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## The Easy Case for Derivatives Use: Advocating a Corporate Fiduciary Duty to Use Derivatives

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## THE EASY CASE FOR DERIVATIVES USE: ADVOCATING A CORPORATE FIDUCIARY DUTY TO USE DERIVATIVES

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In the 1990s, derivatives left their mark in newspaper headlines, financial statements of corporations, and the minds of brokers, CEOs, shareholders, lawyers, regulators, legislators, and investors worldwide. Two very distinct perceptions of derivatives have emerged, depending on one's level of sophistication and personal experience with derivatives. To victims of misused derivatives, with inadequate information, they can be seen as a herd of stampeding zebras: terrifying and destructive. Containing their power can be a mystery. From this perspective, avoidance is the only safe harbor. To the savvy investor, derivatives are more akin to a team of horses. Harnessed and used appropriately, they are productive, efficient tools that maximize resources and reduce risk; however, when inadequately harnessed or misused, they have the ability to deliver a painful bite or even a fatal kick.

In all fairness to the "derivaphobes," good reason exists to be wary. During the 1990s, derivatives were blamed for major financial losses across every sector of the economy. They spared no industry and chose indiscriminately between large and small, new and old companies. From 1983 to 1993, the total reported

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monetary loss attributed to derivatives was about \$2.1 billion.<sup>1</sup> In 1994 alone, however, this loss mushroomed to \$10 billion.<sup>2</sup> Some of the most notable publicly reported or acknowledged derivatives losses include:<sup>3</sup> Gibson Greetings (\$20.7 million);<sup>4</sup> Proctor & Gamble (\$157 million);<sup>5</sup> MG Corp., the U.S. subsidiary of Germany's Metallgesellschaft AG (\$1.5 billion);<sup>6</sup> Dell Computer (\$43 to \$53 million);<sup>7</sup> Atlantic Richfield Co. (\$22 million);<sup>8</sup>

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1. See Kevin Muehring, *The Year of the Client*, INSTITUTIONAL INVESTOR, Mar. 1995, at 31-32; Lauren A. Teigland, *Derivatives Disputes and Disappointments: The "SAD" Phenomenon of Derivatives Litigation*, 64 BANKING REP. (BNA) 703, at \*3 (Apr. 3, 1995), available in LEXIS, Banking Library, Bnabnk File (citing Aaron Pressman, "Market in Review," BOND BUYER, July 27, 1994, at 6).

2. See Muehring, *supra* note 1, at 32.

3. See generally Andrew Leckey, *Derivatives: 1 More Reason to Be an Informed Investor*, CHI. TRIB., Sept. 18, 1994, at C3, available in LEXIS, News Library, Chtrib File (warning investors of potential problems with derivatives); Joanne Medero et al., *Investing in Derivatives: Current Litigation Issues*, INSIGHT MAG., Nov. 1994, at 4 n.2 (listing companies that have reported or acknowledged losses); Matt Murray & Gary Putka, *Mellon Bank Plans a Charge of \$130 Million*, WALL ST. J., Nov. 29, 1994, at A2 (examining large loss caused by risky derivatives investing).

4. For a complete explanation of all of the pertinent financial transactions leading up to Gibson's loss, see Carla E. Craig & Daniel Hume, "Nightmare 2-Customers": *Recent Litigation Between Derivatives Dealers and Their Customers Involving Issues of Fraud, Breach of Fiduciary Duty, Suitability, Etc., and Regulator and Industry Response*, in UNDERSTANDING THE BUSINESS, BANKRUPTCY AND SECURITIES ASPECTS OF DERIVATIVES 1995, at 67, 170-76 (PLI Comm. L. and Prac. Course Handbook Series No. A-721, 1995); Medero et al., *supra* note 3, at 4 n.2 (reporting that Gibson Greetings losses were \$23 million); see also Carol J. Loomis, *Untangling the Derivatives Mess*, FORTUNE, Mar. 20, 1995, at 50, 59 (providing a chronological and detailed breakdown of the tangled events and emotions leading up to Gibson Greetings' substantial losses).

5. See Jennifer A. Frederick, Note, *Not Just for Widows & Orphans Anymore: The Inadequacy of Current Suitability Rules for the Derivatives Market*, 64 FORDHAM L. REV. 97, 100 (1995); Loomis, *supra* note 4, at 62. Both authors point out that these amounts are pre-tax figures. For a complete explanation of all of the pertinent financial transactions leading up to Proctor & Gamble's loss, see Craig & Hume, *supra* note 4, at 176-81.

6. See Christopher L. Culp & Steve H. Hanke, *Derivative Dingbats*, INT'L ECON., July-Aug. 1994, at 12. Metallgesellschaft's loss has been referred to as a text book example of the business community's faulty understanding of hedging strategies. For a complete analysis of Metallgesellschaft's loss, see Anotoli Kuprianov, *Derivative Debacles: Case Studies of Large Losses in Derivatives Markets*, ECON. Q., Sept. 22, 1995, *passim*.

7. See Brandon Becker & Jennifer Yoon, *Derivative Financial Losses*, 21 J. CORP. L. 215, 227 (1995).

8. See *id.* at 230.

Marion Merrell Dow Inc. (\$11.1 to \$13.9 million);<sup>9</sup> Mead Corp. (\$7.4 million);<sup>10</sup> Paramount Communications (\$20 million);<sup>11</sup> Caterpillar Financial Services Unit (\$11.5 million);<sup>12</sup> City Colleges of Chicago (approximately \$48 million);<sup>13</sup> Odessa College (\$10 million to \$22 million);<sup>14</sup> Escambia County, Florida (\$25 million);<sup>15</sup> and Wisconsin's investment fund (\$95 million).<sup>16</sup>

Two of the most infamous and devastating derivatives catastrophes ended in bankruptcy. One of England's oldest banks, Barings PLC, founded in 1763,<sup>17</sup> could not survive an estimated \$1 billion loss attributed to derivatives.<sup>18</sup> Orange County, California, one of the wealthiest counties in the country, filed for Chapter 9 bankruptcy after suffering a loss of almost \$2 billion as a result of derivative misuse.<sup>19</sup> According to their broker,

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9. See Jeff Bailey, *Marion Merrell Dow Is Suing Askin, Alleging it Was Misled on Investments*, N.Y. TIMES, Apr. 13, 1994, at A4.

10. See Becker & Yoon, *supra* note 7, at 226.

11. See *Paramount Takes Write-Off*, WALL ST. J., July 6, 1994, at D16.

12. See Becker & Yoon, *supra* note 7, at 226.

13. See Laurie Cohen & Karen Brandon, *Orange County Ills Open Hornet's Nest; Other Governmental Units Wondering What Potential Dangers May Lurk in Their Financial Portfolios*, CHI. TRIB., Dec. 18, 1994, at 23, available in LEXIS, News Library, Chitrib File; Reynolds Holding, *Suits Sure to Follow Bankruptcy: Assessing Blame in Orange County*, S.F. CHRON., Dec. 10, 1994, at A1, available in LEXIS, News Library, Sfchron File.

14. See G. Bruce Knecht, *I Owe U.: How a Texas College Mortgaged Its Future in Derivatives Debacle*, WALL ST. J., Sept. 23, 1994, at A1; Leslie Wayne, *Local Governments Lose Millions in Complex and Risky Securities*, N.Y. TIMES, Sept. 25, 1994, at 1; Leslie Wayne, *The Search for Municipal 'Cowboys'*, N.Y. TIMES, Dec. 8, 1994, at D1.

15. See G. Bruce Knecht, *The Aftermath: Hit by Derivatives, Florida County Tries to Decide What to Do*, WALL ST. J., Mar. 21, 1995, at A1 (explaining how derivatives losses led to cuts in capital improvements).

16. See G. Bruce Knecht, *Wisconsin Fund Records a Loss on Derivatives*, WALL ST. J., Mar. 24, 1995, at A3. For a discussion of over 100 other recent derivatives losses see Becker & Yoon, *supra* note 7, at 221-39.

17. See Roberto Coloma, *Rogue Trader Leeson to Be Freed After Paying His Dues*, AGENE FRANCE-PRESSE, June 29, 1999, at \*1, available in 1999 WL 2629875.

18. See Richard W. Stevenson, *Big Gambles, Lost Bets Sank a Venerable Firm*, N.Y. TIMES, Mar. 3, 1995, at A1. For a complete analysis of the financial activities leading up to Baring's demise, see Kuprianov, *supra* note 6.

19. See Jeff Brown, *Exotic Gamblers; Orange County's Woes Prompt Rush to Regulate Municipal Investments*, PITT. POST-GAZETTE, Dec. 9, 1994, at C8, available in LEXIS News Library, Pstgaz File; Noel Fung, *Guidelines to Be Set on Derivatives Trading*, S. CHINA MORNING POST, Dec. 22, 1994 at 1, available in LEXIS, News Library, Schina File. For a complete explanation of all of the pertinent financial trans-

Merrill Lynch, however, the portfolio could have rebounded to its full \$21 billion value, plus \$300 million in interest, if Orange County had ridden out the losses for a few more months.<sup>20</sup> A flurry of investigation and litigation, both civil and criminal, has surrounded Merrill Lynch ever since the county's bankruptcy filing.<sup>21</sup> The brokerage firm recently agreed to pay a \$2 million penalty to settle SEC charges of negligence in the company's dealings with Orange County.<sup>22</sup> The settlement closed the door on over three years of controversy and litigation concerning Merrill and the Orange County debacle. Previously, Merrill settled with the county for \$437.1 million in a civil suit and agreed to pay \$30 million to resolve a criminal investigation.<sup>23</sup> Merrill consistently denied any wrongdoing throughout all legal proceedings.<sup>24</sup>

The Asian currency crisis of early 1998 renewed skepticism about the safety of derivatives.<sup>25</sup> In February 1998, J.P. Morgan & Co. filed suit against a large South Korean bank and a South Korean securities firm, SK Securities Co., for their inability to fulfill obligations on swap contracts involving exchange of U.S. dollars for various Southeast Asian currencies.<sup>26</sup> SK Securities filed its own lawsuit against J.P. Morgan in Korea for failing to adequately inform SK Securities and other local investors about the risks involved in the derivatives transactions.<sup>27</sup>

The sharp devaluation of the Russian ruble in mid-August of 1998 continues to shake investors' confidence in the foreign market and the use of derivatives.<sup>28</sup> In addition to allowing the ru-

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actions leading up to Orange County's loss, see Craig & Hume, *supra* note 4, at 181-84.

20. See Rita Koselka, *If You Can't Stand the Heat . . .*, FORBES, Feb. 12, 1996, at 37.

21. See Andrew Pollack & Leslie Wayne, *Ending Suit, Merrill Lynch to Pay California County \$400 Million*, N.Y. TIMES, June 3, 1998, at A1.

22. See John R. Emshwiller & Charles Gasparino, *Merrill Agrees to Settle with SEC over Orange County Charges*, WALL ST. J., Aug. 25, 1998, at B5.

23. See *id.*

24. See *id.*

25. See Timothy L. O'Brien, *J.P. Morgan in Korea Battle on Derivatives: More U.S. Implications Seen from Asian Crisis*, N.Y. TIMES, Feb. 27, 1998, at D1.

26. See Stephen E. Frank, *J.P. Morgan Sues Korea's SK Securities and a Bank over Derivatives Dealings*, WALL ST. J., Feb. 17, 1998, at B25.

27. See *id.*

28. See Nicholas D. Kristof & Sheryl Wu Dunn, *Of World Markets, None an Is-*

ble's value to drop thirty-four percent, the government also issued a ninety-day moratorium on payments of foreign debt.<sup>29</sup> Western banks will experience substantial losses if the Russian banks refuse to honor the over \$10 billion worth of currency deals with foreign lenders.<sup>30</sup> Although most American banks can absorb the losses of the ruble devaluation, some have experienced severe losses.<sup>31</sup> The Republic New York Corporation reported losses in Russia equal to its total third-quarter earnings for 1998.

These devastating losses did not have to occur. Properly used, derivatives have more advantages than disadvantages. Derivatives offset business risks, such as fluctuating interest and foreign exchange rates and commodity prices. In fact, the costs of not using derivatives vastly outweigh the costs of using them. Despite high profile losses, derivatives use has exploded throughout the 1990s.<sup>32</sup> Between 1995 and 1996, the use of interest rate swaps, currency swaps, and interest rate options contracts grew by 37.1%.<sup>33</sup> This statistic indicates that derivatives are an indispensable tool in corporate investment portfolios.

This Article hypothesizes that directors have a duty to shareholders to investigate and evaluate how derivatives could minimize risk to their organization. Even more, corporations have a duty to use derivatives if overall portfolio risk will thereby be reduced. Part I of this Article defines and describes the major types of derivatives and explains how and why they are used.<sup>34</sup> Part II investigates the risks of derivatives, comparing these

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land, N.Y. TIMES, Feb. 17, 1999, at A1.

29. See *Russian Ruble Takes a Plunge/Its Value Drops by 34%*, NEWSDAY (N.Y.), Aug. 18, 1998, at A6, available in LEXIS, News Library, Newsdy File.

30. See Edmund L. Andrews, *Russia is Caught in a Financial Quandary: Loss of Credibility on One Hand, Risk of Banking Collapse on Other*, N.Y. TIMES, Aug. 20, 1998, at D5.

31. See Timothy L. O'Brien, *Republic Says Loss in Russia Will Erase Quarter's Profits*, N.Y. TIMES, Aug. 28, 1998, at D6.

32. See U.S. GENERAL ACCOUNTING OFFICE, FINANCIAL DERIVATIVES: ACTIONS NEEDED TO PROTECT THE FINANCIAL SYSTEM, GAO/GGD-94-133, at 3-9 (1994) [hereinafter GAO REPORT].

