this interest requires some analysis of the conundrum faced by financial institutions with respect to operational risk losses, particularly the low-frequency, high-impact events related to employee misconduct, such as rogue trading. Although it has been argued that operational risk differs from market and credit risk in that the assumption of greater risk does not increase returns,[129] the calculation is not so simple with regard to the possibility of rogue trading.

A wide array of state and federal laws, regulatory rules, and self-regulatory organization (SRO) guidelines mandate that financial institutions adequately supervise their employees.[130] Most financial institutions have implemented elaborate compliance procedures and programs in an apparent attempt to meet these requirements. Many firms spend millions of dollars each year on expensive computer and reporting systems and on supervisory personnel designed to control abusive trading practices.[131]

The continued existence of rogue trading in the face of these extensive legal and institutional disincentives presents a mystery for many scholars and industry observers. Why would management permit its employees to behave in a manner that jeopardizes not only the continued existence of the firm (and hence, of management employment) but that also risks the integrity of the markets in which the firm operates? Are financial institutions incapable of understanding the forces that give rise to rogue trading? Is rogue trading simply impossible to eliminate?

Financial institutions are neither helpless nor naive in the face of employee attempts to evade the firm's trading limits. Instead, it is more likely that the costs of deterring rogue trading are commonly underestimated. As a result, attempts at the enforced self-regulation of operational risk must be viewed with the recognition that banking institutions likely have determined to tolerate at least

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128. *Cf.* Dobbin & Kelly, *supra* note 96, at 1204, 1236 (discussing the turf battle between HR personnel and lawyers in determining the role of grievance procedures and employee training as a response to changing EEO law, and determining that personnel won because their response was more palatable to corporate executives, who adopted these measures in large numbers, and this "standard practice" was then legitimized by the courts).

129. Crouhy et al., *supra* note 59, at 51; Cummins & Embrechts, *supra* note 42, at 2600.

130. *See, e.g.*, 15 U.S.C. § 78o(b)(4)(E) (2006) (requiring securities broker-dealers to adequately supervise employees); *In re* Caremark Int'l, Inc. Derivative Litig., 698 A.2d 959, 970 (Del. Ch. 1996) (imposing on corporate directors a duty "to attempt in good faith to assure that a corporate information and reporting system, which the board concludes is adequate, exists"); 17 C.F.R. § 166.3 (2008); NASD Manual Rule 3010 (2008) (requiring NASD members to establish and maintain a system to supervise employees); N.Y. Stock Exchange Rule 342.21 (requiring that trades be subjected to review procedures); Chicago Board of Options Exchange Rules, 4.2 (1978) and 9.8 (2007), *available at* http://cchwallstreet.com/CBOE/Rules (then follow Chapters I-XXIX).

131. Kimberly D. Krawiec, *Accounting for Greed: Unraveling the Rogue Trader Mystery*, 79 OR. L. REV. 301, 306 (2000).

some evasion of the firms' trading limits, because to reduce the risk of rogue trading to zero is prohibitively costly.[132]

To begin with, in any trading environment there is a risk that, if left unchecked, employees will attempt to hide losses and fabricate profits. Because larger trading profits result in a larger bonus, traders can enhance their own wealth and welfare by fabricating profits. Similarly, when trades go sour, the trader has an incentive to hide his losses from superiors, hoping to recoup the loss later, perhaps by engaging in riskier trades in an attempt to make up previous losses.[133]

The proprietary trader has at his disposal a large amount of the firm's resources that he can use to maximize his own bonus compensation. If he leverages those resources and takes large risks, his reward is potentially greater. Of course, if his trades are unsuccessful, this leverage and risk mean that his losses will be greater, resulting in reduced compensation and/or job loss. However, reduced compensation, job loss, and loss of esteem and status inevitably result for insufficiently profitable traders, even if low levels of leverage and risk are pursued. Accordingly, there are asymmetric costs and benefits to exceeding the firm's trading limits: except in the most extreme cases (such as a Jerome Kerviel or Nick Leeson), when international notoriety and criminal sanctions result, the downside of trading loss is limited to employment termination or reduced compensation, whereas the trader's gain can be improved substantially through greater risk and leverage.

The incentives for employees to engage in rogue trading, therefore, are pervasive, and management's attempts to control such conduct are subject to three countervailing forces. First, at least some supervisory and management personnel likely make a conscious decision to tolerate or turn a blind eye to some evasions of the firm's trading limits, particularly for successful traders.[134] This is because higher risks and larger positions can, in the hands of a talented trader, translate into higher trading profits. As a result, others within the firm—including some with supervisory power—have an incentive to tolerate trading limit evasions by successful traders. In the cases of Jerome Kerviel, Joseph Jett, Nick Leeson, and many other rogue traders, for example, the evidence raises at least a colorable claim that others within the firm were, or should have been, aware of the trading violations, while at other banks (such as NAB) there is direct evidence of such knowledge by superiors.[135] As stated in the Price Waterhouse Report prepared for the Singapore Minister of Finance:

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132. A similar analysis has been applied in considering the socially optimal level of pollution, torts, and some crimes. George J. Stigler, *The Optimum Enforcement of Laws*, 78 J. POL. ECON. 526, 527 (1970).

133. Krawiec, *supra* note 131, at 308–09.

134. *Id.* at 316–20; Zur Shapira, *Organizations' Control of Their Market Actors: Managing the Risk of Government Bond Traders* (New York University, Working Paper 2006), *available at* www.bus.umich.edu/Academics/Departments/CSIB/CSIB/Shapira_Traders_406_04-07-06.pdf.

135. *In re* Kidder Peabody Sec. Litig., 10 F. Supp. 2d 398, 415 (S.D.N.Y. 1998); M.L.C. San & N.T.N. Kuang, Baring Futures (Singapore) Pte Ltd., *The Report of the Inspectors Appointed by the Minister for Finance, Singapore. Investigation Pursuant to*

> [T]he suggestion by the Baring Group's management that they were unaware of the existence of account 88888 and the fact that S$1.7 billion remitted to BFS was for trades booked in this account, gives rise to the inference that certain key personnel of the Baring Group were willfully blind to the truth.[136]

Second, because the events that lead to rogue trading often involve serial decision-making and substantial sunk costs, supervisors and others within the firm may be prone to an irrational escalation of commitment.[137] Third, many financial institutions purposely foster a firm culture that is likely to breed some employee rogue trading, because the same factors that facilitate rogue trading also promote profitable trading strategies. Although financial institutions could implement compliance and oversight systems so flawless that every trade was closely monitored and any unauthorized trading would be quickly detected, such a system would be extraordinarily expensive.

The expense stems not only from the costs of software, reporting systems, and supervisory personnel, but also from the fact that fully rendering the trading floor accountable to management would entail an alteration of the carefully crafted institutional norms that encourage traders to maximize the firm's profits.[138] To illustrate, many firms have purposely fashioned an incentive structure and firm culture that fosters three general norms conducive to rogue trading: (1) materialism; (2) risk-taking; and (3) independence. Financial institutions promote these traits, not for the purpose of encouraging rogue trading, but because these same norms give rise to successful and profitable traders.[139]

Section 231 of the Companies Act (Chapter 50), ¶ 8.25 (1995) [hereinafter Price Waterhouse Report] (copy on file with author); *see also* discussion *infra* Part III.B–C. (discussing the Kerviel, Jett, Leeson, Rusnak, NAB, and other rogue trading cases in detail).