33. See Laurie Morse, *Derivatives: Traders Turn Credit Risks into Profits*, FIN. TIMES, May 23, 1997, at 3.

34. See *infra* notes 39-158 and accompanying text.

risks to other investment instruments.<sup>35</sup> Part III introduces a new conceptualization of derivatives through exploration of three issues surrounding their use: (1) brokers' liabilities to investors when financial losses result; (2) corporate liability to shareholders for losses; and (3) the possibility that in certain contexts, a corporation has a duty to its shareholders to use derivatives to manage business risk.<sup>36</sup> Part IV proposes a risk management strategy designed to minimize the inherent risks of derivatives and to maximize their advantages in managing ordinary business risk.<sup>37</sup> Part V concludes with a look to the future of derivatives.<sup>38</sup>

### I. WHAT IS A DERIVATIVE?

Peter Hancock, head of Global Derivatives at J.P. Morgan, explains rather inaccurately that "derivatives . . . seem to have come to mean anything that lost money."<sup>39</sup> A more formal definition of a derivative is: a financial instrument, or contract, between two parties that derives its value from some other underlying asset or underlying reference price, interest rate, or index.<sup>40</sup> Although there are over 1200 different types of derivatives in existence,<sup>41</sup> many of which can be combined in complex ways,<sup>42</sup> almost all of them fall into one of four major categories:

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35. See *infra* notes 159-266 and accompanying text.

36. See *infra* notes 267-422 and accompanying text.

37. See *infra* notes 423-91 and accompanying text.

38. See *infra* notes 492-530 and accompanying text.

39. Muehring, *supra* note 1, at 31.

40. See KENDALL BACKSTRAND, INTRODUCTION TO DERIVATIVE INSTRUMENTS 1 (Harv. Bus. Sch. Working Paper No. 9-295-141, 1997); see also THE GROUP OF THIRTY, DERIVATIVES: PRACTICES AND PRINCIPLES 28-29 (1993); Geoffrey B. Goldman, Note, *Crafting a Suitability Requirement for the Sale of Over-the-Counter Derivatives: Should Regulators "Punish the Wall Street Hounds of Greed"?*, 95 COLUM. L. REV. 1112, 1116 & n.16 (1995) (stating that this broad definition is problematic for regulators because it technically includes numerous financial transactions and agreements that either specifically have not been designated as "derivatives" or have been intentionally exempted from the definition).

41. See Clarence B. Manning, *A Derivatives Primer for Corporate Council, or Do You Know What Your Treasurer Is Doing?*, ACCA DOCKET, Mar.-Apr. 1995, at 6, 8.

42. See Goldman, *supra* note 40, at 1116; see also Jerry W. Markham, "Confederate Bonds," "General Custer," and the Regulation of Derivative Financial Instruments, 25 SETON HALL L. REV. 1, 1-5 (1994) (explaining that derivatives have been in use,

forwards, futures, options, and swaps.<sup>43</sup> These categories can be further divided into exchange-traded<sup>44</sup> and over-the-counter (OTC) derivatives.<sup>45</sup> All futures and many options contracts have been standardized and are traded on established exchanges.<sup>46</sup> Other derivatives, such as forwards, swaps, and some options, are custom-tailored contracts.<sup>47</sup> These derivatives are referred to as OTC derivatives because they are not traded on exchanges, but rather typically are negotiated between counterparties.<sup>48</sup>

### A. *How and Why Derivatives Are Used*

Prior to the 1990s, knowledge about derivatives was uncommon outside of the most sophisticated investment circles. Today, approximately seventy-five percent of the largest companies in the United States use derivatives.<sup>49</sup> The market for derivatives has been estimated to be in the trillions of dollars.<sup>50</sup> According to the United States General Accounting Office, the surge in derivative use within the past two decades is due to "fundamental

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in some form, for thousand of years and that there is evidence that fairly complex derivatives were used before the Civil War).

43. See Goldman, *supra* note 40, at 1116.

44. See *id.* at 1118. Exchange-traded derivatives are standardized contracts that are traded in organized trading facilities and are subject to regulation by either the Commodity Futures Trading Commission or the Securities and Exchange Commission. For a thorough discussion of the fragmented regulation of derivatives, see Frederick, *supra* note 5, at 107-21; Goldman, *supra* note 40, at 1118.

45. See Goldman, *supra* note 40, at 1118. OTC derivatives tend to be more complex and less predictable than exchange-traded derivatives because they are rarely standardized as to contract terms. This, in turn, makes it more difficult to regulate. See *id.*

46. See *id.* "Standardized" refers to the continuity of contract terms, such as maturity date, contract size and delivery terms. See Roberta Romano, *A Thumbnail Sketch of Derivative Securities and Their Regulation*, 55 MD. L. REV. 1, 10-11 (1996).

47. A custom-tailored contract is a contract in which virtually every element, such as the quantity of the underlying asset, the method of determining payments, and the duration of the contract are customized to the individual parties' needs. Because they tend not to be standardized, often they are very complex, sometimes consisting of a combination of many simpler derivatives. See Goldman, *supra* note 40, at 1118.

48. See *id.*

49. See Kelley Holland & Zachary Schiller, *Did Proctor & Gamble Play with Fire?*, BUS. WK., Apr. 25, 1994, at 38.

50. See Romano, *supra* note 46, at 4. The exact size is difficult to determine because no mechanism exists to track the OTC contracts, which compose a large segment of the entire market. See *id.*



changes in global financial markets."<sup>51</sup> Those changes have led to increased demand for cost-effective protection against the risks known to result from movements in foreign exchange rates, interest rates, equities, and commodity prices.<sup>52</sup>

The recent "Group of Thirty Survey" reported that ninety-four percent of Fortune 500 CEOs are satisfied with their firm's use of derivatives.<sup>53</sup> How are these derivatives being used? Although new uses for derivatives are being created continuously, most fall within two broad categories: hedging and speculation. Although most corporations use derivatives to hedge against adverse changes in the value of assets or liabilities, many investors, including some corporations, use derivatives to speculate in an attempt to profit by anticipating changes in market rates or prices.

Eighty-two percent of the corporations recently surveyed use derivatives to hedge against market risks arising from new financing arrangements.<sup>54</sup> Seventy-eight percent use derivatives to manage or modify the characteristics of their existing assets and liabilities, and thirty-three percent use derivatives to hedge against foreign currency exposure.<sup>55</sup> When properly used as a means of hedging against existing risk, derivatives minimize rather than create risk. In fact, the Economist Intelligence Unit reported that despite "press coverage of so-called risky financial derivatives . . . [their use] is a critical factor in reappportioning and reducing companies' overall risks."<sup>56</sup> "Hedging" refers specifically to the activity of mitigating economic risk or loss through the use of a counterbalancing or negatively correlated investment.<sup>57</sup> Hedging requires an end-user to identify specific business assets that are subject to price fluctuations and then to purchase derivatives that offset or counteract the effects of a

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51. GAO REPORT, *supra* note 32, at 3.

52. See Romano, *supra* note 46, at 24.

53. See GROUP OF THIRTY, *supra* note 40.

54. See *id.* at 36.

55. See *id.* at 37.

56. *Derivatives Reconsidered, from a Balanced Perspective; New Report and Survey from the Economist Intelligence Unit Sheds Fresh Light on Heated Derivatives Controversy*, BUS. WIRE, Feb. 16, 1995, at [hereinafter *Derivatives Reconsidered*] available in LEXIS, News Library, Bwire File.

57. See Frederick, *supra* note 5, at 105 n.53.

change in the price of those assets.<sup>58</sup> Hedging ensures compensating gains for losses caused by underlying market movements.<sup>59</sup> Importantly, hedging is not designed to increase an investment's return, but rather to make an uncertain outcome less variable. Thus, hedging not only reduces losses but also impairs gains on an asset with a variable price.<sup>60</sup>

Although a majority of corporations employ derivatives to hedge existing or anticipated risks, it is difficult to find a party on the other side of the market to whom risk can be transferred. Speculators fill this void. Speculators assume the risks of hedgers in an attempt to profit by predicting market movements.<sup>61</sup> As such, it should be no surprise that speculators have been the "largest derivatives losers in the recent past."<sup>62</sup> Speculators play an important part in the derivative market by ensuring adequate liquidity; however, their function is a dangerous one. Although they often earn far greater yields than are available elsewhere,<sup>63</sup> they can just as easily suffer devastating losses.<sup>64</sup>

The following subsections provide a basic discussion of the four major types of derivatives and how they can be used for hedging and speculation.

### *B. Forward Contracts*

A forward contract is an agreement between two parties to "buy or sell an underlying asset at a specified price and future date."<sup>65</sup> This agreement creates a pair of obligations: (1) The buyer must purchase the underlying asset from the seller at the

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58. See Goldman, *supra* note 40, at 1118-19.

59. See *id.* at 1119.

60. See Romano, *supra* note 46, at 9.

61. See GAO REPORT, *supra* note 32, at 25.

62. Romano, *supra* note 46, at 5; see also Goldman, *supra* note 40, at 1112-13 (suggesting less sophisticated derivatives users involved in speculating are responsible for some of the recent substantial losses).

63. See Dominic Bencivenga, *Derivatives Litigation: Parties Argue over "Degrees" of Sophistication*, N.Y. L.J., Sept. 1, 1994, at 5.

64. See, e.g., Craig & Hume, *supra* note 4 (providing explanations of four of the most famous derivative losses).

65. Goldman, *supra* note 40, at 1116-17. Money and goods do not change hands at the contract's inception; rather, the dual obligations are performed at the maturity date of the contract. See Romano, *supra* note 46, at 7.

contract's maturity date; and (2) the seller must sell the asset to the buyer at the agreed-upon price regardless of current fair market value.<sup>66</sup> The buyer is said to be in the "long position"; the seller in the "short position."<sup>67</sup> Forward contracts eliminate price uncertainty by fixing the price in advance of purchase. While fixing the future price of the underlying asset reduces the risk of loss from adverse price changes, it also reduces the possibility of gain from positive price changes.<sup>68</sup> The certainty of future prices benefits an investor by enabling her to plan future transactions more accurately, thus reducing the costs of conducting business.<sup>69</sup>

The value of a forward contract is determined by the value of the underlying asset.<sup>70</sup> At inception, the contract value is zero because neither party has paid nor received any value.<sup>71</sup> When the market price of the underlying asset changes, so does the value of the contract.<sup>72</sup> If the value of the underlying asset increases in value after the contract is created, the value of the long position becomes positive and the value of the short position becomes negative.<sup>73</sup> The opposite is true if the value of the underlying asset decreases in value after the contract is created. A key characteristic of a forward contract is that it is a zero-sum game; one party's gain is equal to the other's loss.<sup>74</sup>

Forwards are not exchange-traded, but rather, the contract terms such as asset quantity and contract duration are negotiated individually between the counterparties. As a result of their highly individualized nature, the contracts are not conducive to mass trading on an exchange.

Speculators use forwards based purely on their predictions as to which direction the market will move. For example, if a speculator expects the price of an asset to rise, she will take a long

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66. See Romano, *supra* note 46, at 7.

67. *Id.*

68. See *id.* at 9.

69. See *id.* at 7.

70. See *id.*

71. See *id.*

72. See *id.*

73. See *id.*

74. See *id.* at 7 n.20.

position in the forward market.<sup>75</sup> The speculator will enter into a forward contract for an asset in the hope that the price of the asset will rise by the delivery date. She will then be able to purchase the asset at the forward contract price (less than the market value), and sell it in the spot market for a profit. In contrast, if the speculator believes the price of an asset will fall, she will take a short position in the market.<sup>76</sup> In this case, the speculator will enter into a forward contract for an asset expecting that by the delivery date the price of the asset will have decreased in the spot market, thereby allowing her to sell the asset at the forward contract price for a profit.

Dow Chemical Company, a worldwide manufacturer and seller of chemicals, plastic materials, agricultural and consumer products, operates production facilities throughout Europe, Asia-Pacific and Canada. Due to the global nature of their business, they are exposed to fluctuations in the valuation of assets and liabilities denominated in foreign currencies. In addition, currency fluctuations can affect the dollar value of future cash flows at the operating income level. Dow hedges to optimize the dollar value of the company's assets, liabilities and future cash flows.<sup>77</sup> Dow enters forward contracts with major international financial institutions to stabilize the rates on exchange of foreign currency to dollars.

### C. Futures Contracts

Futures are similar to forwards in that the parties are contracting for the exchange of a specific asset at a future date.<sup>78</sup> The key difference is that futures contracts are standardized and must be traded on an organized exchange. Standardization enables transferability that, in turn, enables exchange trading.<sup>79</sup>

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75. *See id.* at 9.

76. *See id.*

77. *See* DOW CHEMICAL CO., 1996 ANNUAL REPORT 36 (1997).

78. *See* GAO REPORT, *supra* note 32, at 26. Some of the most common types of futures are based on financial indexes, agricultural products, or other commodities. *See* Goldman, *supra* note 40, at 1117. Like forwards, no money exchanges hands until the maturity date of the future. *See* Romano, *supra* note 46, at 10, 13-14.

79. *See* Romano, *supra* note 46, at 10. The largest futures exchanges are the Chicago Board of Trade and the Chicago Mercantile Exchange. *See id.*

Exchange trading of standardized contracts enables parties to settle for the cash value of the contract rather than an actual transfer of the underlying asset.<sup>80</sup>

An exchange provides an organized, central location where buyers and sellers of standardized contracts trade.<sup>81</sup> The exchange creates contracts that are likely to generate significant demand<sup>82</sup> in order to ensure sufficient liquidity<sup>83</sup> in the market. The contracts are standardized as to a variety of terms such as the price, price fluctuations, delivery terms and procedures, and contract duration.<sup>84</sup> Because of their standardization, it is significantly easier for a trader to close out a futures position than a forward position.<sup>85</sup> By acquiring both a long and a short position in the same contract, the investor nets zero because each contract cancels the other out. Closing out a futures contract in this way is a simple bookkeeping maneuver<sup>86</sup> that avoids many of the obstacles associated with closing out a forward contract.<sup>87</sup> The close out feature of futures contracts makes it easier and less expensive to find parties to purchase futures. More traders are willing to assume the obligations of either side of a contract

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80. See Romano, *supra* note 46, at 13; Goldman, *supra* note 40, at 1117 n.18.