136. Price Waterhouse Report, *supra* note 135, ¶ 8.25.

137. Escalation theory stems from research indicating that people and groups are more prone to a particular type of bias—a tendency to escalate commitment—when faced with a series of decisions, rather than with an isolated decision. Studies have shown that the likely response to such situations is an escalation of commitment to the previously selected course of action beyond that predicted by rational decision-making models. MAX BAZERMAN, JUDGMENT IN MANAGERIAL DECISION MAKING 66 (4th ed. 1998). The tendency to escalate is especially pronounced when an explanation for failure that is unpredictable and outside the control of the decision-maker can be identified, such as a market downturn or economic shock. Barry M. Staw & Jerry Ross, *Commitment to a Policy Decision: A Multi-Theoretical Perspective*, 23 ADMIN. SCI. Q. 40, 44–46 (1978).

138. Gordon L. Clark, *Rogues and Regulation in Global Finance: Maxwell, Leeson, and the City of London*, 31.3 REGIONAL STUD. 221, 226 (1997); Srilata Zaheer, *Acceptable Risk: A Study of Global Currency Trading Rooms in the U.S. and Japan*, *in* THE PERFORMANCE OF FINANCIAL INSTITUTIONS: EFFICIENCY, INNOVATION, REGULATION 462, 462 (Patrick T. Harker & Stavros A. Zenios eds., 2000).

139. Krawiec, *supra* note 131, at 329–32. *Cf.* Albert S. Kyle & F. Albert Wang, *Speculation Duopoly with Agreement to Disagree: Can Overconfidence Survive the Market Test?*, 52 J. FIN. 2073, 2074 (1997) (arguing that "a fund can also promote its long-run survival by instituting an incentive scheme to shift its rational manager's probability distribution toward more aggressive trading as if he were overconfident").

This is not to suggest that traders arrive on the trading floor a psychological and cultural blank slate. Indeed, prospective traders likely do not represent a random cross-section of the population, but instead enter the firm with a predefined set of preferences, which are then sharpened and intensified through the firm's incentive structure and socialization networks.[140]

Once hired, the institutional environment operates to reinforce those characteristics in traders.[141] For example, traders have a heightened sense of materialism because the firm's incentive structure is specifically designed to foster such an attitude. Unlike jobs in most other fields, there is no real career ladder on the trading floor. Instead, the trading hierarchy tends to consist primarily of traders who earn higher trading profits versus those who earn less. Rather than rewarding superior performance with titles and promotions, successful traders tend to be rewarded primarily with larger bonuses and, perhaps, less oversight.[142]

The compensation structure on the trading floor at most financial institutions (typically based on trading profits earned in the current fiscal year) also encourages risk-taking, by sending a message that short-term profits will be rewarded, even if incurred at the expense of greater risk. This message may be far stronger and more persuasive than the countervailing message embodied in the firm's written codes of conduct.[143]

Not only organizational management, but also regulatory bodies such as the SEC, are well aware of the moral hazard problem posed by the compensation structures at most financial institutions.[144] Various attempts over the years by some

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140. Individuals with a particular psychological and personality makeup are attracted to, and survive in, trading institutions. Those individuals tend to be relatively comfortable with taking large risks and must have the ability to think and act quickly and to prosper under stressful conditions. MITCHEL Y. ABOLAFIA, MAKING MARKETS: OPPORTUNISM AND RESTRAINT ON WALL STREET 9–31 (1996). In addition, the successful trader is attracted to trading by a desire for income and continues to be motivated by that desire throughout his trading career. Finally, those attracted to a career in trading are typically independent and entrepreneurial. They often reject the hierarchy and lack of autonomy that characterizes other corporate jobs. *Id.*

141. The socialization of new traders begins with the training program, which typically includes a short period of classroom training and then a longer period as an intern on the trading floor. During this period, the institutional norms of materialism, risk-taking, and independence are solidified and reinforced. Krawiec, *supra* note 131, at 328–29.

142. ABOLAFIA, *supra* note 140, at 18–30.

143. Deborah A. DeMott, *Organizational Incentives to Care About the Law*, 60 LAW & CONTEMP. PROBS. 39, 45 (Autumn 1997) ("As an organization, the corporation defines rewards and penalties; by doing so it creates incentives for agents to act in ways that promise rewards conferred by the organization. These incentives can be so strong that they mute the message otherwise conveyed by the organization's instructions to its agents."); Krawiec, *supra* note 131, at 329–32; Schwarcz, *supra* note 13 (discussing the misaligned incentives of secondary managers caused by financial firms' current compensation structure).

144. *See Bonus Points*, ECONOMIST, Apr. 15, 1995, at 71 (noting that the Barings Bank rogue trading scandal caused many firms to conclude that their compensation structures provided similar perverse incentives); Press Release, SEC, SEC Chairman Levitt Receives Compensation Committee's Report Highlighting Industry 'Best Practices'; Calls

financial institutions to revise employee compensation packages suggest that firms are aware of the costs associated with existing compensation schemes, but struggle to balance a compensation system that successfully discourages employee misconduct against the need to create incentives and preferences that maximize profitability.[145]

Lastly, traders are expected to be self-reliant and entrepreneurial, traits not always conducive to mutual monitoring. As a result, traders may operate in an independent environment in which they perceive their primary obligation as maximizing the value of their own account and feel little duty to oversee those around them for potential violations of the firm's trading rules.[146]

In sum, financial institutions do not suffer operational losses, such as those stemming from rogue trading, because they are unaware that such risk exists or do not understand how to control employee misconduct. Instead, firms likely make an affirmative calculation to tolerate some level of employee misconduct, because to reduce such risk to zero is not financially worthwhile. As elaborated in

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on Entire Industry to Review Closely, S.E.C. 95-64 (Apr. 10, 1995), at 1, *available at* 1995 WL 154267 (studying the incentives for broker churning and the recommendation of unsuitable investments provided by the compensation structure of most securities broker-dealers); PROMONTORY FIN. GROUP & WACHTELL, LIPTON, ROSEN & KATZ, REPORT TO THE BOARDS OF DIRECTORS OF ALLIED IRISH BANKS, P.L.C., ALLFIRST FINANCIAL INC., AND ALLFIRST BANK CONCERNING CURRENCY TRADING LOSSES 31 (Mar. 12, 2002) [hereinafter LUDWIG REPORT], *available at* http://www.irishtimes.com/newspaper/special/2002/aib/ludwig.pdf (criticizing AIB's compensation structure—which was similar to that at most firms—for contributing to Rusnak's rogue trading).

145. Morgan Stanley, which in 2008 revised its compensation policy to provide traders with 65% of bonus pay in deferred compensation vesting over three years, is the most recent and prominent example. Joe Nocera, *First, Let's Fix the Bonuses*, N.Y. TIMES, Feb. 20, 2009, *available at* http://www.nytimes.com/2009/02/21/business/21nocera.html?scp=9&sq=joe%20nocera%20compensation&st=cse (arguing that Wall Street's system of trader compensation creates perverse incentives that encourage short-term risk-taking at the expense of long-term institutional stability). However, the unsuccessful struggles of Salomon Brothers to revise its compensation system illustrate the challenges encountered by some firms seeking similar compensation system reforms. After the firm's 1994 trading scandal, Salomon overhauled its compensation system to provide investment bankers, traders, and other employees with as much as half their pay in Salomon Brothers stock at a 15% discount, which could not be sold for five years. *Bonus Points*, *supra* note 144, at 71 (discussing efforts by various financial services firms to restructure their compensation systems in an effort to reduce agency costs and unauthorized activities); *Pay Dirt: Salomon Brothers*, ECONOMIST, July 1, 1995, at 67 (reporting that, after announcing the plan, which was quickly discontinued, Salomon lost dozens of employees, especially traders); Michael Siconolfi, *Salomon Looks at Backing Out of Pay Plan*, WALL ST. J., Apr. 25, 1995, at C1.