81. See Romano, *supra* note 46, at 10.

82. See *id.* For an asset to produce a successful futures contract, its market price must be volatile, creating incentive to reduce the price risk. See *id.* In addition, the asset must be homogeneous and of abundant supply to ensure competitive prices and eliminate disputes over value. For example, when the price of ketchup and butter became predictable due to production and shipping technologies, the need to reduce price risk no longer existed; thus, they are no longer traded on an exchange. See *id.*

83. Although liquidity is a complex phenomenon, as used herein liquidity refers to the supply of buyers available for individuals selling contracts and the supply of sellers available for individuals buying contracts. See THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS 211 (John Eatwell et al. eds., 1998).

84. See *id.* at 211.

85. Closing out a position refers to the process of concluding an investment transaction, thus satisfying or eliminating all outstanding financial and/or delivery obligations, either by the occurrence of the maturity date and the fulfillment of the contract terms or by taking some action prior to this date that accomplishes the same result, such as purchasing the other side of the contract. See Romano, *supra* note 46, at 10-13.

86. See *id.* at 20. The bookkeeping involves closing out the position with the clearinghouse.

87. See *id.* at 7, 12-13 (describing how futures avoid such obstacles as negotiating with the party to the original contract to terminate or assign the contract, or being obligated to make or take delivery of the underlying asset and providing a more complete explanation of futures trading).

when they can close out their position without having to make or take physical delivery of the underlying asset, as is usually required in forward contracts.<sup>88</sup> Investors outside of the underlying asset industry, having no interest in receiving delivery or no convenient means of delivering the underlying asset, are able to engage in these contracts and assume the price risk of the asset if they can close out by offset.<sup>89</sup> Due to the simple and cost effective means of closing out futures positions and the inherent standardized characteristics that they possess, futures are more readily transferable than forwards contracts, enabling them to have lower trading costs and wider market participation than forwards.<sup>90</sup>

Each futures exchange establishes a clearinghouse that acts as an intermediary between the parties to a futures contract.<sup>91</sup> The clearinghouse functions as "the seller to the purchaser of the futures contract and the purchaser to the seller of the contract."<sup>92</sup> The net position of the clearinghouse is always zero because it enters into both sides of each contract entered into by all investors.<sup>93</sup> This arrangement results in the virtual elimination of credit risk, or the risk that a counterparty to a contract will fail to perform the terms of the contract on the date specified.<sup>94</sup> Because the clearinghouse holds as many losing positions as winning positions, all of the losing positions are paid for by the exact number of opposing winning positions. If a losing party fails to pay the appropriate amount into the clearinghouse, the clearinghouse covers this default through a system of margin accounts and daily settlements.<sup>95</sup> As a result of this clearinghouse "insurance," participants of futures transactions are subject to far less risk of nonperformance than are forward market participants.<sup>96</sup>

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88. *See id.*

89. *See id.* at 13.

90. *See id.* at 10-13. Closing out in this manner is made possible by the standardization of futures contracts.

91. *See id.* at 16.

92. *Id.*

93. *See id.* at 17.

94. *See id.* at 16-17 (describing how the clearing house guarantees performance of a futures contract).

95. *See id.*

96. For a thorough explanation of clearinghouse activities, see generally *id.* at 16-21.

The principal use for futures contracts, as for forward contracts, is to reduce risk through hedging. Futures allow the parties to guarantee the price for which they will buy or sell the underlying asset at some future date.<sup>97</sup> Changes in the value of the underlying asset produce the same zero-sum effect that occurs in forward contracts. Similarly, the same hedging strategies that apply to forward contracts also apply to futures contracts. As a result of the easy transferability of futures, either party is able to close out their position simply by taking an opposite position, thus avoiding the inconvenience of ever having to make or take actual delivery. Most traders close out their positions prior to the delivery date of the contract.<sup>98</sup> A party using a futures contract to hedge in the spot market simply purchases or sells the underlying asset in the spot market,<sup>99</sup> therefore any "gain or loss on the futures contract offsets corresponding loss or gain on the spot market transaction."<sup>100</sup>

Investors also employ futures to speculate in the market using the same methods used in the forward markets. Speculating in the futures market is more convenient than in the forward markets because of the "unique offsetting feature"<sup>101</sup> which allows investors the ability to avoid taking possession of the underlying asset at the delivery date.

Texaco, a crude oil, natural gas and petroleum provider, uses petroleum futures exchanges to "reduce the company's exposure to price volatility by establishing margins, costs or revenues on designated transactions as well as for planned future purchases and sales, inventory, production and processing."<sup>102</sup> Based on analysis of costs, revenues, and market price changes, along with forecasted trends, the company determines the appropriate strategy for risk reduction.

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97. *See id.* at 10-13.

98. *See id.*

99. *See id.* at 16-21.

100. *Id.*

101. *Id.* at 32; *see also supra* notes 78-90 and accompanying text (discussing the offsetting feature of futures).

102. TEXACO INC., 1996 ANNUAL REPORT 66 (1997).

#### D. Options Contracts

Options contracts are similar to both futures and forwards. Each instrument derives its value from the future price of the underlying asset. Additionally, all three types of contracts involve the future purchase or sale of an asset for a predetermined price.<sup>103</sup> Options, however, provide the holder with the right, rather than an obligation,<sup>104</sup> "to buy or sell the [underlying] asset at a [predetermined] price on or before a [particular] date."<sup>105</sup> This feature significantly distinguishes options from both futures and forwards. The purchaser of an option pays a "premium"<sup>106</sup> for the right to choose whether to perform the obligation contained in the options contract.<sup>107</sup> A "call" option provides the buyer the right to purchase the underlying asset at a specified price<sup>108</sup> whereas a "put" option gives the buyer the right to sell the underlying asset at a specified price.<sup>109</sup> The value of the option is dependent on the market price of the asset relative to the option price; therefore, if the price of the underlying asset rises above the price of the option, the "call" option becomes more valuable.<sup>110</sup> Conversely, if the price of the underlying asset

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103. See generally Frederick, *supra* note 5, at 105-06 (discussing the similarities of options and futures); Romano, *supra* note 46 (discussing forwards and futures).

104. See Romano, *supra* note 46, at 41; Goldman, *supra* note 40, at 1117. The buyer of a futures or forward contract cannot renounce her commitment to perform her obligation on the contract if she still holds the contract at its maturity. See Romano, *supra* note 46, at 41. On the other hand, the purchaser of an option maintains the right to avoid performance of the contract on the date of maturity. See *id.* The issuer of the option, also known as the option writer, does not share the purchaser's right to avoid performance. See *id.*

105. Romano, *supra* note 46, at 40. Options that can be exercised only on the maturity date of the contract (the expiration date) are called European options. See *id.* Those that can be exercised at any time up to the expiration date are called American options. See *id.*

106. An option premium usually consists of a percentage of the contract or a fixed dollar amount that the buyer of the contract is required to pay to the option writer in exchange for the option to choose not to perform the obligations of the contract by the date specified. See *id.* at 41.

107. Futures and forwards do not possess the option to choose whether to perform the obligations of the contract and accordingly do not require the payment of a premium.

108. See Romano, *supra* note 46, at 40; Goldman *supra* note 40, at 1117 n.19.

109. See Romano, *supra* note 46, at 40.

110. In the case of forwards and futures, the long position or the buyer, equates to



falls below the price of option, the "put" option becomes more valuable.<sup>111</sup>

The primary advantage of an options contract is that it allows the purchaser to mitigate downside risks without foregoing upside potential. This is possible because the loss is limited to the amount of the premium paid to the option writer.<sup>112</sup> The gain, however, remains unlimited.<sup>113</sup> If, for example, the holder of a call option could pay less for the underlying asset in the spot market than by exercising her option to buy, she would not exercise the option. Similarly, if the holder of a put option could sell the underlying asset in the spot market for more than she could by exercising her option to sell, she too would decide not to exercise the option. In both cases, the loss would be limited to the price of the premiums paid. On the other hand, if exercising the call or put option would be more profitable than buying or selling the underlying asset in the spot market, both investors would exercise their options and receive any gain available to them based on the difference in prices between the spot market and options contract. Accurately pricing many options contracts is difficult however.<sup>114</sup> Additionally, the unique nature of options contracts allows holders to benefit from increased variance in the performance of the underlying asset.<sup>115</sup> Options are traded on exchanges<sup>116</sup> and OTC.<sup>117</sup> As with futures, exchange-traded options operate through a clearinghouse to minimize credit risk and to ensure sellers' performance. Long side nonperformance of an option contract is not an issue "[b]ecause premiums are paid up front, and buyers . . . have no obligations."<sup>118</sup>

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the call option. *See id.*

111. In the case of forwards and futures, the short position or the seller, equates to the put option. *See id.*

112. *See id.* at 41; *see also supra* note 106 (defining the option premium).

113. *See Romano, supra* note 46, at 41.

114. *See id.* at 42.

115. *See id.*

116. *See id.* at 40-41 ("Options traded on exchange today cover many assets, including stocks, stock indices, currencies, government bonds, and futures contracts involving agricultural commodities, metals, oil, currency, and financial instruments.").

117. *See id.* at 40-45. Predominantly, banks and other financial institutions use this method. *See id.*

118. *Id.* at 42.

Options are also used as hedges against price risk.<sup>119</sup> In fact, options are used to hedge in essentially the same way that futures are used. Hedging with options, however, is more difficult because of the option holder's right to walk away from the transaction with a loss limited to the premium paid.<sup>120</sup> This creates a problem in determining the number of options required to hedge against a specific cash position. The number will vary with the price of the asset.<sup>121</sup> This uncertainty requires a holder of an option-hedged portfolio to perform numerous and frequent risk analyses and to make appropriate adjustments in order to maintain a position with limited risk.<sup>122</sup> The high maintenance costs associated with this type of portfolio may lead either to a transfer to futures-based hedging or to an inadequately protected portfolio resulting from attempts to cut maintenance costs.<sup>123</sup>

When used for speculation, options have significant benefits over futures and forwards. The advantage of options is that the downside risk is reduced to the price of the premium paid.<sup>124</sup> This allows speculators to take "riskier" positions without being responsible for the extent of the potential loss. Additionally, options allow investors to construct a variety of different payoff functions using a combination of options.<sup>125</sup>

Bausch & Lomb, an eyewear, health care, and pharmaceuticals company, which operates in nearly twenty countries worldwide, uses option contracts to hedge foreign currency transactions and equity investments in non-U.S. subsidiaries. In 1995, Bausch & Lomb invested \$219 million Netherland guilders in securities of a Dutch company.<sup>126</sup> To insure a minimum rate of return on its Dutch investment in dollars, the company purchased the right to call for redemption of the stock by the Dutch company at the net asset value. If Bausch & Lomb does not

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119. See *id.* at 45.

120. See *id.*

121. See *id.* at 45-46.

122. See *id.* at 46.

123. See *id.*

124. See *supra* notes 103-18 and accompanying text (describing the advantages of options).

125. See Romano, *supra* note 46, at 46.

126. See BAUSCH & LOMB, 1996 ANNUAL REPORT 43 (1997).

exercise its right, the Dutch company has the reciprocal right to buy back the stock in 2003.<sup>127</sup>

### *E. Swaps*

Swaps<sup>128</sup> are OTC agreements between two parties to exchange a series of cash flows.<sup>129</sup> A common type is an interest rate swap,<sup>130</sup> and the simplest interest rate swap is a fixed-for-floating rate swap, also referred to as a "plain vanilla" swap.<sup>131</sup> In a fixed-for-floating rate swap, "one counterparty agrees to make fixed-rate payments to the other counterparty, who [in return] agrees to make floating-rate payments."<sup>132</sup> Each of these interest rate payment streams are based on a specified sum of money known as the notional principal amount.<sup>133</sup> The notional principal amount is derived from hypothetical quantities of the underlying asset.<sup>134</sup> The notional principal amount is a reference used to determine the interest payment streams and does not change hands.<sup>135</sup>

The purchaser of the swap pays the fixed-rate and holds the long position while the seller holds the short position and pays the floating-rate.<sup>136</sup> This terminology, although common in the financial sector, does not adequately describe the conduct of the parties. In reality, the party with the fixed-rate payment stream is obligated to pay only if interest rates fall.<sup>137</sup> "Conversely, the party with the floating-rate" payment stream is only required to

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127. *See id.*

128. "Swaps are the largest component of the OTC derivatives market." Goldman, *supra* note 40, at 1117 n.20.

129. *See Romano, supra* note 46, at 46.

130. *See Frank C. Puleo, Recent Developments in Merchant Banking Activities of Banks and Bank Holding Companies, in BANKING LAW AND REGULATION 1987, at 677, 705 (PLI Comm. L. and Prac. Course Handbook Series No. A4-4201, 1987).*

131. Alexander E. Kolar, *Hammersmith Meets Orange County: "Wishing upon a Star" with Taxpayer Money, in the Municipal Bond Derivative Market*, 49 WASH. U. J. URB. & CONTEMP. L. 315, 321-22 (1996).

132. Romano, *supra* note 46, at 47.

133. *See id.* at 46.

134. *See id.*

135. *See id.*

136. *See id.* at 47.

137. *See Bruce A. Baird et al., Current Legal Theories in Litigation Involving Derivative Contracts*, C123 ALI-ABA 291, 298 (1995).

pay in the event that "interest rates rise."<sup>138</sup> The interest rate payments between parties usually occur at six-month intervals.<sup>139</sup> Rather than paying the entire payment streams, only the differential between the payments change hands.<sup>140</sup> For example, if the fixed-rate payment stream is \$100,000 and the floating-rate payment stream is \$95,000, the swap purchaser (fixed-rate payer) pays \$5,000 to the seller (floating-rate payer).

Another typical example would be a firm that has a commitment to make fixed payments for a factory, payments of \$1 million twice a year for ten years. If part of its income is at a floating rate, the firm may enter into a swap in which it receives a fixed payment of \$1 million every six months in exchange for its floating income. The firm will reduce its total uncertainty because it will have a payment of \$1 million every six months that it can use to make the \$1 million mortgage payments. Thus, the swap reduces the total uncertainty about the firm's income and outflow.

This type of interest rate swap is designed to reduce the effect of interest rate volatility faced by both parties.<sup>141</sup> The primary motive for employing this type of swap is to enhance the predictability of interest rate sensitive investments because both the positive and negative effects of interest rate movements are reduced. By using swaps in this way, an investor effectively converts an existing instrument from a fixed to a floating interest rate or vice versa.<sup>142</sup> Interest rate swaps transfer interest rate risk between the parties.<sup>143</sup> A party with a fixed rate instrument is exposed to the risk of downward movements in interest rates.<sup>144</sup> An interest rate swap, however, provides the opportunity to profit from falling interest rates.<sup>145</sup> In contrast, a party with

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138. *Id.*

139. See Frederick, *supra* note 5, at 99 n.8 (citing JOHN C. HULL, INTRODUCTION TO FUTURES & OPTIONS MARKET 4, 153 (2d ed. 1995)).

140. See *id.* (citing HULL, *supra* note 139, at 151).

141. See generally *id.* at 128-30 (discussing how swaps are used to hedge against fluctuations in the market).

142. See Henry T.C. Hu, *Swaps, the Modern Process of Financial Innovation and the Vulnerability of a Regulatory Paradigm*, 138 U. PA. L. REV. 333, 346-47 (1989).

143. Baird et al., *supra* note 137, at 298.

144. See *id.*

145. See *id.*

a floating rate instrument is exposed to upward movements in interest rates. A rate swap, therefore, allows her to profit from rising interest rates.<sup>146</sup>

Both swaps and futures transfer risk from one party to another. The advantage of swaps lies in the fact that they may be OTC and thus are not constrained by the standardization requirements imposed on the futures market. This allows the parties to use a swap transaction to customize the swap to meet their particular needs. This advantage is demonstrated by the short duration of the contract, which usually lasts only three to six months.<sup>147</sup> The duration of a swap contract, however, is based entirely on the needs of the parties and can be made for any period of time.<sup>148</sup> Although futures usually can be combined to accomplish a similar result, swaps provide a more efficient and lower maintenance means of hedging investments with long-term maturity dates.<sup>149</sup>

Swaps are most effective as a hedging instrument when the investor is a financial institution.<sup>150</sup> This is true because financial institutions often possess "mismatched asset and liability" time frames.<sup>151</sup> "They lend at fixed rates for the long term (mortgages), but they borrow at floating rates over the short term (deposits)."<sup>152</sup> Thus, "if short-term rates rise the institution will lose money."<sup>153</sup> Swaps are a better hedging choice for financial institutions than futures because futures contracts are standardized and usually possess time frames of less than one year, whereas swaps are customized and can possess time frames of fifteen years or more.

Numerous companies employ swap agreements. PepsiCo uses them to reduce borrowing costs. Interest rate swaps enable PepsiCo to change the interest rate of specific debt issuances.

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146. *See id.*

147. *See Romano, supra note 46, at 65.*

148. *See id.* Durations from two to fifteen years are not unusual. *See id.*

149. *See id.* at 46-68 (providing a comprehensive and interesting look at swaps).

150. *See generally id.* at 65 (discussing the use of swaps by financial institutions).

151. *Id.*

152. *Id.*

153. *Id.*

These swaps are generally entered into concurrently with the issuance of the debt they are intended to modify. The notional amount, interest payment dates and maturity dates of the swaps generally match the principal, interest payment dates and maturity dates of the related debt. Accordingly, any market risk or opportunity associated with these swaps is offset by the opposite market impact on the related debt.<sup>154</sup>

In 1996, Sears, Roebuck & Co. used interest rate swaps to pay a fixed, average interest rate of 8.02% on \$996 million.<sup>155</sup> It had swapped this payment for receipt of interest rate payments on the same \$996 million pegged to a variable interest rate set in the market.<sup>156</sup> The floating rate averaged out at 5.44%.<sup>157</sup> Sears had gambled interest rates would rise, when, in fact, they were falling.<sup>158</sup>

## II. HOW RISKY ARE DERIVATIVES?

Based on recent press coverage, derivatives often are viewed as "risky" investments capable of toppling even the most investment-savvy corporations.<sup>159</sup> According to a 1994 Government Finance Officers Association survey, a large number of finance professionals believe that the risks associated with derivatives outweighed the benefits.<sup>160</sup> Richard Graber, the senior vice president of the Jones & Babson mutual fund complex in Kansas City, Missouri, echoed this sentiment: "Given the choice . . . the best way to deal with derivatives is to treat them like a crazy relative—stay away."<sup>161</sup>

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154. PEPSICO, INC., 1996 ANNUAL REPORT 37 (1997).

155. See *What Are Derivatives, and How Could You Lose \$382 Million with Them?*, FORBES, Aug. 11, 1997, at 43.

156. See *id.*

157. See *id.*

158. See *id.*

159. See Goldman, *supra* note 40, at 1112-13 (arguing that this perception is making legislators and regulators reevaluate regulation of derivatives, specifically of OTC derivatives); see also Michael E.S. Frankel, *Derivatives and the Quantification of Portfolio Risk by Mutual Funds*, CA10 ALI-ABA 297, 300-01 (1995) (commenting on the risks of derivatives).

160. See GOVERNMENT FINANCE OFFICERS ASSOCIATION, 1994 SURVEY OF DERIVATIVE PRODUCTS IN THE DEBT MARKET 124 (1994).

161. James Welsh, *The Dreaded D Word; Derivatives Are a Risky Business (Remem-*

### A. *What Does "Risky" Mean?*

Although derivatives are perceived widely as "more volatile or risky than other financial instruments,"<sup>162</sup> it is important to understand the meaning of the term "risky." The distinction between risk and downside risk commonly are confused.<sup>163</sup> The term "risk" refers to the volatility, or the range of fluctuation, in the price of an investment instrument and not the direction of the fluctuation itself.<sup>164</sup> For every loss resulting from the use of derivatives there is a corresponding gain of an equal amount and vice versa.<sup>165</sup> Although large derivatives losses make the headlines, equally large gains often go unnoticed.<sup>166</sup> In other words, the more "risky" the investment, the greater the possible gain and the greater the possible loss.

### B. *How Can Risk Be Measured?*

How then can an investor determine the level of risk that accompanies the use of a specific derivative? Risk measurement has always been a difficult task. Recently, because of the "relative public ignorance concerning derivatives and their high level of volatility,"<sup>167</sup> risk management and risk measurement have come to the fore of debate and investigation at the Securities and Exchange Commission (SEC). The SEC has focused on "disclosure enhancement" of "risky trading instruments."<sup>168</sup> In 1995, the SEC issued proposed rules that included implementing a quantitative risk measure for mutual funds that attempt to simplify risk measurement by incorporating risk measurement into a single numeric number.<sup>169</sup> However, in the final rules

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*ber the Orange County and Barings Bank Fiascos?), but They Can Bring a Happy Financial Return*, TIMES-PICAYUNE, Mar. 19, 1995, at F3, available in LEXIS, News Library, Notpic File.

162. Frankel, *supra* note 159, at 300.

163. *See id.*

164. *See id.*

165. *See id.*

166. *See id.* at 300-01 ("For instance, [although] Orange County has recently suffered large losses through derivatives trading, these same instruments were a source of unusually high returns for many years.").

167. *Id.* at 306.

168. *Id.*

169. *See id.* The proposed rules included three possible risk measures: the duration

issued in 1998, the SEC, although implementing a risk/return disclosure requirement, decided against the use of a quantitative risk measure citing the inability of commentators to decide on any one risk measure.<sup>170</sup> Although this type of measurement mechanism may be very useful for some investors, measuring overall portfolio risk would be much more helpful than measuring only specific investment components of a portfolio.<sup>171</sup> The development of this type of risk measurement mechanism, however, faces significant challenges. This type of risk measurement mechanism would need to measure accurately the risks of the numerous and varied instruments present in a typical portfolio while taking into account the relevant effects resulting from the interrelationships between the instruments. Finally, it would have to convert this data into a single number or formula that would represent accurately the level of risk for the entire portfolio.<sup>172</sup>

One portfolio risk measurement mechanism that is currently being used<sup>173</sup> is the "value-at-risk" methodology.<sup>174</sup> This mechanism monitors the risk and value of a portfolio, including non-option derivatives holdings<sup>175</sup> by measuring the amount "a firm could potentially lose by holding a position for a specific period."<sup>176</sup> Although the value-at-risk method does not provide a single risk

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method, the standard deviation method, or the beta method. See Registration Form Used by Open-End Management Investment Companies, 62 Fed. Reg. 10,898, 10,911 (1997) (to be codified at 17 C.F.R. pts. 230, 232, 239, 240, 270 & 274) (proposed Mar. 10, 1997).

170. See Registration Form Used by Open-End Management Investment Companies, 63 Fed. Reg. 13,916, 13,929 (Mar. 23, 1998) (describing the reasons for foregoing a quantitative risk measure).

171. See generally Frankel, *supra* note 159, at 309-11 (discussing the calculation of a portfolio).

172. See *id.* at 310.

173. See Barbara Donnelly Granito & Steven Lapin, *Alarmed, World's Central Banks Call for Full Exposure of All Risk*, WALL ST. J., Sept. 29, 1994, at C1 ("Citicorp became the first financial dealer to publicize its 'earnings at risk,' a probability-weighted measure of how much the bank stands to lose on a given day from its trading operations.").

174. Frankel, *supra* note 159, at 307-09 (providing an explanation of the value-at-risk methodology).

175. See *id.* at 311.

176. Michael R. Ceased, *Derivatives Dealers Show Progress in Managing Risks, a Survey Shows*, WALL ST. J. EUR., Dec. 6, 1994, at B4, available in 1994 WL 3170690.



measurement number, it does provide sets of correlations between commonly understood variables as well as between the risks of the individual investments within a portfolio.<sup>177</sup> As practical as the value-at-risk methodology may appear, it is plagued by issues concerning accuracy and practicality. With regard to accuracy, the value-at-risk method (as with all other commonly used risk measurements) is based on the presumption that the "future will mirror the past."<sup>178</sup> Historical volatility and correlation data are used to predict future values.<sup>179</sup> Additionally, the data acquired is statistical, which means that aberrant and outlying results usually are not taken into consideration.<sup>180</sup> This can produce misleading results that hinder decision making. The value-at-risk method also provides a series of correlating relationships and stress tests. Often this data is presented in a confusing manner that inhibits practical use by investors.<sup>181</sup> Recently, efforts have been made to develop a forward looking model of risk based on proprietary predictions of future volatility rather than historical data.<sup>182</sup> The results of these mechanisms, however, have yet to be realized fully. At this point in time, no risk measurement mechanism exists that accurately measures the risk of a portfolio containing derivatives that presents the measurement as a simple formula or number and avoids the problematic use of historical data. Large banks are required to disclose interest rate risk to banking regulators as part of their quarterly reports.<sup>183</sup> Some of those disclosures are privileged and thus unavailable in public documents; however, many banks do report measures of risk in their annual reports.<sup>184</sup>

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177. See Frankel, *supra* note 159, at 309.

178. *Id.* at 312.

179. See *id.*

180. See *id.* at 312-13.

181. See *id.* at 313.

182. See *id.* at 309, 313; see also Campbell R. Harvey & Robert E. Whaley, *Market Volatility Prediction and the Efficiency of the S&P 100 Index Option Market*, 31 J. FIN. ECON. 43, 43 (1992).

183. See Isaac Lustgarten & Jualing Ma, *Risk Management Guidelines for Derivatives*, REV. BANKING & FIN. SERV., Apr. 19, 1995, at \*1, \*9, available in 1995 WL 8599892.

184. See Troy J. Butner & Richard L. Brezovec, *Implementing the SEC Market-Risk Disclosure Rules*, BANK ACCT. & FIN., Oct. 11, 1997, at \*1, \*3, available in 1997 WL 22656646.

### C. *Are Derivatives Riskier than Other Investments?*

The problem with attempting to answer this question is that there are as many opinions as there are experts. Some experts answer this question in the context of a portfolio.<sup>185</sup> Because derivatives are used most often to hedge existing portfolio risk, they usually function "to reduce rather than increase risk."<sup>186</sup> Conversely, even if risky derivatives positions are taken in the context of a portfolio, these positions will be hedged by some other offsetting position in the underlying asset or pooled with very low risk investments.<sup>187</sup> Others argue that the derivatives do not create risk, but rather the "speculative impulse" of investors creates the risk.<sup>188</sup> Still others say that derivatives are less risky than other types of investment instruments.<sup>189</sup> A managing director at Bankers Trust stated: "[P]eople lost a lot more money in the two-year Treasury note than they ever did in derivatives."<sup>190</sup> Probably the most accurate answer to this question is that derivatives can neither create nor destroy risk, they can only transfer existing risk from one investor to another.

### D. *Complexity of Derivatives*

Much of the negative coverage regarding derivatives can be traced to general confusion surrounding the complexities associated with most derivative transactions.<sup>191</sup> The complicated nature of certain derivatives is amplified by the use of deficient risk measurement mechanisms,<sup>192</sup> inadequate risk management controls,<sup>193</sup> and often a poor understanding of the role derivatives play in investment strategies.<sup>194</sup> The mixture of these ingredients frequently leads to the misuse of derivatives, which in turn can result in significant losses. This is not to say, however,

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185. See Frankel, *supra* note 159, at 306-09.

186. *Id.* at 301.

187. *See id.*

188. *See, e.g.,* Muehring, *supra* note 1, at 31.

189. *See id.* at 32.

190. *Id.* (quoting Lisa Polsky, one of the managing directors at Bankers Trust).

191. *See* Frankel, *supra* note 159, at 299, 304.

192. *See id.* at 305-06.

193. *See id.* at 306-07.