146. Abolafia, *supra* note 140, at 28 (quoting one trader as saying, "It's a very entrepreneurial business. No one is going to help you make money. They're too busy helping themselves."). *Cf.* PRICEWATERHOUSECOOPERS, SOCIÉTÉ GÉNÉRALE: SUMMARY OF PWC DIAGNOSTIC REVIEW AND ANALYSIS OF THE ACTION PLAN 7 (May 23, 2008), *available at* http://www.socgen.com/sg/file/fichierig/documentIG_5197/pricewatercooper.pdf (discussing the "strong entrepreneurial culture" at Société Générale that led to rampant trading violations and the Jerome Kerviel rogue trading scandal).

the following Part III through the examples of recent rogue trading incidents, it is implausible to assume that capital set aside rules such as those embodied in Basel II would have impacted the operational risk assessment at any of the financial institutions discussed in that Part, because each was unable or, more likely, unwilling to acknowledge the numerous warning signs of increasing operational risk levels within the institution, instead turning a blind eye to common red flags.

III. AN ANALYSIS OF ROGUE TRADING CASES

This Part analyzes several well-known rogue trading cases, with a particular focus on the recent Jerome Kerviel rogue trading scandal at Société Générale. Similarities will be drawn between the Kerviel case and other rogue trading events to highlight a central tenet of this Article: enforced self-regulation such as that embodied in Basel II is unlikely to induce financial institutions to account for the possibility of rogue employees any differently than they currently do. This is in part because organizations, such as Société Générale, that find themselves confronted with massive rogue trading losses often have willfully, or at least recklessly, disregarded the warning signs of rising operational risk levels in pursuit of higher trading profits. To that end, I draw parallels between Kerviel and other relevant rogue trading cases, including Nick Leeson at Barings Bank,[147] John Rusnak at Allied Irish Banks (AIB),[148] Joseph Jett at Kidder Peabody & Co. (Kidder),[149] and a small cohort of rogue traders at National Australia Bank

147. Nick Leeson was a twenty-eight-year-old trader in the Singapore office of Barings PLC, the oldest merchant bank in Britain and financial advisor to Queen Elizabeth II. Although Leeson was authorized to pursue a low risk strategy of arbitraging differences in futures prices between the Singapore International Monetary Exchange (SIMEX) and either the Osaka or Tokyo exchanges, he quickly abandoned this strategy in favor of risky directional trades. Leeson's role as head of both settlements and trading enabled him to disguise his unauthorized trading. The fraud reportedly began after a new clerk lost GBP 20,000, which Leeson tried to cover up through an error account (the now infamous 88888 account). Leeson then continued to use the account to hide other trading losses. As Leeson's losses mounted, he increased the riskiness and size of his trades, in an effort to recoup his losses. In order to collect the option premiums and cover margin calls, Leeson placed a large number of short straddles (the simultaneous sale of a call and a put with the same strike price and maturity) on the Nikkei 225. When the Kobe earthquake hit, causing a sharp decline in the Nikkei, Barings could no longer sustain the losses, and Leeson fled the country. Within a few days, Barings declared bankruptcy and was eventually sold to ING for GBP 1. *See generally* Price Waterhouse Report, *supra* note 135.

148. In February 2002, Ireland's second largest bank, Allied Irish Banks, disclosed losses of $691 million by John Rusnak, a foreign exchange trader in its Baltimore, Maryland office. The bank took a one-time charge against earnings that eliminated over 60% of 2001 earnings and severely depleted its capital. *See generally* LUDWIG REPORT, *supra* note 144, at 29.

149. Despite a stellar academic record, Jett's start in trading was a rocky one. After being fired first from Morgan Stanley and then from First Boston, Jett eventually landed on Kidder's Zero Coupon Trading Desk in July 1991. Jett's first performance review was highly negative and he received a bonus of only $5000. Shortly thereafter, Jett began to exploit an accounting anomaly in Kidder's system that allowed him to record total profits in excess of $264 million, earning promotions, millions of dollars in bonuses, and the title of Kidder's 1993 "Man of the Year." In reality, Jett's profits were part of a fictitious pyramid scheme that hid real losses of $74.7 million. Jett was banned from the securities industry in

(NAB).[150] Where relevant, I also discuss particular aspects of other rogue trading incidents in somewhat less detail.

A. On Warning Signs and Improbable Profits

Prior to an analysis of the Kerviel and other rogue trading cases, a few clarifying points are in order. First, as noted throughout this Article, rogue trading losses at levels sufficient to generate public disclosure and subsequent outside, independent investigation are rare. Therefore, the rogue trading cases discussed in this Section, although seemingly few in number, constitute the bulk of recent rogue trading incidents about which meaningful amounts of independent information is publicly available.

Second, by drawing parallels among these rogue trading events and highlighting the common warning signs among them, I do not mean to suggest that each of the factors discussed in this Section, in and of itself, is a red flag warranting a full scale investigation. For example, cancelled transactions are inevitable, and some traders who resist vacation time may simply be extremely motivated. However, the presence of a number of these factors in tandem—and with the frequency observed in these cases—warrants at least some level of institutional investigation.

When the trader(s) in question can provide a rational explanation for the aberrant activity, the inquiry may end there. It is telling, however, that in each of the rogue trading cases discussed here, the traders were rarely questioned in any depth about unusual trading activity and the back-office confirmation of those activities was half-hearted or, in some cases, nonexistent.[151] Skeptics within the firm were deterred with vague assurances that all was well or that the questioner lacked the skills to sufficiently understand the trading strategy and/or the explanations given.[152] In some cases, back and middle office personnel were

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2004 and ordered to disgorge more than $8 million in profits. *In re* Orlando Joseph Jett, Exchange Act Release No. 8395, 2004 WL 2809317 (Mar. 5, 2004).

150. From 2001 to 2004, a group of four currency options traders at NAB engaged in unauthorized trading, regularly breaching position and risk limits, and concealing their activity through the smoothing of profits and losses, stating incorrect rates for trades, and recording fictitious transactions. In January 2004, NAB announced that the traders had lost AUD 360 million. *See generally* PRICEWATERHOUSECOOPERS, INVESTIGATION INTO FOREIGN EXCHANGE LOSSES AT THE NATIONAL AUSTRALIA BANK 1 (2004) [hereinafter NAB REPORT], *available at* http://www.nabgroup.com/vgnmedia/downld/pwcreport.pdf.

151. *See* discussion *infra* Part III.B–C. (detailing these facts).

152. Along these lines, Rick Bookstaber, author of A DEMON OF OUR OWN DESIGN (2007), relates a hypothetical discussion between a risk manager and a trader, designed to illustrate the fact that the risk manager is always at a disadvantage to the trader when questioning trades and risk exposures. This is because: (1) the trader will always understand the markets in which he operates better than the risk manager; (2) by definition, the probabilities are such that the risk manager is likely to be wrong more often than he is right (in other words, his concerns, while legitimate, will most often not result in actual disaster); and (3) it is easy for the risk management department to occupy itself with paperwork, reports, meetings, and other activities that do not go to the heart of risk management. Conversations with the Trading Desk, http://rick.bookstaber.com/2007/12/

essentially bullied into submission.[153] In all cases, relatively senior management ignored or failed to adequately investigate inquiries or alerts from their own employees, regulators, exchanges, and other market participants, treating such inquiries more as public relations problems than as a potential signal of rising operational risk levels.[154]

Finally, and perhaps most importantly, in each of these cases the probability that the authorized trading strategy could have produced the reported profits is low and, in some cases, nearly impossible. For example, from mid-1991 through the first quarter of 1994, Joseph Jett at Kidder reported over $264 million in profits from STRIPS (Separate Trading of Registered Interest and Principal of Securities) trading,[155] supposedly earned through arbitraging small differences between the trading prices of U.S. government bonds and their component STRIPS.[156] The problem with this explanation is that, because the market for Treasury securities is one of the world's most liquid and actively traded, the potential for arbitrage profits is limited.[157] This is illustrated by the fact that, prior to Jett's employment, the record profit for STRIPS trading in a single year was fifteen million dollars.[158] Jett's reported profits from STRIPS trading exceeded that amount in a single month four different times.[159] On a single transaction alone in 1992 Jett recorded an apparent profit of $12.9 million and on another, in 1993, a profit of $24.2 million.[160] Based on Kidder's prior STRIPS profitability, such large profits on STRIPS trading would have been unusual for any trader, much less one with Jett's limited experience in government bond trading and prior disappointing track record.[161]

In reality, Jett's reported profits were produced through a fictitious pyramid scheme enabled by an anomaly in Kidder's recording and accounting systems (known as G1) that hid Jett's real trading losses of $74.7 million. These fictitious profits were generated through forward reconstitutions ("forward recons") with the Federal Reserve, a non-cash trade of economically equivalent

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conversations-with-trading-desk.html (Dec. 2, 2007); *see also* discussion *infra* Part III.B–C. (detailing this problem in connection with several specific rogue trading incidents).