194. *See id.* at 306.

that all derivatives are complicated. In fact, virtually all exchange-traded derivatives and many OTC derivatives are relatively straight-forward and do not pose the danger of unmanageable complexity. The most complicated derivatives tend to be customized OTC derivatives, frequently consisting of a combination of several derivatives that are often hypersensitive to changes in the underlying market.<sup>195</sup>

Many factors contribute to the complexity of these derivatives. First, many of the derivatives are customized to the needs of the individual investor and have never been tested outside the confines of a hypothetical model. The performance of these derivatives in the real market is established only after they have been incorporated into the particular portfolio. Second, statements and recommendations made by brokers can both inadvertently and intentionally mislead investors. An investor can be misled inadvertently when an investment model incorrectly predicts a derivative's effect on a portfolio in a specific scenario or when a broker makes recommendations without essential financial information. Investors may also be intentionally misled by brokers.<sup>196</sup> Because derivatives result in a zero-sum scenario an ironic relationship can develop between brokers and investors. For example, when an investor is attempting to reduce risk in a portfolio through the use of derivatives, she transfers that risk to a party who is willing to accept it. A broker usually accepts the risk of such an investor and accordingly hedges against it; however, if the broker fails to hedge or inadequately hedges the risk she becomes exposed to market risk. As a result, any losses experienced on the contract by the investor will mean a gain for the broker. In other words, if the broker "steers" the investor into a losing position, she might receive a gain of the equivalent amount.<sup>197</sup>

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195. See Chris Knap, *Orange County's Financial Crisis, Next Year's Problem: Hayes Begins Work on O.C. Portfolio*, ORANGE COUNTY REG., Dec. 14, 1994, at \*1, \*82, available in 1994 WL 4668898.

196. See generally Craig & Hume, *supra* note 4 (discussing various large derivatives losses); Goldman, *supra* note 40 (discussing the misrepresentation and high-pressure tactics of some brokers).

197. The intentional deception on the part of the brokers for Bankers Trust was discovered on taped conversations kept by Bankers Trust. See Craig & Hume, *supra* note 4, at 172. This deception contributed to two of the most highly publicized derivatives losses: Gibson Greetings and Proctor & Gamble. See *id.* at 170-73, 176-79

Confusing documentation, faulty disclosure of risks, and underdeveloped accounting considerations also add to the complexity of derivatives.<sup>198</sup> Each of these deficiencies contributes to other obstacles, such as valuation difficulty and risk determination.<sup>199</sup> These complexities also become amplified by inadequate internal management controls.

*E. Misuse of Derivatives: "Derivatives Don't Blow Up Companies, People Do"*

Although the complexity of derivatives contributes to their misuse, it is misuse rather than any inherent quality of derivatives that causes major losses.<sup>200</sup> According to Richard Breeden, the former chairman of the SEC and current chairman of the International Financial Services Group at Coopers & Lybrand: "Derivatives are like a high-performance automobile. They're just great, until you see one being driven at 100 miles an hour by a drunken teenager."<sup>201</sup> Although misuse of derivatives is most often associated with the complexity of derivatives, complexity is not a necessary element. Often the misuse of derivatives is the result of a "can't-lose mentality" which fails to consider the downside of the investment.<sup>202</sup> To demonstrate how the improper use of derivatives, rather than derivatives themselves, has caused many of the most catastrophic derivatives losses, this

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(providing a complete explanation of all of the pertinent financial transactions and deception leading up to both Gibson Greetings' and Proctor & Gamble's losses).

198. See Manning, *supra* note 41, at 18. It is not unusual for resolution of documentation issues to require six months or more and to lack clarification of material exposures. See *id.*

199. See Baird et al., *supra* note 137, at 301-02.

200. See Loomis, *supra* note 4, at 50. See generally *Using Derivatives: What Senior Managers Must Know*, HARV. BUS. REV., Jan.-Feb. 1995, at 33 (presenting the opinions of eight practitioners and experts concerning the prevention of derivative misuse) [hereinafter *Using Derivatives*].

201. *Derivatives Reconsidered*, *supra* note 56, at \*2. Another senior executive colorfully remarked: "It's not derivatives that blow up companies, it's people who blow up companies." *Id.* Coopers & Lybrand is now Pricewaterhouse Coopers.

202. Muehring, *supra* note 1, at 33. Muehring explains how the early and mid 1990s offered low inflation, a conveniently steep yield curve and low volatilities which spurred investors to take on large amounts of risk. See *id.* Because derivatives enabled these types of investments to be accomplished with a minimal amount of expense, they were used most frequently. See *id.*

Article reviews three of the most famous cases: Orange County, Gibson Greetings, and Barings. Recent cases stemming from the Asian currency crisis of 1997-1998 will be discussed as well.

### 1. *The Bankruptcy of Orange County*

The true reason for the bankruptcy of Orange County was the misuse of highly leveraged government securities<sup>203</sup> used for speculation. These securities were tied to a particular form of derivative known as highly structured notes. Thus, the value of the securities would fall as interest rates rose and vice versa. Orange County borrowed money to invest in the structured notes. When the interest rates increased, the payments to the owners decreased much more quickly. For example, if interest rates went up one percent, interest payments on the structured notes could go down by three percent.<sup>204</sup> As long as interest rates fell earnings on the county's bonds rose. For at least two years, Orange County received an 8.5% return on its investments at a time when bond mutual funds averaged earnings of only about 7%.<sup>205</sup> Problems began to occur in 1994 when the Federal Reserve raised interest rates six times in one year.<sup>206</sup> Each increase in interest rates caused the earnings on the bonds and the market value of the securities to drop.<sup>207</sup>

Several other factors contributed to the massive losses incurred by Orange County. First, the county had borrowed a significant amount of money to purchase its investments, a strategy known as leveraging.<sup>208</sup> In fact, because such a large portion of

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203. See *Derivative Financial Investments Relating to Banks and Financial Institutions: Hearings Before the Senate Comm. on Banking, Housing, and Urban Affairs*, 104th Cong. 37 (1995) [hereinafter *Hearings*] (statement of Alan Greenspan, Chairman, Bd. of Governors of the Fed. Reserve System); Loomis, *supra* note 4, at 54.

204. See PHILLIPE JORION, *BIG BETS GONE BAD: DERIVATIVES AND BANKRUPTCY IN ORANGE COUNTY* 23 (1995).

205. See Welsh, *supra* note 161, at F3.

206. See Jeff Brazil, *Merrill Lynch Says It Told Citron of Risk*, L.A. TIMES, Jan. 11, 1995, at A1.

207. See *id.* At one point, Merrill Lynch predicted that each one percent increase in interest rates would reduce the value of the county's fund by about \$270 million. See *id.*

208. See *id.*

the fund had been leveraged, Orange County had increased its market risk exposure significantly.<sup>209</sup> As long as interest rates continued to fall, the county's fund received a substantial rate of return.<sup>210</sup> According to Alan Greenspan, Orange County should have put these substantial returns into an escrow account for "a rainy day."<sup>211</sup> Unfortunately, it did not, and soon the flash floods began. If not for the substantial leveraging, the Orange County losses would have been reduced greatly.<sup>212</sup> According to David Jones, the chief economist at Aubrey G. Lanston Inc. in New York, "Orange County is an example of a big leveraged bet gone wrong."<sup>213</sup>

A second factor contributing to Orange County's predicament was its speculative investment strategy.<sup>214</sup> Edwin G. McKeever, the cash manager in the treasury department of the Port Authority in New York, views Orange County as a classic example of the improper use of derivatives.<sup>215</sup> A prudent strategy for Orange County would have been to hedge its risk with an interest rate swap because of the degree of interest rate market risk to which Orange County had exposed itself. Instead, Orange County borrowed short and lent long.<sup>216</sup> According to Alan Greenspan, this is "a terrific operation if the yield curve is steeply sloping, because what you do is rake in a very large difference."<sup>217</sup> Orange County purchased long-term thirty-year treasuries on leverage with cash from short-term loans through repurchase

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209. For a complete explanation of leveraging and how it affects risk, see Richard Baker, *Don't Demonize Derivatives*, ROLL CALL, Mar. 27, 1995, *passim*, available in LEXIS, News Library, Rollcl File; Frankel, *supra* note 159, at 323-26.

210. See *Hearings*, *supra* note 203, at 37.

211. *Id.*

212. See Baker, *supra* note 209.

213. Portia Richardson, *Leverage Key to Losses*, FUTURES, Feb. 1995, at 12 (blaming high leverage for losses of Orange County, California).

214. See Baker, *supra* note 209; Brazil, *supra* note 206, at A1.

215. See Richardson, *supra* note 213, at 14.

216. See Brazil, *supra* note 206, at A1. According to documents as far back as 1992, even Merrill Lynch, Orange County's own broker, had been warning the county treasurer about the risky nature of the county's portfolio and suggesting that he reassess his long-standing strategy of betting that interest rates would remain low or fall. See *id.* "We suggest that Orange County constantly review the volatility in the existing portfolio," wrote one official at Merrill Lynch. *Id.* (quoting Michael G. Stamerson of Merrill Lynch).

217. *Hearings*, *supra* note 203, at 37.

agreements.<sup>218</sup> This left the county highly vulnerable to increases in short-term interest rates.<sup>219</sup> When short-term interest rates rose, the county had to borrow at higher rates while still lending at lower long-term rates. Greenspan believes that the use of derivatives is relevant only because of their cost effectiveness. If Orange County used "no derivatives, but insisted upon the same strategy . . . [it] would have come up with the same problem[,] [i]t just would have cost . . . a little more."<sup>220</sup>

The final factor contributing to Orange County's bankruptcy was the county's insistence on holding its investments contrary to the professional advice it received.<sup>221</sup> In fact, when Orange County's own broker offered to buy back all of the derivative securities it had sold to the county because of concern for the stability of the portfolio, the county's treasurer refused to sell.<sup>222</sup> Apparently, politics interfered with investment judgment.

Although Orange County lost almost \$2 billion, requiring it to layoff hundreds of employees as well as make cuts in health, police, and education programs, Acting Treasury Secretary Frank N. Newman said the administration saw no need for any major legislation on derivatives.<sup>223</sup> The committee determined that it was the risky nature of the strategy pursued by Orange County rather than the instruments themselves that caused the loss.<sup>224</sup> In fact, Orange County could have reduced or even eliminated the amount of interest rate risk significantly with a relatively simple interest rate swap.<sup>225</sup> Moreover, had Orange County held onto the derivatives in its portfolio, it would have recouped not only its full \$21 billion value, but also \$300 million

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218. See Richardson, *supra* note 213, at 12.

219. See *Hearings*, *supra* note 203, at 15 (statement of Frank N. Newman, Acting Secretary of the U.S. Dept. of Treasury). In fact, officials at Merrill Lynch had warned Orange County's treasurer about the increased level of risk exposure; Brazil, *supra* note 206, at A1.

220. *Hearings*, *supra* note 203, at 37.

221. See Baker, *supra* note 209, at \*3.

222. See Brazil, *supra* note 206, at A1.

223. See *Derivatives Debacle; Orange County Woes Unlikely to Spur U.S. Action*, INS. ACCT., Jan. 16, 1995, at \*1, available in LEXIS, Market & Industry Library, Insurance File.

224. *Id.*

225. See Richardson, *supra* note 213, at 14.

in interest.<sup>226</sup> Orange County argued that its broker, Merrill Lynch, failed to warn the county about the risk surrounding the investments and therefore should assume liability.<sup>227</sup> Merrill has paid over \$437 million in settlements over numerous suits concerning this matter, but remains steadfast in its position that it committed no wrong and acted professionally in its dealings with the county.<sup>228</sup> Although the brokerage firm sold billions of dollars worth in securities to the county, it maintains that the county made its own sophisticated investment decisions.<sup>229</sup>

## 2. Gibson Greetings

Gibson Greetings involved a different set of issues relating to derivatives: the deception and misrepresentation of derivatives' performance and valuation. In 1991, Gibson Greetings, a regional greeting card company, issued "\$50 million [of] senior notes with an interest rate of 9.33%."<sup>230</sup> Within months, interest rates began to fall. Because the notes could not be prepaid, Gibson was left with an increasing interest rate deficit.<sup>231</sup> "In November 1991, Gibson entered into an interest rate swap" with Bankers Trust on \$30 million of notes in order to reduce the effective interest rate of the notes.<sup>232</sup> Over the next two and one-half years, Gibson entered into twenty-nine increasingly complex derivatives transactions with Bankers Trust.<sup>233</sup> Many contained lever-

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226. See Rita Koselka, *If You Can't Stand the Heat . . .*, FORBES, Feb. 12, 1996, at 37.

227. See Brazil, *supra* note 206, at A1.

228. See Andy Pasztor et al., *Merrill Lynch to Pay 473.1 Million to Resolve Claims by Orange County*, WALL ST. J., June 3, 1998, at A3.

229. See *id.*

230. Baird et al., *supra* note 137, at 314.

231. See Craig & Hume, *supra* note 4, at 170.

232. Baird et al., *supra* note 137, at 314.

233. See Craig & Hume, *supra* note 4, at 170. All of the derivatives were OTC and customized. "They included 'derivatives sometimes described as the ratio swap, periodic floor, spread lock 1 and 2, Treasury-linked swap, knockout call option, LIBOR-linked payout, time swap and wedding band 3 and 6.'" See *id.*

Gary Gastineau, head of derivatives research at S.G. Warburg, says that given long enough, he might be able to think of a risk management reason for entering into a wedding band swap: "But that's not really their purpose. These things are done by people who think they know better than the market where interest rates are headed."



age factors that caused a dramatic increase in Gibson's losses because of interest rate hypersensitivity.<sup>234</sup>

Although the initial interest rate swap had improved Gibson's financial situation, Gibson had engaged in so many subsequent derivatives transactions that it could no longer determine whether it was making or losing money.<sup>235</sup> This situation arose for three reasons. First, each of the new derivatives transactions was linked to the previous one, making it difficult to determine the effect of the transaction.<sup>236</sup> Second, Bankers Trust refused to allow Gibson access to the proprietary valuation models.<sup>237</sup> Third, Bankers Trust employees began to lie to Gibson about the amount it was losing.<sup>238</sup> Near the end of a series of significant losses reaching a total of \$17.5 million, Bankers Trust informed Gibson that the losses were "potentially without limit" and that it should enter two more derivatives transactions in order to cap the loss at \$27.5 million and potentially reduce the loss to \$3 million.<sup>239</sup> As it turned out, Gibson reported losses of \$20.7 million, while Bankers Trust reported gains of \$13 million.<sup>240</sup>

Fortunately for Gibson Greetings, a tape of an incriminating phone conversation was uncovered during discovery in a lawsuit initiated by Gibson alleging fiduciary duty violations.<sup>241</sup> Bankers Trust eventually reached a settlement with Gibson pursuant to which Gibson paid \$6.2 million or 30% of the amount that Banker's was owed from the derivatives transactions.<sup>242</sup>

### 3. *Barings Bank*

Even Barings, the venerable 234 year-old British bank was not immune to the misuse of derivatives. Nicholas Leeson, "one of its traders in Singapore . . . bought thousands of exchange-

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Loomis, *supra* note 4, at 54.

234. See Baird et al., *supra* note 137, at 315.

235. See Loomis, *supra* note 4, at 58.

236. See *id.*

237. See Craig & Hume, *supra* note 4, at 171.

238. See Loomis, *supra* note 4, at 58.

239. *Id.* at 59.

240. See Craig & Hume, *supra* note 4, at 170.

241. See *id.*; Loomis, *supra* note 4, at 58-59.

242. See Loomis, *supra* note 4, at 59-60.

traded futures contracts[,] based on the Nikkei Average and traded on the Tokyo Stock Exchange. Leeson bought these contracts . . . believing the Nikkei would rise."<sup>243</sup> He took these positions without hedging, hoping to maximize his gain, but also exposing himself to the potential for a huge loss.<sup>244</sup> "When the Nikkei [index] fell and the contracts became due . . . Barings could not cover the losses . . . and collapsed."<sup>245</sup>

The obvious cause of this disaster was the speculative strategy employed by Leeson. Both Leeson and Barings, however, share responsibility for the loss. Leeson hid the existence of many of these types of trades from his superiors, but Barings did not possess adequate management controls to prevent this type of activity.<sup>246</sup> "As Commodity Futures Trading Commission Chairman Mary Schapiro put it: "There was a near total failure of internal controls. Illogical lines of supervision, and a trader permitted to control the settlement and accounting for his own trades, is a recipe for disaster."<sup>247</sup> The Barings case particularly highlights the dangers of operational risk.

#### 4. Asian Currency Crisis

Derivatives contracts are used regularly by Southeast Asian companies to bet on interest rate and currency movement.<sup>248</sup> Although their governments continued to insist that their currencies would hold against the dollar in the early weeks of the Asian currency crisis, many believe that banks and other investment companies doubled their holdings of speculative currency derivatives, hoping to make huge profits.<sup>249</sup> Instead, losses lurk on their books as the speculators wait for the maturity of these contracts.<sup>250</sup>

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243. Baker, *supra* note 209, at \*3.

244. *See id.*

245. *Id.*

246. *See id.* at \*1-2; David Nusbaum, *Are Your Internal Controls a Match for Operations Risk?*, FUTURES, June 1995, at 62.

247. Nusbaum, *supra* note 246, at 62.

248. *See* Richard Borsuk & Darren McDermott, *Indonesian Bank Faces Currency Losses*, WALL ST. J., Mar. 9, 1998, at A15.

249. *See id.*

250. *See id.*

Bank Ekspor Impor Indonesia recently announced losses from currency speculation that could total several hundred million dollars.<sup>251</sup> So far, the bank has made its payments on the contracts already due;<sup>252</sup> but this is just one bank, in one country, in a region that potentially is saturated with contracts of this sort. The international banks who hold the winning side of these contracts may face huge losses as the Asian counterparties default on their payments under the contracts.

One example is J.P. Morgan & Co. which is fighting that very battle in Manhattan and Korean courts.<sup>253</sup> In February 1998, Morgan filed suit against SK Securities and another Korean investment company for \$300 million owed on derivatives contracts.<sup>254</sup> SK Securities has filed a counter-suit alleging that Morgan "failed to inform [them] of the risks involved."<sup>255</sup>

The transactions involved the exchange of U.S. dollars for Southeast Asian currencies between Morgan and SK.<sup>256</sup> The deals were complex derivatives primarily entered as speculation in Asian currencies.<sup>257</sup> In February of 1997 SK bet that the Thai baht would rise against the dollar. They lost their bet, and by the summer of 1997 SK was facing losses of \$300 million on one transaction and \$189 million on a second.<sup>258</sup> One of Korea's largest banks, Housing & Commercial Bank, guaranteed the payments.<sup>259</sup> After the currency collapse, SK was unable to make the payments due under the swaps. Housing & Commercial Bank also refused to pay, claiming their liability was limited to \$100 million,<sup>260</sup> and the contracts were altered to delete this clause without their consent.<sup>261</sup> Morgan now faces losses close to \$500 million on theoretically winning contracts.<sup>262</sup>

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251. *See id.*

252. *See id.*

253. *See* Frank, *supra* note 26, at B25.

254. *See id.*

255. *Id.*

256. *See id.*

257. *See* O'Brien, *supra* note 25, at D1.

258. *See id.*

259. *See* Frank, *supra* note 26, at B25.

260. *See id.*

261. *See* O'Brien, *supra* note 25, at D1.

262. *See id.*

The recent plummet of the Russian ruble adds to the intense concern over the Asian currency crisis. Foreign lenders risk losing more than \$10 billion worth of currency agreements they purchased from the Russian banks to guard against ruble devaluation.<sup>263</sup> One American bank, Republic New York Corporation, reported losses that will erase all of its third-quarter earnings.<sup>264</sup> Investors fear the sudden and extreme devaluation of the ruble may play out in other markets as well, with possible "devaluation of the Venezuelan bolivar or . . . the Brazilian real."<sup>265</sup> Since the ruble's fall in value, the peso has dropped 8.9% already.<sup>266</sup>

The scenarios described here demonstrate that derivatives are not inherent losers, but rather risky investment strategies and inadequate internal controls lead to loss. The following section discusses how investors can avoid these types of disasters.

### III. NEW CONCEPTUALIZATION OF DERIVATIVES USE

Using derivatives as a hedging device is risky because of the high level of sophistication necessary for successful investment.<sup>267</sup> The problem is exacerbated by the astounding growth of derivatives products and technology, which far outpace management and investor knowledge, as well as corporate control systems.<sup>268</sup> Users lack of knowledge about derivatives and their under-appreciation of the risks involved have led to a majority of the high profile losses of the 1990s.<sup>269</sup> The *EPIC* control system outlined below is vital to educate corporate management about derivatives' form and effectiveness. Without such a system, corporations will expose themselves to liability for both the misuse of derivatives and the failure to use them as protection against risk.

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263. See Andrews, *supra* note 30, at D5.

264. See O'Brien, *supra* note 31, at D6.

265. Sam Dillon, *The Hemisphere's Crisis: Even as Latin Markets Plunge, Drastic Remedies Are Avoided*, N.Y. TIMES, Aug. 29, 1998, at D2.

266. See *id.*

267. See Suzanne E. Bish, *A Guide to Narrow the Derivatives' Understanding Gap and Reduce Losses: How to Increase Knowledge, Controls, and Reporting*, 58 OHIO ST. L.J. 539, 555 (1997).

268. See *id.*

269. See *id.* at 539-41.

To date, few lawsuits have been filed over losses from derivatives use. Almost all of these have resulted in out-of-court settlements or dismissals for failure to state a cause of action. Of the lawsuits that have arisen, two general types exist: (1) investors suing broker-dealers over recommended products that lost money or actual sales of derivatives which resulted in losses; and (2) shareholders suing the corporation over derivatives losses. This Part examines both scenarios and evaluates a controversial proposition that directors have a duty to shareholders to investigate how derivatives could affect current business risks of the corporation, and that directors have a duty to use derivatives if the level of risk will thereby be reduced.

### *A. Regulatory Structure Applicable to Derivatives*

Derivative type and the class of counterparty involved dictate (1) the regulatory entity which governs the transaction; (2) liability of counterparties; and (3) available causes of action.<sup>270</sup>

#### *1. Regulatory Entities*

The SEC has jurisdiction over the offer and sale of derivatives that qualify as "securities," via authority of the Securities Exchange Act of 1934.<sup>271</sup> The Commodity Futures Trading Commission (CFTC), pursuant to the Commodities Exchange Act of 1936 (CEA),<sup>272</sup> has exclusive jurisdiction over futures and oversees the trading of other derivatives that constitute "commodities," such as commodity options.<sup>273</sup>

If all derivatives fell neatly into one of two categories, securities or commodities, then determining which rules to apply to a given derivatives transaction would be fairly straightforward. Because some derivatives have characteristics common to both

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270. See generally Ernest T. Patrikis & Diane L. Virzera, *Over-the-Counter Derivatives Sales Practices: Disclosure, Suitability, Appropriateness, and "Best Practices,"* in *MANAGING RISK EXPOSURE IN DERIVATIVES 1995*, at 505 (PLI Corp. L. and Prac. Course Handbook Series No. B-914, 1995) (discussing the relationship between type and counterparty class).

271. See Medero et al., *supra* note 3; Patrikis & Virzera, *supra* note 270, at 507.

272. 7 U.S.C. § 1 (1994).

273. See Patrikis & Virzera, *supra* note 270, at 507.

securities and commodities,<sup>274</sup> it is difficult to determine which set of rules and standards apply to these derivatives transactions.<sup>275</sup>

Furthermore, a large portion of the derivatives market consists of OTC instruments, such as forwards, swaps, and many options contracts, that are not directly subject to either securities or commodities laws.<sup>276</sup> For example, regulation over the options market is split three ways: (1) the SEC maintains jurisdiction over currency options traded on securities exchanges and all options on securities;<sup>277</sup> (2) the CFTC has exclusive authority over futures on groups of securities, options on those futures, and options on foreign currency that are traded on a securities exchange;<sup>278</sup> and (3) the remaining options are regulated only indirectly by the SEC, CFTC, Office of the Comptroller of the Currency and Federal Reserve, through agency control over the counterparties that sell the derivatives.<sup>279</sup> The Supreme Court has further clarified that foreign currency options not traded on a board of trade are exempt from CFTC regulation.<sup>280</sup> In interpreting the statute that created the CFTC, the Court gave the

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274. *See id.* at 507-08.

275. *See* Medero et al., *supra* note 3. The classification given to the instrument determines if, how, and by whom the instrument is regulated, and even whether it can be offered at all.

276. *See* Patrikis & Virzera, *supra* note 270, at 507-08 (stating that although OTC derivatives are not governed directly by the SEC or the CFTC, and banks make up a large portion of the OTC derivative market dealers, OTC transactions where a bank is a counterparty are subject to the regulations imposed on banks by the OCC and the Federal Reserve). In addition, OTC derivatives are subject to indirect regulation by all of the regulatory entities through agency control theories. *See id.*

277. *See* Susan C. Ervin, *OTC Derivative Markets and Their Regulation: Working Paper on Commodity Futures Trading Commission Regulatory Framework*, C882 ALI-ABA 97, 101-02 (1994).

278. *See id.*

279. *See* Goldman, *supra* note 40, at 1121; *see also* Markey Introduces Derivatives Bill; *SEC Would Oversee Unregulated Dealers*, 64 BANKING REP. (BNA) 471, 471 (Mar. 6, 1995), available in LEXIS, Banking Library, Bnabnk File ("Rep. Edward Markey (D-Mass.) . . . introduced a bill [Derivatives Dealers Act of 1994, H.R. 1063] that would bring currently unregulated derivatives dealers affiliated with securities or insurance firms under the regulatory oversight of the Securities and Exchange Commission.").

280. *See* *Dunn v. Commodity Futures Trading Comm'n*, 519 U.S. 465, 478-79 (1997).

language its plain meaning, but recognized the policy debate underlying its decision:

[P]etitioners, their *amici*, and the Treasury Department, argue that if off-exchange foreign currency options are not treated as exempt from CEA regulation, the increased costs associated with unnecessary regulation of the highly sophisticated OTC foreign currency markets might well drive this business out of the United States. The [CFTC] responds that to the extent limited exemptions from regulation are necessary, it will provide them, but argues that options are particularly susceptible to fraud and abuse if not carefully policed . . . . [T]hese are arguments best addressed to the Congress, not the courts.<sup>281</sup>

Currently, the regulatory scheme for swaps and more "exotic instruments" is the most confused.<sup>282</sup> Technically, swaps could fall under CFTC jurisdiction by virtue of the CEA rule that all futures contracts must be traded on an exchange.<sup>283</sup> However, CFTC has exempted swap transactions between "eligible swap participants"<sup>284</sup> from all CEA provisions, (with the exception of the antifraud rules), including the exchange trading requirement.<sup>285</sup> Although swaps have been excluded from CFTC jurisdiction and have never been considered securities subject to the SEC, the SEC decided recently that a swap agreement containing "embedded options" may be subject to SEC jurisdiction due to the existence of options qualifying as securities.<sup>286</sup> It is un-

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281. *Id.* at 479-80 (citations omitted).

282. *See* Goldman, *supra* note 40, at 1120.

283. *See id.*

284. An "eligible swap participant" is a bank, investment company, commodity pool with assets exceeding \$5 million, corporation or other business with assets exceeding \$10 million, ERISA employee benefit plan with assets over \$5 million, any governmental entity, broker-dealer, and any natural person with assets over \$10 million. *See* 17 C.F.R. § 35.1 (1999).

285. *See* Goldman, *supra* note 40, at 1120. This was due largely to intense lobbying by the ABA and national and regional banks. The CFTC limited the exclusion to credit-worthy participants in order to provide greater certainty about the enforceability of OTC swap agreements. *See id.*

286. *Id.* at 1121; *see* Gibson Greetings v. Bankers Trust Co., No. C-1-94-620 (S.D. Ohio Sept. 12, 1994). In one of the most celebrated cases in derivatives litigation, the SEC asserted jurisdiction over the derivatives transactions involved between Gibson Greetings and Bankers Trust, by classifying a swap and a call option as options

clear whether the courts will uphold the SEC's determination that swaps containing embedded options are securities.<sup>287</sup> If they do, it is equally unclear what effect the SEC's expanded jurisdiction is likely to have on the swap market.