153. *See infra* notes 199–201 and accompanying text (discussing the Rusnak case).

154. *See infra* notes 220–32 and accompanying text.

155. U.S. Treasury bonds are commonly traded on the secondary market as separate zero coupon components of principal and interest (STRIPS). *In re* Kidder Peabody Sec. Litig., 10 F. Supp. 2d 398, 402–03 (S.D.N.Y. 1998) (discussing STRIPS trading); *see supra* note 149 and accompanying text (discussing the Jett case).

156. *In re Kidder Peabody*, 10 F. Supp. 2d at 403–05; *In re* Orlando Joseph Jett, Exchange Act Release No. 8395, 2004 WL 2809317, at *16 (Mar. 5, 2004). At various times, Jett also attributed portions of his profits to increased market making activities and speculation on the movement of interest rates. *Id.*

157. *In re Orlando Joseph Jett*, 2004 WL 2809317, at *3.

158. *In re Kidder Peabody*, 10 F. Supp. 2d at 404.

159. *Id*. at 404–05.

160. *Id*. at 405.

161. *See supra* note 149 and accompanying text (discussing Jett's experience and track record); *infra* notes 228–31 and accompanying text (discussing other warning signs at Kidder).

securities, having no real monetary significance.[162] G1, however, treated each forward recon as if it were a real transaction, recording the difference between the current price of the STRIPS and the forward price of the recon as an immediate profit.[163] The larger the principal amount of the bond to be reconstituted or the further forward the settlement date, the larger the apparent profit.[164] As the settlement date approached, however, and the trading price of the STRIPS converged with the forward price, G1 would generate a loss entry each day until, at settlement, all apparent profits were eliminated.[165] In order to maintain the illusion of profitability, therefore, Jett had to enter more forward recons, with larger principal amounts, and more distant settlement dates, a task enabled by an "upgrade" to G1 in November 1992 that changed the forward settlement limit on recons from five days to any date the trader entered.[166]

Although perhaps less clear-cut, similar skepticism has been expressed regarding both Rusnak at AIB and Leeson at Barings. For example, Rusnak's trading strategy essentially became that of a one-man hedge fund. Yet, as noted in the Ludwig Report, a single trader in Baltimore with little support or relative expertise has no comparative advantage in the highly competitive and sophisticated hedge fund market, where the bulk of successful market participants have specialized knowledge and expertise, as well as greater scale and diversification.[167] Similarly, as noted in the Price Waterhouse Report prepared for the Singapore Minister of Finance regarding the Leeson debacle:

> Mr. Leeson's product managers accepted the reports of his considerable profitability with admiration rather than skepticism. They perceived no irregularity in Mr. Leeson's trading activities despite the inherent limit to the profit potential of Mr. Leeson's arbitrage activities. This was because the price differences that were arbitraged were small, and large volumes had to be transacted in

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162. *In re Kidder Peabody*, 10 F. Supp. 2d at 403; *In re Orlando Joseph Jett*, 2004 WL 2809317, at *4–5. In order to facilitate secondary market trading in U.S. Treasuries the Federal Reserve will, at the request of any primary dealer, convert either a complete Treasury bond into its component parts (a "strip") or the constituent parts into a complete bond (a "recon"). These are economically meaningless transactions—the equivalent of receiving from the bank two ten-dollar bills in exchange for a twenty, or vice versa. A forward recon is a recon entered for settlement more than one business day in the future. *In re Kidder Peabody*, 10 F. Supp. 2d at 404; *In re Orlando Joseph Jett*, 2004 WL 2809317, at *4–5.

163. The price difference arises from the fact that zero coupon bonds trade at a discount to their face value to reflect the return earned from compound interest at maturity, since no periodic interest payments are made on the bond. *In re Kidder Peabody*, 10 F. Supp. 2d at 404; *In re Orlando Joseph Jett*, 2004 WL 2809317, at *4–6.

164. *In re Orlando Joseph Jett*, 2004 WL 2809317, at *4–6.

165. *Id.*

166. *In re Kidder Peabody*, 10 F. Supp. 2d at 4–5. Jett—and a group of plaintiff shareholders in GE (Kidder's parent corporation)—cite this change to G1 (and other events) as evidence of complicity by Jett's supervisors and Kidder management in Jett's scheme, undertaken for the purpose of increasing Kidder's apparent profitability to secure financing from Union Bank of Switzerland (UBS). Kidder disputes that contention. *Id*. at 415–17.

167. LUDWIG REPORT, *supra* note 144, at 31.

> order to realize meaningful gains. However, as the volume of such transactions increased, this tended to reduce the price differences, and therefore the potential profit from arbitrage.[168]

In short, the warning signs elaborated in this part stem not from any single factor or specific mix of factors, but instead from the combination of improbable profits relative to the authorized trading strategy (particularly when considered in light of the trader's prior experience and track record), and a series of other potential red flags. Those potential red flags include the refusal to take vacations, abnormally high volumes of canceled trades, trades that make no economic sense, extraordinarily large positions or turnover relative to total market activity, mismatches between cash flows and reported profits and losses, and, finally, the absence of a credible explanation for this aberrant activity.

B. Trades and Concealment

Like many rogue traders before him, Jerome Kerviel was rather unexceptional both personally and professionally prior to gaining rogue trading infamy. From a working-class background, his education and credentials were unimpressive, and his prior trading record unspectacular.[169]

First hired from the back office onto the warrants trading desk in 2005, Kerviel's unauthorized trades began almost immediately.[170] In this regard, Kerviel's story mirrors that of many other rogue traders, who quickly abandoned their authorized arbitrage and/or client trading strategy in favor of unauthorized directional trades.[171]

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168. Price Waterhouse Report, *supra* note 135, at Biv; *see also infra* notes 223–26 and accompanying text (discussing the huge size of Leeson's positions relative to total market activity).

169. *See* John O'Doherty, *Custom and Practice, or a Man with a Lot to Prove?*, FIN. TIMES (Feb. 2, 2008). Like Nick Leeson before him, Kerviel had worked his way onto the trading desk from a back-office position. *Id.*; *A Fallen Star*, ECONOMIST, Mar. 4, 1995, at 19 (discussing Leeson's working class background and his rise within Barings); s*ee also In re Kidder Peabody*, 10 F. Supp. 2d at 403–04 (discussing Joseph Jett's unimpressive start in trading); Alan McNee, *Allied Irish Banks: A Case Study*, ERISK 1–2 (Apr. 2002) (describing Rusnak as "an unexceptional individual living quietly with his family in the suburbs of Baltimore," and "not a 'star trader'").

170. SOCIÉTÉ GÉNÉRALE: GEN. INSPECTION DEP'T, MISSION GREEN: SUMMARY REPORT 2 (2008) (translation from French) [hereinafter SOCIÉTÉ GÉNÉRALE]. Kerviel's authorized trading on the warrants desk consisted of two types: client trading and proprietary trading. *Id* at 10. Client trading involved selling warrants (typically with knock-out call options) to clients and hedging the position by purchasing the underlying assets. *Id.* Kerviel's authorized proprietary trading—arbitrage on competitors' turbo warrants—primarily involved the purchase of competitors' call turbos and a corresponding hedge through the sale of futures contracts. *Id.*

171. *See, e.g.*, Price Waterhouse Report, *supra* note 135, at Bi–ii (explaining that, although Leeson was authorized to engage in client trading and, later, arbitrage, he instead placed directional bets); LUDWIG REPORT, *supra* note 144, at 9–10 (reporting that, although John Rusnak was authorized to engage only in foreign currency arbitrage, the majority of his trades were directional trades using simple currency forwards); *In re Kidder Peabody*,

As is common in rogue trading cases, there is no evidence of direct knowledge by superiors at Société Générale of Kerviel's overnight directional trades (referred to in the General Inspection Department's report as "fraudulent trades"), which Kerviel hid through a variety of relatively straightforward cover-up schemes. However, supervisors and bank management ignored numerous warning signs regarding the size and scope of these trades, leading to a reasonable inference that at least some supervisory personnel likely turned a blind eye to Kerviel's trading irregularities.[172] Moreover, emails confirm that Kerviel's immediate superior was aware of, and acquiesced in, some early intra-day unauthorized positions on equities and equity index futures (referred to in the General Inspection Department's report as "unauthorized activities").[173]

Bank records show the presence of some fraudulent trades from June 2005 through February 2006, in amounts up to EUR 15 million, primarily on equities.[174] Those amounts grew to as large as EUR 135 million through the end of 2006.[175]

Beginning in late January 2007, Kerviel began to amass a large short position in DAX equity index futures, reaching EUR 28 billion on June 30, 2007.[176] Kerviel unwound this position in August of 2007 and then began building up a new short position, which reached EUR 30 billion on October 31, 2007.[177] Kerviel subsequently unwound that position in November 2007.[178] Also during 2007, Kerviel's directional equities positions reached amounts as high as EUR 370 million.[179] Kerviel realized total trading profits of EUR 1.5 billion in 2007.[180]

Between January 2 and January 18, 2008, Kerviel amassed a EUR 49 billion long position on DAX futures, which the bank reportedly discovered on January 20. These positions were unwound between January 21–23, 2008, recognizing a loss of EUR 6.4 billion.[181]

Although much has been made of Kerviel's "sophisticated" cover-up scheme enabled by his intimate knowledge of the back-office system,[182] in reality the bulk of Kerviel's cover up consisted of the standard fare employed by most

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10 F. Supp. 2d at 403 ("Kidder expected Jett to make profits in part by dealing in STRIPS with customers and through opportunities for arbitrage.").

172. There is also some evidence of complicity by a trading assistant in Kerviel's fraudulent scheme. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 3–4.

173. *Id.* at 4.

174. *Id.* at 2. The primary equities involved were Allianz, Solarworld, and Q-Cells. *Id.* at 2 n.3.

175. *Id.* at 2.

176. *Id.*

177. *Id*.

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.* Subtracting Kerviel's 2007 gain of EUR 1.5 billion leads to the loss of EUR 4.9 billion (over $7 billion) quoted in the press. *Id.*

182. *See, e.g.*, Carol Matlack, *SocGen Had Been Warned About Kerviel*, BUS. WK., Jan. 28, 2008, *available at* http://www.businessweek.com/globalbiz/content/jan2008/gb20080128_400149.htm.

rogue traders: fake trades or other system entries designed to hide unauthorized trading activity, backed up by lies (which were never questioned by his supervisors or managers) and forged documents. Kerviel hid his unauthorized trading activity through three concealment mechanisms: (1) the entry and cancellation of fictitious transactions; (2) the entry of pairs of fictitious reverse transactions; and (3) the booking of intra-monthly "provisions" that offset earnings or losses.[183]

First, and most simply, Kerviel entered fictitious transactions into the system in amounts sufficient to cover his unauthorized positions that were then employed in the bank's risk and valuation calculations.[184] Bank records show that Kerviel entered 947 transactions of this type.[185]

Second, Kerviel entered matched trades of equal quantities at different prices to generate fictitious gains and losses. For example, on March 1, 2007, Kerviel entered a purchase for 2,266,500 Solarworld shares at EUR 63 and the sale of the same number of shares at EUR 53, creating a fictitious loss of EUR 22.7 million. Bank records reveal 115 transactions of this variety.[186]

In order to avoid discovery through back-office attempts to confirm his trades, Kerviel cancelled these fictitious trades prior to confirmation, settlement, or control. To gain time, he entered transactions with some lag between the trade date and the confirmation, control, or settlement date.[187] On the rare occasions when a supervisor or middle or back-office personnel questioned Kerviel regarding these transactions, he lied and forged emails or other confirming documents as support.[188]

The first technique employed by Kerviel—the entry of fictitious transactions—resembles one used by the NAB traders, who entered fictitious foreign exchange spot and option transactions into the NAB system (known as "Horizon").[189] These fictitious transactions were concealed by taking advantage of a one-hour window between the close of the trading day and the beginning of the period when the back office began checks to verify the day's transactions. The profits and losses generated by Horizon were posted to the general ledger and used for the creation of management reports and NAB's financial statements. However, during this one-hour window before the transaction validation process began, the traders had time to reverse or remove the fictitious trades from Horizon, so that

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183. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 1.

184. *Id.* at 24.

185. *Id.*

186. *Id.*

187. For example, Kerviel used pending party names, internal client names, or trades with a deferred start date, all of which have delayed confirmation dates. Although each of these mechanisms is common industry practice, *id.* at 24–25, the level (and constant cancellation) of such activity is unusual.

188. *Id.* at 8.

189. *See* NAB REPORT, *supra* note 150, at 13. The traders also entered false dealing rates on genuine spot foreign exchange transactions in order to create false profits (and, sometimes, losses). The effect of these entries was to smooth profits and losses by shifting them from one period to another. *Id.* at 13–14. This fraud was concealed using the same one-hour window employed in connection with the fictitious trades. *Id.*

they were never verified by NAB's back office.[190] According to recovered emails and taped phone conversations, this fraud was undertaken to ensure that the currency options desk met year-end profit targets and that, as a result, the currency traders received year-end bonuses.[191] PricewaterhouseCoopers identified 467 fictitious spot transactions and seventy-eight fictitious options transactions in 2003.[192]

The second technique employed by Kerviel—reverse fictitious transactions—is remarkably similar to one employed by AIB's John Rusnak, who used fictitious option trades to cover his trading losses and create the appearance that his positions were hedged.[193] Rusnak's practice was to simultaneously enter fictitious offsetting options trades on the same currency, with the same counterparty, premium, and strike price, but with different expiration dates. For example, Rusnak might enter the sale of a deep-in-the-money option on Japanese yen to a client in Asia, with an expiration date the same as the sale date.[194] Such an option would involve the receipt of a large premium by AIB, but would also constitute a large liability on the bank's balance sheet. At the same time, Rusnak would claim to have purchased an offsetting option from the same counterparty, with an expiration date several weeks or a month later. At the end of the day, AIB's books reflected only that it held a valuable asset (a deep-in-the-money option for which the bank had supposedly paid a large premium) that concealed Rusnak's losses on unauthorized directional spot and forward trades.[195]

Eventually, like many prior rogue traders, Rusnak ran into funding problems, which he resolved by selling deep-in-the-money options that command a high premium. Unfortunately for AIB, such options also represent a significant liability on the bank's books, which Rusnak covered through more fake options transactions that gave the appearance that these real deep-in-the-money options had been repurchased from the original counterpary.[196] Nick Leeson of Barings used a similar strategy to fund his increasing margin calls on the SIMEX, selling options on Nikkei 225 futures in order to collect the premiums.[197]

In considering the extent to which Rusnak's cover-up was enabled by a failure of controls at AIB it is important to note two things. First, these fictitious paired trades made no economic sense. Counterparties would not allow deep-in-the-money options to expire unexercised, and certainly not on a regular basis.[198]

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190. *Id.* at 13.