Securities broker-dealers are subject to SEC regulation and at least one self-regulatory organization (SRO) such as a stock exchange or the National Association of Securities Dealers (NASD).<sup>288</sup> Although the SEC has the authority to regulate the conduct of broker-dealers directly, an SRO typically will initiate regulatory actions pursuant to its own rules and enforcement proceedings.<sup>289</sup> The CFTC regulates futures commission merchants, which include floor brokers, commodity trading advisors, and commodity pool operators.<sup>290</sup> The Office of the Comptroller of the Currency (OCC) regulates national banks dealing in derivatives, whereas the Federal Reserve regulates bank holding companies and state-chartered member banks.<sup>291</sup> Although banks often are considered to be more heavily regulated than other types of derivatives dealers, bank regulation typically ensures the safety and soundness of the bank, rather than the investor.<sup>292</sup>

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on securities and thus, securities. *See id.* This conclusion is somewhat justifiable with respect to the call option, which is at least in the form of an option, but the swap is more difficult to explain. The SEC's finding that a swap is in fact an option raises the possibility of a broader jurisdiction for the SEC. Previously, swaps had not been classified as securities by the SEC and the SEC provided no basis for changing its position. *See Romano, supra* note 46, at 58.

287. *See Goldman, supra* note 40, at 1121.

288. *See id.* at 1122.

289. *See id.* at 1121 n.45.

290. *See Ervin, supra* note 277, at 112-13 (discussing the regulation of market participants); *see also Craig & Hume, supra* note 4, at 173-74. In its regulatory enforcement against Bankers Trust, the CFTC based its order for sanctions on a finding that Bankers Trust's fiduciary relationship with Gibson made it a "commodity trading advisor" over which the CFTC had jurisdiction." *Id.* The fact that the actual derivative products at issue were not commodities was not relevant. *See id.* The CFTC found Bankers Trust "in violation of 7 U.S.C. § 60(1)(A), which simply prohibits any commodities trading advisor from employing 'any device, scheme or artifice to defraud any client or participant or prospective client or participant.'" *Id.* at 174-75 (quoting Joanne Medero, *OTC Derivatives After Bankers Trust-Compliance Issues*, 95 SIA COMPLIANCE & LEGAL NEWS & NOTES 1, \*16 (1995)).

291. *See Patrikis & Virzera, supra* note 270, at 508.

292. *See Goldman, supra* note 40, at 1122.



## 2. *Broker-Dealer Liability*

Most investor lawsuits arise from losses on derivatives recommended or sold by a broker-dealer. Scarcity of judicial guidance, patchwork regulation, and unclear classification of derivatives make it difficult to predict ultimate liability for losses and even the appropriate cause of action to test liability.<sup>293</sup> The legal claims that have been made by investors against broker-dealers can be "grouped into three broad categories: suitability, authorization, and disclosure claims."<sup>294</sup> These three types of claims have been referred to as the "SAD" phenomenon of litigation over derivatives losses.<sup>295</sup>

### a. *Authority Claims*

There are two causes of action that fall under the heading of "authority" claims: (1) those alleging that the disputed transactions were *ultra vires*;<sup>296</sup> and (2) those claiming that investment in derivatives was never authorized or, if personnel did commit to the transaction, they did not have proper authority to do so.<sup>297</sup>

#### i. *Ultra Vires*

*Ultra vires* claims are most commonly filed by the government using a specific statute that prohibits the transaction at issue.<sup>298</sup> They can also be made by a corporation relying on specific articles of incorporation or bylaws prohibiting the transaction.<sup>299</sup> In

293. See generally Teigland, *supra* note 1, at \*1 (discussing the limited case law and lack of judicial guidance).

294. *Id.* at \*3.

295. *Id.*; see also Holding, *supra* note 13, at A1 (noting the influx of derivatives litigation in Orange County).

296. See generally Charles v. Town of Jeanerette, Inc., 234 So.2d 794, 798 (La. Ct. App. 1970) (defining *ultra vires* as acts beyond the powers conferred upon a municipality by law); State *ex rel.* v. Holston Trust Co., 79 S.W.2d 1012, 1016 (Tenn. 1935) (referring to *ultra vires* as acts beyond the scope of incorporation); Haslund v. City of Seattle, 547, P.2d 1221, 1230 (Wash. 1976) (defining *ultra vires* as acts "performed without any authority to act on the subject"); BLACK'S LAW DICTIONARY 1522 (6th ed. 1990) (defining *ultra vires* as "an act performed without any authority to act on [the] subject").

297. See Teigland, *supra* note 1, at \*7.

298. See *id.* at \*8.

299. See *id.*; see also Holding, *supra* note 13, at A1 ("[D]erivatives can be so diffi-

the most famous case of this type, the British House of Lords ruled that the boroughs of Hammersmith and Fulham should not bear losses from interest-rate swaps.<sup>300</sup> The boroughs argued the investments were impermissible under borough rules, and the House of Lords agreed.<sup>301</sup> The brokers were forced to absorb more than \$70 million in losses.<sup>302</sup> In Orange County's suit against Merrill Lynch, the county asserted an ultra vires claim, alleging that "[a]ny County debts or liabilities incurred in violation of . . . [c]onstitutional and statutory provisions are ultra vires and therefore void."<sup>303</sup> Specifically, it alleged that the California Constitution explicitly barred the reverse repurchase agreements.<sup>304</sup> In addition, California law prohibits counties from taking on more annual debt than revenues generated without approval of two-thirds of the voters.<sup>305</sup> Orange County alleged that Merrill Lynch knew or should have known this.<sup>306</sup> West Virginia made a similar allegation against Morgan Stanley, arguing that speculation transactions should be invalidated because speculation with state funds is prohibited and Morgan Stanley knowingly enabled speculation in violation of the law.<sup>307</sup>

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cult to understand and describe that even a large company or sophisticated county can rarely be sure whether the law or internal policies authorize it to invest in them.").

300. See *Hazell v. Hammersmith & Fulham London Borough Council*, 2 Q.B. 697, 697 (Eng. C.A. 1992); Holding, *supra* note 13, at \*2.

301. See *Hazell*, 2 Q.B. at 698-99.

302. See Holding, *supra* note 13, at \*2.

303. *Orange County Sues Merrill Lynch, Says Firm Breached Fiduciary Duty*, 64 BANKING REP. (BNA) 192, (Jan. 23, 1995), at \*2, available in LEXIS, Banking Library, Bnabnk File.

Under Article XVI, Section 18 of the state constitution, no county "shall incur any indebtedness or liability in any manner or for any purpose exceeding in any year the income and revenue provided for that year" without a two-thirds majority vote by residents, in an election held for that purpose, the lawsuit asserted.

*Id.* (quoting CAL. CONST. art. XVI, § 18).

304. See *id.*

305. See *supra* note 303.

306. See *Craig & Hume, supra* note 4, at 183; *Dominic Bencivenga, Derivatives Litigation: Suits Claim Higher Suitability Standards Apply*, N.Y. L.J., Mar. 16, 1995, at 5.

307. See *State v. Morgan Stanley & Co.*, 459 S.E.2d 906, 912-13 (W. Va. 1995).

### *ii. Unauthorized Transactions*

Investors can also attempt to invalidate transactions by alleging that, although the company may have had the legal capacity to undertake the transactions in question, the officer(s) that committed the company to the transaction did not have the authority to do so.<sup>308</sup> Orange County used this claim against Merrill Lynch, asserting that the county treasurer never had the authority to enter into the derivatives transactions.<sup>309</sup> The OCC requires that banks trading in derivatives confirm that the counterparty has the legal authority to enter into derivatives transactions.<sup>310</sup>

### *3. Corporate Liability and Fiduciary Duty Connected with Derivatives*

A corporation must tread cautiously when considering whether to sue a broker-dealer over a losing derivative. Allegations that a corporate investor was not authorized or sophisticated enough to enter into a particular derivatives transaction gives shareholders ammunition for lawsuits against the corporation.<sup>311</sup> Although no shareholder lawsuit involving derivatives has yet been decided, there are several which are currently pending or have been settled out of court.<sup>312</sup>

Judicial precedent in lawsuits by shareholders against directors generally is rare, and not surprisingly there is a dearth of precedent specifically in the derivatives area.<sup>313</sup> Several formida-

308. See Craig S. Smith & Sara Webb, *Chinese Company Threatens to Sue Lehman Brothers*, WALL ST. J., Dec. 20, 1994, available in 1994 WL-WSJ 2057248; Teigland, *supra* note 1, at \*7.

309. See Craig & Hume, *supra* note 4, at 183.

310. See Patrikis & Virzera, *supra* note 270, at 516.

311. See generally Teigland, *supra* note 1, at \*7 (explaining that shareholders may sue on the basis of unauthorized transactions).

312. See *infra* notes 248-50 and accompanying text.

313. See Joseph W. Bishop, Jr., *Sitting Ducks and Decoy Ducks: New Trends in the Indemnification of Corporate Directors and Officers*, 77 YALE L.J. 1078, 1099 (1968) ("The search for cases in which directors of industrial corporations have been held liable in derivative suits for negligence uncomplicated by self-dealing is a search for a very small number of needles in a very large haystack."); see also 1 DENNIS J. BLOCK ET AL., *THE BUSINESS JUDGMENT RULE: FIDUCIARY DUTIES OF CORPORATE DIRECTORS* 167-72 (5th ed. 1998) (identifying only twelve modern cases as finding ac-

ble obstacles exist for shareholders wishing to sue directors. First, the shareholder must overcome the "business judgment rule," which provides significant protection to directors and officers acting within their authority who enter into a transaction in good faith and with due care.<sup>314</sup> Second, a shareholder has little personal incentive to initiate this type of suit because she is responsible for her legal expenses if she loses, and does not receive any direct recovery if she wins.<sup>315</sup> A shareholder sues on behalf of the corporation for injury to the corporation, and any recovery reimburses this injury.<sup>316</sup> Third, in cases when the shareholder is suing as an individual or as part of a class action, she has to prove some direct loss of shareholder value.<sup>317</sup>

*a. The Business Judgment Rule Generally*

The business judgment rule is a formidable barrier to shareholder-plaintiffs. The rule provides the following:

[T]hat [because] it is both the duty and the right of the board of directors to manage the affairs of the corporation, courts will defer to business decisions made by the board of directors, as long as in making those decisions the directors complied with their fiduciary duties of loyalty, due care and good faith.<sup>318</sup>

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tionable director negligence without a concurrent breach of loyalty or conflict of interest).

314. See 1 BLOCK ET AL., *supra* note 313, at 40.

315. *Cf. id.* at 76-77 (stating that the burden of proof on the plaintiff-shareholder is high).

316. See 1 BLOCK ET AL., *supra* note 313, at 1380-81.

317. See generally *In re Piper Funds, Inc. Institutional Gov't Income Portfolio Litig.*, 71 F.3d 298, 299-304 (8th Cir. 1995) (discussing general class action rules as applied to securities litigation and stating that the shares involved lost over 20% of the value due to derivatives investments), *cert. denied sub nom. Savoie v. Rodney*, 119 S. Ct. 805 (1999). This is often not easy to prove. For example, although Procter & Gamble lost millions of dollars due to derivatives, during the weeks that followed the announcement, the price of its stock outperformed the market.

318. RALPH C. FERRARA ET AL., *SHAREHOLDER DERIVATIVE LITIGATION: BESIEGING THE BOARD* § 5.01 (1996). See generally *Aronson v. Lewis*, 473 A.2d 805, 812 (Del. 1984) (stating that the rule presumes informed business decisions); 1 BLOCK ET AL., *supra* note 313, at 40-43 (stating that the protections of the rule will not apply when the director or officer is interested, did not actually make a decision, made an uninformed decision, or was grossly negligent).

The rule protects directors who have, in diligently performing each of these duties, made honest errors of judgment.<sup>319</sup>

In a treatise entitled *Shareholder Derivative Litigation: Besieging the Board*,<sup>320</sup> the authors set out five rationales for the business judgment rule. First, the business judgment rule limits a court's ability to substitute its own judgment for that of the board, thereby reinforcing the board's duty and right to manage the affairs of the corporation.<sup>321</sup> Second, the business judgment rule acknowledges that corporate boards of directors are generally better qualified to make business decisions than are courts.<sup>322</sup> Third, courts will not hold directors to a standard of knowing hindsight information.<sup>323</sup> Fourth, directors must be free to take risks that are ultimately in the best interests of the corporation.<sup>324</sup> For this reason, no liability exists for decisions made in accordance with a director's fiduciary duties that, for whatever reason, prove to be wrong.<sup>325</sup> Fifth, the business judgment rule creates a degree of certainty and consistency in applying liability for directors.<sup>326</sup>

The business judgment rule functions as both a procedural rule and a substantive rule. As a procedural rule, it creates "a presumption that in making a business decision the directors of a corporation acted on an informed basis [duty of due care], in good faith and in the honest belief that the action taken was in the best interests of the company [duty of loyalty]."<sup>327</sup> This presumption puts the burden on the shareholder to prove that the board breached one of its three fiduciary duties: due care, good faith, or loyalty.<sup>328</sup> As a substantive rule, if the shareholder fails to rebut the presumption and there is some rational business

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319. See FERRARA ET AL., *supra* note 318, § 5.01.

320. *Id.*

321. See *id.* § 5.02.

322. See *id.*

323. See *id.*

324. See *id.*

325. See *Gagliardi v. Trifoods Int'l, Inc.*, 683 A.2d 1049, 1051-52 (Del. Ch. 1996).

326. See FERRARA ET AL., *supra* note 318, § 5.02.

327. *Aronson v. Lewis*, 473 A.2d 805, 812 (Del. 1984).