191. *Id.* at 17.

192. *Id.* at 15–16. Barings' Nick Leeson also extensively used fictitious trades to hide his unauthorized activity. Price Waterhouse Report, *supra* note 135, at 24–26.

193. LUDWIG REPORT, *supra* note 144, at 10–11.

194. *Id.* An "in-the-money" call option has a strike price below the current market price of the underlying, such that the option could be exercised immediately at a profit.

195. *Id.* at 11.

196. *Id.* at 13.

197. Price Waterhouse Report, *supra* note 135, at 21.

198. *See* LUDWIG REPORT, *supra* note 144, at 10. Although normally options with different expiration dates would command different premia due to the time value of the option, a very deep-in-the-money option may have no time value, because its intrinsic value is so high, eroding the effect of leverage.

Any number of Rusnak's superiors could have recognized this anomaly, had anyone chosen to pay attention. Second, in order for the scheme to succeed, AIB's back office had to sign off on these transactions. Initially, Rusnak managed this by creating fake confirmations of his trades. Later, however, he convinced back-office staff that such trades required no confirmation because the cash flows offset each other, and because of the inconvenience caused by the time difference with Asia.[199] Rusnak facilitated this by bullying and intimidating back-office and risk management staff, frequently berating them and threatening to have them fired.[200] For example, when back-office personnel complained that they were having trouble confirming Rusnak's trades, Rusnak and his front-office supervisors blamed the back-office staff for not understanding how the transactions worked.[201]

The third technique Kerviel employed, a mechanism known as a "provision flow," is designed to correct modeling bias and supposedly is reserved only for trading assistants.[202] This technique allowed Kerviel to enter positive or negative amounts modifying the values calculated by the front-office valuation system.[203] The bank's records show that Kerviel entered such provision flows nine times.[204]

This third technique is also quite similar to one employed by AIB's John Rusnak. In addition to the fake options transactions detailed above, Rusnak hid his unauthorized positions by directly manipulating the inputs into AIB's VaR calculations.[205] These manipulations compromised the primary apparatus by which management monitored trading operations—and, as discussed above, by which bank regulators monitored AIB's capital adequacy.[206] Although AIB's foreign exchange trading VaR limit thus was set at a mere $2.5 million (with $1.55 million of that allocated to Rusnak), it appeared that these risk limits were rarely exceeded. In fact, however, Rusnak consistently exceeded these VaR limits by a wide margin.[207]

VaR manipulations at NAB, in contrast, followed a different—and more pernicious—pattern: because the bank lacked confidence in its VaR calculations, it simply ignored them, allowing the currency options desk to regularly exceed VaR

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199. *Id.* at 11.

200. *Id.* at 21.

201. *Id.* at 20.

202. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 24.

203. *Id.*

204. *Id.* Kerviel cancelled these provision flows before the end of the month, the only time when they were monitored. *Id.* at 25.

205. LUDWIG REPORT, *supra* note 144, at 14; *see also supra* notes 99–104 and accompanying text (discussing VaR). This was done through the input of fictitious "holdover transactions"—transactions undertaken after a certain time each day—the numbers for which were obtained directly from a spreadsheet provided by Rusnak. LUDWIG REPORT, *supra* note 144, at 14. Subsequent investigation revealed such manipulations of VaR through the use of holdover inputs on fifty-two out of fifty-eight days sampled. *Id.* at 14–15.

206. LUDWIG REPORT, *supra* note 144, at 15; *see* discussion *supra* notes 99–104 and accompanying text (use of VaR in regulatory oversight of capital adequacy).

207. LUDWIG REPORT, *supra* note 144, at 15.

and other limits.[208] Ironically, minutes from the May 2002 meeting of the NAB board committee charged with oversight of risk management and financial control indicate that the committee received a report on and discussed the foreign currency losses at AIB, but concluded that, because NAB used VaR and other measures to identify risk exposures, it was protected against such harm.[209]

C. Organizational Change, Culture, and Compliance

A review of the Société Générale scandal reveals a familiar pattern of organizational and departmental change that stressed trading and oversight systems, followed by a failure to respond to common red flags and warning signals. First, Kerviel's division had experienced strong, rapid growth (a common element in prior rogue trading scandals), with trading personnel expanding from four to twenty-three in two years.[210] The risk management and compliance departments were unable to keep pace with these changes. Although the size of middle office personnel doubled, they suffered frequent departures and were chronically understaffed. Moreover, despite a doubling in middle office staff size, many of the employees were new, undertrained, and lacking in sufficient experience.[211] These problems were exacerbated by the weakness of Kerviel's direct supervisor, his lack of supporting staff, and the initial tolerance of Kerviel's unauthorized intraday positions, which created an environment that minimized the importance of internal controls.[212]

Internal controls that fail to keep pace with rapid business growth was also identified as a factor contributing to the Nick Leeson rogue trading scandal at Barings. For example, as explained by John Dare, Director of Barings:

> They [Leeson's unit] were usually in a bit of a catching-up position because their business had gone through a few periods of quite rapid growth, when it is challenging, to say the least, to keep your controls on top of a business that is growing rapidly. There were times when I was aware that this was a strain; that the front office were marching faster than the back office.[213]

Rather than increasing their vigilance regarding potential employee misconduct in the wake of these business line and organizational changes, Société Générale ignored common warning signs of potential problems, breeding a culture of noncompliance. As stated by PricewaterhourseCoopers in its subsequent review of the event:

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208. NAB REPORT, *supra* note 150, at 23–24.

209. *Id.* at 36, 48–49.

210. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 7.

211. *Id.*; *see also* LEESON & WHITLEY, *supra* note 1, at 28 (raising similar complaints regarding his staff at Barings); LUDWIG REPORT, *supra* note 144, at 18 (discussing the inexperience and understaffing of risk management and audit at AIB).

212. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 6–7.

213. BANK OF ENG., REPORT OF THE BOARD OF BANKING SUPERVISION INQUIRY INTO THE CIRCUMSTANCES OF THE COLLAPSE OF BARINGS, 1995, at 119 (copy on file with author).

> Front office activities developed against the backdrop of a strong entrepreneurial culture based on trust. The surge in Delta One trading volumes and profits was accompanied by the emergence of unauthorised practices, with limits regularly exceeded and results smoothed or transferred between traders.[214]

Similar cultures prevailed at AIB, Barings, NAB, and other financial institutions that suffered large rogue trading losses. For example, according to the Ludwig report, the bullying and intimidation of AIB's back-office staff by Rusnak and front-office supervisors (and management's willingness to overlook such behavior) contributed to an environment in which back-office operations were perceived as pointless formalities and management was predicted to take the trader's side in the event of any dispute, since trading was the moneymaking operation.[215] PricewaterhouseCoopers was even more explicit about the role played by a corporate culture of non-compliance at NAB:

> Our investigations indicate that the culture fostered the environment that provided the opportunity for the Traders to incur losses, conceal them and escape detection despite ample warning signs. This enabled them to operate unchecked and flout the rules and standards of the National. Ultimately, the Board and the CEO must accept responsibility for the "tone at the top" and the culture that exists in certain parts of the National.[216]

One of the most important warning signs ignored by Société Générale involved Kerviel's earnings, which grew six-fold between 2006 and 2007 to constitute a substantial percentage of total desk (59%) and division (27%) earnings.[217] These levels should have prompted further inquiry at Société Générale, particularly given Kerviel's low seniority and experience, as well as his authorized trading strategy. Indeed, as elaborated below, Kerviel's authorized trading activity could not possibly have accounted for such large profits.[218] Yet, the failure to inquire into unusual growth in profits, risk, or trading volume—particularly when that growth is inconsistent with the trader's experience level, prior performance, or authorized trading strategy—is a common unifier of financial institutions damaged by rogue employees.[219]

Rather than inquiring into the source of these spectacular profits, Société Générale instead ignored inquiries regarding trading anomalies from outsiders and

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214. PRICEWATERHOUSECOOPERS, *supra* note 146, at 7.
215. LUDWIG REPORT, *supra* note 144, at 21.
216. NAB REPORT, *supra* note 150, at 4.
217. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 6, 46.
218. *Id.* at 6.
219. LUDWIG REPORT, *supra* note 144, at 23 (reporting that internal AIB documents indicating that Rusnak was responsible for 95% of the subsidiary's FX risk and that 80% of his trades were speculative failed to prompt inquiry or oversight); Price Waterhouse Report, *supra* note 135, at Biv (finding that Leeson's supervisors at Barings greeted his apparent "profitability with admiration rather than suspicion . . . despite the inherent limit to the profit potential of Mr. Leeson's arbitrage activities"); *see supra* notes 155–68 and accompanying text (discussing improbable earnings in other rogue trading cases).

its own risk management personnel. On two occasions, in April and May 2007, trading managers failed to react to reports from risk management personnel regarding trading anomalies uncovered during a review of Kerviel's trades, in which his responses to questions were evasive and incoherent.[220] Later, in November 2007, the bank failed to respond to two written inquiries from EUREX, one of the world's largest derivatives exchanges and Europe's leading clearing house.[221] One of these inquiries mentioned the purchase by Kerviel of 6000 DAX futures contracts in just two hours (a value of about EUR 1.2 billion).[222]

Similar organizational indifference is evident in the case of Nick Leeson at Barings Bank, whose activities failed to arouse suspicion within Barings, long after rivals at other firms had noticed his increasing positions and risky trading strategy, generating market rumors that Leeson was engaged in substantial unauthorized trading activity.[223] At the time of Barings' collapse its positions on the Osaka exchange were eight times greater than its nearest rival, and its positions on the Singapore exchange were even larger.[224] Yet Barings' ignored repeated inquiries from SIMEX officials highlighting trading violations regarding account 88888—an account about which Barings' management later professed complete ignorance.[225] Those within the firm who expressed concern with Leeson's activities were put off with reassurances that management was investigating the matter.[226]

AIB had similar incidents, in which it ignored inquiries from other banks, the SEC, and market sources.[227] Kidder Peabody also ignored several inquiries from the Federal Reserve regarding Joseph Jett's trading activity, which by May 1993 had grown to represent 40–50% of all recon activity in the United States.[228] By this time, Jett's recon trading had grown so large that his false profits accounted for 45% of Kidder's 1993 profits,[229] and his forward recon instructions on some bonds were so large that they exceeded the world-wide availability of the

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220. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 6.

221. *Id.* at 8.

222. *Id.*

223. *A Fallen Star*, *supra* note 169, at 19.

224. *Id.*

225. Edward J. Kane & Kimberly DeTrask, *Breakdown of Accounting Controls at Barings and Daiwa: Benefits of Using Opportunity-Cost Measures for Trading Activity*, 7 PACIFIC-BASIN FIN. J. 203, 210 (1999). One letter, dated September 7, 1993, disclosed fifteen different violations of SIMEX rules and attached a trade ticket for the 88888 account. A second letter, dated January 11, 1995, also referenced the 88888 account and indicated that Barings may have improperly financed customer margin accounts, in violation of exchange rules. Letters dated January 16 and 27, 1995, detail further violations. *Id.*

226. Price Waterhouse Report, *supra* note 135, at 121.

227. LUDWIG REPORT, *supra* note 144, at 22 (detailing an inquiry from Citibank and AIB's lack of response); *id.* at 23–24 (detailing AIB Treasury's denial of a market rumor regarding large FX trading volumes with claims that average turnovers were only $159 million when, in fact, they were sometimes more than twenty times that number).

228. *In re* Kidder Peabody Sec. Litig., 10 F. Supp. 2d 398, 416 (S.D.N.Y. 1998).

229. *Id*. at 411.

component STRIPS.[230] Despite this, four former Kidder employees claimed in litigation that their complaints that Jett's forward recon trading strategy made no sense and could not possibly produce real profits were ignored.[231]

NAB went a step further when another Australian bank raised concerns in March 2002 regarding the size and risk of the currency options trades emanating from NAB. NAB accused the inquiring bank of failing to comprehend NAB's pricing models and trading strategy, and warned that if rumors regarding the bank's concerns leaked into the marketplace, NAB would terminate its dealing relationship with the bank.[232]

Other warning signs at Société Générale included inconsistent, unexplained cash flows, both positive and negative. For example, bank records indicate an excess cash flow from Kerviel of EUR 1.3 billion from December 28, 2007 to January 1, 2008, and abnormally high borrowings of EUR 1 billion in July 2007, neither of which elicited reaction from senior personnel.[233] Moreover, the bank failed to investigate even known breaches by Kerviel of market risk limits, or the high, unexplained brokerage commissions paid on his unauthorized trading activity.[234]

Finally, Kerviel's reluctance to take a vacation, despite formal notices from his division manager on at least four occasions, is a classic sign of unauthorized employee activity and cover-up.[235] Elaborate frauds such as those detailed in this Article require almost daily attention, and handing over control to another employee is likely to result in the detection—and thus deterrence—of fraud. This is why two-week vacations are "strongly encouraged" by regulatory authorities in the United States.[236] Nonetheless, the refusal to take vacations is a common element in many rogue trading scandals, including Nick Leeson, John

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230. *In re* Orlando Joseph Jett, Exchange Act Release No. 8395, 2004 WL 2809317, at *20 (Mar. 5, 2004).

231. *In re Kidder Peabody*, 10 F. Supp. 2d at 416.

232. NAB REPORT, *supra* note 150, at 25.

233. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 6.

234. *Id.* Similar incidents occurred at Barings. Although Barings could not reconcile Leeson's funding requests with the reported trades for which the funds had been requested, it continued to remit funds to Singapore in amounts that exceeded the entire value of the Barings Group's assets. Price Waterhouse Report, *supra* note 135, at Biii, Bv.

235. *Id.* at 7; *see also* Gregory Viscusi & Anne-Sylvaine Chassany, *Kerviel's 2007 Bets Raise SocGen Oversight Questions*, BLOOMBERG.COM, Feb. 19, 2008, http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aEYzXTw5kWhs (quoting Kerviel as stating that "a trader who doesn't take vacation is a trader who doesn't want to leave his book to someone else" and attributing his own ability to conceal his unauthorized activity to the fact that he rarely took time off and, when he did, refused to have his positions covered by another trader).

236. Federal regulators often ask during bank examinations if the bank has in place and enforces a rule requiring employees to take off at least ten consecutive business days each year and to provide the names of any employees who are excepted from the rule. Nonetheless, there is great variation across institutions in adherence to the policy. Anthony Ramirez, *Earning It; Workaholics Aren't the Only Ones Who Hate Vacations*, N.Y. TIMES, Dec. 3, 1995, *available at* http://query.nytimes.com/gst/fullpage.html?sec=travel&res=9406E3DF1E39F930A35751C1A963958260.

Rusnak, and (the most extreme case by far) Toshihide Iguchi of Daiwa Bank, who refused to take a single day off during his entire eleven year tenure at the bank, for fear that his fraud would be detected.[237]

Perhaps the most telling sign that supervisors and management of Société Générale were determinedly ignorant of Kerviel's activities is the bank's inability to reconcile Kerviel's claimed profits and actual profits with his authorized activity, even months after revelation and investigation of the activity. This means that a significant portion of Kerviel's 2007 profits, on which he was paid a substantial bonus, can be attributed to his fraudulent trading. To illustrate, Kerviel claimed profits in 2007 of EUR 43 million—EUR 25 million from proprietary trading (turbo warrant arbitrage) and EUR 18 million from client trading.[238] However, Kerviel's authorized trading activity can explain only EUR 3 million in proprietary trading profits. Consequently, Kerviel's unauthorized intraday or fraudulent overnight positions must explain the remainder. As explained in the General Inspection Department report:

> We have reconstituted, trade by trade, the earnings generated by arbitrage on competitors' turbo warrants carried out by JK [Jerome Kerviel] and another trader from DLP. In total, these earnings are valued at EUR 5.5 million, including approximately EUR 3.1 million attributable to JK and EUR 2.3 million attributable to the other trader (according to the most likely case scenario.) . . . It is very unlikely, even impossible, that JK could have generated earnings of EUR 22 million from pure intraday trading (which would in any case be an unauthorized activity.)[239]

In sum, recall from Part II.C.1 that Basel II requires banks using the AMA to employ four mechanisms in calculating their operational risk capital charges: (1) internal loss data; (2) external loss data; (3) scenario analysis; and (4) BEICFs.[240] The forgoing analysis in this Part suggests, however, that none of the financial institutions reporting large rogue trading losses would have captured the risk of these unauthorized losses in their internally generated operational loss data, because the mechanisms for measuring and recording that data had been easily bypassed. Moreover, each institution likely would have discounted the relevance of externally generated data showing operational risks of this magnitude, as each chose to ignore the lessons from prior rogue trading incidents at other financial institutions. Finally, it is implausible to think that any of the financial institutions discussed in this Part would have included a scenario such as that suggested by the massive losses eventually suffered when running scenario analyses, or that any would have interpreted their BEICFs as indicating that risks of these magnitudes existed. In other words, the enforced self-regulation of operational risk, such as

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237. *Id.*; *see also* LUDWIG REPORT, *supra* note 144, at 43 (reporting that, although Rusnak took the required two weeks vacation, he was allowed to trade from home during that time, in violation of the bank's policy).

238. SOCIÉTÉ GÉNÉRALE, *supra* note 170, at 37.

239. *Id.* at 37–38. It is also likely that the declared earnings from client trading include some profits from fraudulent proprietary trading activity. *Id.* at 38.

240. See *supra* notes 108–119 and accompanying text (discussing these measures).

that embodied in Basel II, likely would have had no impact on the internal capital assessment leading up to any of the rogue trading events discussed in this Part. The same is likely true at any other financial institution determined to sacrifice operational risk controls in favor of trading profits.

CONCLUSION

The Basel II operational risk requirements represent part of a new breed of "responsive" or "enforced self-" regulation, under which the regulated group is allowed substantial involvement in its own oversight in an attempt to encourage more effective, efficient regulatory solutions. Although enforced self-regulation provides the hope of more workable regulation, the open-ended rules characteristic of enforced self-regulation also present opportunities for private actors with a stake in the interpretation of legal rules ("legal intermediaries," as they are termed in this Article) to press an interpretation that enhances their own position and welfare vis-à-vis the regulated group. That interpretation may be inconsistent with the public interest or regulatory efficiency. In the case of operational risk, the relevant legal intermediaries include the accounting profession (with an existing expertise in internal controls), legal professionals (with an existing expertise in organizational governance and compliance), and risk management experts (with an existing expertise in measurement and modeling).

The interests of these legal intermediaries are tempered by bank management's interest in an interpretation of Basel II that minimizes the costs of compliance and disrupts existing business practice as little as possible. In particular, management is likely to resist any measures that could undermine the carefully crafted institutional norms of materialism, risk-taking, and independence on which many successful trading environments thrive.

This is not to suggest that operational risk cannot be substantial, or that its management should not be a serious concern of financial institutions. In fact, just the opposite is true. Although some have argued that operational risk regulation is inappropriate because it is diversifiable by shareholders, there is no denying that operational risk may be very large, exceeding market risk at some institutions.[241] Moreover, recent events have starkly demonstrated that bank stability and soundness are considered important for reasons unrelated to shareholder profits. As a result, unchecked operational risk is a legitimate cause for regulatory concern.

What, then, are the specific dangers posed by the operational risk provisions of Basel II? One might argue that perhaps now banks will at least be forced to focus on operational risk and keep more capital on hand. Surely such measures, even if imperfect, can only make banks safer. Although it is too early to fully evaluate the effects of Basel II, there is reason to be skeptical of such a conclusion.

First, some enforced self-regulation, including the operational risk provisions of Basel II, may present a convenient but largely cosmetic fix. Such

241. Cummins & Embrechts, *supra* note 42, at 2601; Cummins et al., *supra* note 107, at 2610; De Fontnouvelle et al., *supra* note 111, at 1821–22.

fixes can be costly, potentially luring regulators and firm stakeholders (and maybe even firm management) into a false sense of confidence.

Second, workable, politically feasible regulatory options for addressing operational risk were available to the committee. By proceeding incrementally, working within the regulatory structure already in existence in most major banking countries, including the United States, Basel could have made at least some inroads into those operational events, such as rogue trading, most likely to contribute to bank failure.

Third, the Basel II operational risk provisions may displace resources that would be better spent on more effective risk measures. For example, Basel II may create a perverse incentive to "manage the model rather than reality," diverting resources toward reducing the estimates of operational risk, rather than reducing operational risk itself.[242]

Finally, the incentives fostered by Basel II to create a numerical measure of operational risk may cause a focus on those aspects of operational risk most easily quantified—the high-frequency, low-impact events, such as routine employee errors—rather than on the more challenging and elusive aspects of operational risk, such as rogue trading, that may pose the greatest threat to financial institutions.

One might conclude from this that Basel II effectively incentivizes banks to account for high-frequency, low-impact events, such as "fat fingers" and other routine employee errors and mishaps. If true, this represents at best a small gain in terms of bank safety that in all probability is outweighed by the regulatory costs and does little or nothing to address the real sources of bank failure risk. Moreover, banks already have an incentive to reduce these risks up to the point at which the costs equal the benefits, and there are no obvious indications that banks are not currently doing so.

In the end, it is hard to predict the future of operational risk regulation at a time almost certainly on the verge of substantial industry, regulatory, and market change. But Basel itself has given no indication of rethinking its problematic approach to operational risk regulation. Although the Committee has proposed a variety of changes to the Basel II Accord in light of the current financial crisis—including the addition of an incremental risk capital charge for unsecuritized credit products and the introduction of a stressed VaR requirement—the proposals to date relate to Basel's market risk provisions and do not specifically address Basel II's regulation of operational risk.[243] Moreover, the new proposals do not veer substantially from the enforced self-regulatory approach to market risk management established in 1996. This attention to market risk measures is to be expected in light of the current market and political climate, but operational risk remains a significant source of bank failure risk, and one unlikely to be positively affected by Basel's current (or currently proposed) regulatory interventions.

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242. Holmes, *supra* note 39.

243. BASEL COMM. ON BANKING SUPERVISION, CONSULTATIVE DOCUMENT: REVISIONS TO THE BASEL II MARKET RISK FRAMEWORK (Jan. 2009), *available at* http://www.bis.org/publ/bcbs148.pdf?noframes=1.