328. See *Smith v. Van Gorkom*, 488 A.2d 858, 872 (Del. 1985); *Aronson*, 473 A.2d at 812; FERRARA ET AL., *supra* note 318, at § 5.01.

purpose for the decision, the business judgment rule shields the directors from liability.<sup>329</sup>

*b. Fiduciary Duties of Directors*

In exercising the duty of loyalty, a corporate director must never use her office to promote, advance, or effectuate a transaction between the corporation and such person that is not substantively fair to the corporation.<sup>330</sup> This applies as both "an affirmative duty to protect the interests of the corporation and an obligation to refrain from conduct that would injure the corporation and its stockholders or deprive them of profit or advantage."<sup>331</sup>

In order to satisfy the duty of due care, directors must "inform themselves, prior to making a business decision, of all material information reasonably available to them."<sup>332</sup> A director must do more than simply believe that she is acting in the best interest of the corporation.<sup>333</sup> She must act prudently under the circumstances and keep informed of all the information she believes in good faith is material to her decision.<sup>334</sup> In *Smith v. Van Gorkom*,<sup>335</sup> the court described the duty of care as requiring directors to inform themselves of all material information reasonably available to them, including alternatives, before making a business decision.<sup>336</sup> Fully informed decisions made in good faith and believed to be in the best interest of the corporation are judged against a standard of gross negligence.<sup>337</sup> Thus, unless the board of directors breached one of its fiduciary duties, or the decision

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329. See *Sinclair Oil Corp. v. Levien*, 280 A.2d 717, 720 (Del. 1971), *aff'd* 332 A.2d 139 (Del. 1975); *FERRARA ET AL.*, *supra* note 318, at § 5.01.

330. See *Hall v. Tennessee Dressed Beef Co.*, No. 01-A-01-9510-CH-00430, 1996 WL 355074, at \*6 (Tenn. Ct. App. June 28, 1996), *rev'd in part, aff'd in part*, 957 S.W.2d 536 (Tenn. 1997).

331. James E. Spiotto, *Director and Officer Liability: Who Watches the Watchmen?*, in *DERIVATIVES 1996: AVOIDING THE RISK AND MANAGING THE LITIGATION 1996*, at 361, 372 (PLI Comm. L. and Prac. Course Handbook Series No. B-931, 1996).

332. *Aronson*, 473 A.2d at 812.

333. See *Kahn v. Roberts*, 21 DEL. J. CORP. L. 674, 683 (Del. Ch. Dec. 6, 1995), *aff'd*, 679 A.2d 460 (Del. 1996).

334. See *id.*

335. 488 A.2d 858 (Del. 1985).

336. See *id.* at 872.

337. See *Aronson*, 473 A.2d at 812.

in question lacks any rational business purpose, the courts will not second-guess the decision.<sup>338</sup>

If a shareholder rebuts the business judgment rule by showing a breach of fiduciary duty, the burden of proof to establish that the decision at issue satisfied the "entire fairness" standard shifts from the shareholder to the directors.<sup>339</sup> To succeed, the directors must establish that the transaction was accomplished by fair dealing and resulted in a fair price for both the corporation and its shareholders.<sup>340</sup> The following cases demonstrate successful shareholder attempts to rebut the business judgment rule by each of the three available means.

### *c. Breaching the Duty of Care*

In *Van Gorkom*, the Supreme Court of Delaware found that the board of directors was grossly negligent in their duty of care because they failed to act with informed reasonable deliberation in agreeing to a merger proposal.<sup>341</sup> Specifically, some of the directors had conducted a "preliminary study" on the viability of a leveraged buyout.<sup>342</sup> They did not "come up' with a price" for the company but rather simply "ran the numbers" of two somewhat arbitrary share prices to determine the cash flow needed to service the debt that would "probably" be incurred in a leveraged

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338. See *Kahn*, 21 DEL. J. CORP. L. at 684.

339. See *Nixon v. Blackwell*, 626 A.2d 1366, 1375-76 (Del. 1993); *Hall v. Tennessee Dressed Beef Co.*, No. 01-A-01-9510-CH-00430, 1996 WL 355074, at \*7 (Tenn. App. June 28, 1996), *rev'd in part, aff'd in part*, 957 S.W.2d 536 (Tenn. 1997).

340. See FERRARA ET AL., *supra* note 318, § 5.01.

341. See *Van Gorkom*, 488 A.2d at 881; In *Hoye v. Meek*, 795 F.2d 893 (10th Cir. 1986), a bank filed for bankruptcy based on two years of substantial losses resulting from investment in Government National Mortgage Association certificates (GNMAs). See *id.* at 893-95. The bank chairman (1) did not regularly attend board meetings; (2) failed to preside at board meetings; (3) failed to avert exposure to increasing indebtedness as a result of the investment in repurchase contracts for GNMAs that declined in value during periods of rising interest rates; (4) delegated too much authority to his son to make investments and repurchase contracts; and (5) failed to monitor the investment decisions made by his son. See *id.* at 896-97. This behavior led the court to find a breach of the duty of care by failing to make necessary inquiries and keep abreast of investments. See *id.* at 897. The bank chairman was not entitled to the protection of the business judgment rule despite his good faith. See *id.* He was found liable for investment losses incurred by the bank. See *id.* at 893.

342. *Van Gorkom*, 488 A.2d at 865.

buyout.<sup>343</sup> Although these computations were not considered extensive and no conclusion was reached, they became the basis for what the directors referred to as, in the range of a "fair price," for the company.<sup>344</sup> The court pointed out that this does not necessarily equate to the best price.<sup>345</sup> The court found that the business judgment rule did not protect directors who have not informed themselves of all material information reasonably available to them prior to making a business decision.<sup>346</sup>

*d. Breaching the Duty of Loyalty*

In *Doyle v. Union Insurance Co.*,<sup>347</sup> shareholders brought a class action suit against the directors of a mutual insurance company for violating their fiduciary duties by selling the assets of the company to a newly created stock company for less than fair market value.<sup>348</sup> The Supreme Court of Nebraska held, *inter alia*, that the mutual insurance company president and board member breached their duty of loyalty by acting in their own

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343. *Id.*

344. *Id.*

345. *See id.* at 875-76.

346. *See id.* at 888-89. By analogy, *Paramount Comm. Inc. v. QVC Network Inc.*, 637 A.2d 34, 45 (Del. 1994), is instructive. Although this case was not brought by shareholders, but rather by corporations that were tendering offers to merge with Paramount, the court's decision indicates that this case would have met all of the necessary requirements to overcome the business judgment rule. *See id.* In addition, the court indicated that Paramount's justification for its actions would not have stood up to the entire fairness standard. *See id.* The Delaware Supreme Court held that directors violated their fiduciary duties by favoring the Paramount-Viacom transaction over the more valuable unsolicited offer of QVC. *See id.* at 49. Because Paramount decided to sell control, it was required to act on an informed basis and to secure the best value reasonably available to the stockholders. *See id.* Viacom tendered an offer and Paramount conditionally agreed to it. *See id.* at 50. Paramount then entered into a "no shop" agreement with Viacom, stating that it would not consider or accept other offers without self-imposed liability. *See id.* Even after Viacom made an initial offer, Paramount directors had an obligation to search for the best value reasonably available to the stockholders among the subsequent offers. *See id.* In other words, Paramount had a duty to become fully informed on the alternatives available. *See id.* at 51. The court ruled that the Paramount directors' process was not reasonable, and the result achieved for the stockholders was not reasonable under the circumstances. *See id.* at 49.

347. 277 N.W.2d 36 (Neb. 1979).

348. *See id.* at 38.



self-interest in recommending the deal.<sup>349</sup> Evidence suggested they both benefited substantially from the deal: each became a president and received significant salary increases.<sup>350</sup>

*e. Breach of Good Faith*

In *Geygan v. Queen City Grain Co.*,<sup>351</sup> shareholders sought to hold directors liable for engaging in imprudent grain commodity trading.<sup>352</sup> The Ohio Court of Appeals held that by engaging in grain market speculation, a violation of state law, the directors breached their fiduciary duty.<sup>353</sup> Because grain speculation was imprudent and illegal, the business judgment rule was inapplicable to the damages resulting from those transactions. Due to the position of trust held by the directors, a fiduciary relationship exists between them and the corporation as well as the shareholders.<sup>354</sup> Directors are held strictly accountable and liable if the corporate funds are wasted or mismanaged.<sup>355</sup>

The statute that Queen City violated mandated that licensed handlers purchasing agricultural commodities maintain ownership over ninety percent of the value of the handler's obligations in the commodity at all times.<sup>356</sup> The purpose behind the statute's ninety percent rule was to prevent grain handlers from speculating.<sup>357</sup> The directors purposely speculated in grain commodities despite knowing the inherent risks involved in such a venture.<sup>358</sup> By violating the statute, the directors acted in bad faith and breached their duty to Queen City.<sup>359</sup> The business judgment rule does not protect a director who acts in bad faith by engaging in transactions that violate a statute.<sup>360</sup>

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349. *See id.* at 44.

350. *See id.* at 43.

351. 593 N.E.2d 328 (Ohio Ct. App. 1991).

352. *See id.* at 330.

353. *See id.* at 332.

354. *See id.* at 331.

355. *See id.*

356. *See id.* at 332.

357. *See id.*

358. *See id.*

359. *See id.*

360. *See id.*

*f. The Business Judgment Rule Applied to Derivatives Lawsuits*

The business judgment rule has not been directly applied in a case involving losses from derivatives use. Likewise, courts have not answered the question of how shareholders might shift their burden of proof back to directors by demonstrating a breach of duty for losing money in derivatives. Analogous cases involving similar issues,<sup>361</sup> as well as cases that have been settled,<sup>362</sup> provide some answers. According to a number of commentators, shareholders are alleging a breach of the duty of care in order to overcome the business judgment rule in cases involving derivatives losses.<sup>363</sup> Specifically, shareholders allege that directors failed to discover all the information reasonably available to them "regarding the advisability of derivatives as a concept" and whether other alternatives were less risky.<sup>364</sup>

*i. Recent Cases Against Directors for Derivatives Losses*

In a recent suit filed against Rockefeller Center Properties, Inc., shareholders alleged that directors entered into imprudent and wasteful derivatives transactions which brought the company close to bankruptcy.<sup>365</sup> Similarly, misrepresentations and

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361. See, e.g., *Hoye v. Meek*, 795 F.2d 893 (10th Cir. 1986) (holding directors liable for the actual losses incurred due to their negligent investing); *Brane v. Roth*, 590 N.E.2d 587 (Ind. Ct. App. 1992) (awarding damages equal to the loss suffered by the corporation attributable to the directors' negligent failure to hedge grain futures); *Francis v. United Jersey Bank*, 432 A.2d 814 (N.J. 1981) (holding a director liable for corporate funds misappropriated by corporate officers).

362. See e.g., *In re Piper Funds, Inc. Institutional Gov't Income Portfolio Litig.* (D. Minn); *Axler v. Wagner*, No. 94-CV-3097 (E.D. Pa.).

363. See generally *Smith v. Van Gorkom*, 488 A.2d 858, 872-73 (Del. 1985) (describing the fiduciary duty of directors as including a duty of care); *Spiotto, supra* note 331, at 372 (stating that directors have a duty of care to make informed business decisions).

364. *Spiotto, supra* note 331, at 373; see *W & W Equip. Co. v. Mink*, 568 N.E.2d 564, 575 (Ind. Ct. App. 1991) ("A director cannot blindly take action and later avoid the consequences by saying he was not aware of the effect of the action he took. A director has some duty to become informed about the actions he is about to undertake.")

365. See *Charal Inv. Co. v. Rockefeller*, Fed. Sec. L. Rep. (CCH) ¶ 98,979, at 93,761 (Del. Ch. Nov. 7, 1995). This suit was dismissed because the shareholders had filed their lawsuit before a special litigation committee had decided on the va-

omissions in public statements concerning a company's financial results and accounting for derivatives contracts resulted in a class action against the company.<sup>366</sup> Most cases recently resolved or still pending involve shareholders of funds suing fund managers for misrepresentation and violation of investment objectives by including derivatives within the fund's portfolio.<sup>367</sup> Most commonly, the complaints allege violations of the antifraud provisions of the securities law and the Investment Company Act,<sup>368</sup> as well as common law fraud, negligence, and breach of fiduciary duty.

### *B. Corporate Liability for Failure to Use Derivatives and Fiduciary Duty to Affirmatively Use Them*

Although shareholders sue directors for derivatives losses, many corporations suffer losses because directors have failed to minimize risk exposure. This implies that corporate directors have a duty to investigate the viability of using derivatives as a proven risk-reducing tool, and shareholders have a cause of action to enforce the duty.

In *Levy v. Bessemer Trust Co.*,<sup>369</sup> a client of a financial management and investment advisory service sued the firm for negligence, gross negligence, negligent misrepresentation, breach of fiduciary duty, breach of the duty to supervise, and fraud.<sup>370</sup> Levy, the client, held most of his portfolio in one company's stock with restrictions on his ability to sell.<sup>371</sup> He repeatedly

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licity of the shareholders' pre-suit demand letter. *See id.* at 93,763.

366. *See Axler v. Wagner*, No. 94-CV-3097 (E.D. Pa.). This case has been settled out of court.

367. *See, e.g., Spiotto, supra* note 331, at 389; *In re Piper Funds, Inc. Institutional Gov't Income Portfolio Litig.*, 71 F.3d 298, 300 (8th Cir. 1995) (involving a class action suit that alleged negligent misrepresentations, breach of fiduciary duty, and violations of the federal securities laws, which settled for \$70 million); *Smith v. Citron*, (C.D. Cal.) (consisting of a class action that alleged the defendants recklessly gambled with public money by investing in high risk, volatile derivatives which were excessively leveraged and not adequately hedged against loss).

368. 15 U.S.C. § 80(a)-15(c) (1994) (creating specific duties for fund directors, including the duty to examine all the information necessary to evaluate the terms of investment advisory contracts and make other decisions vested in them by the Act).

369. No. 97 Civ. 1785 (JFK), 1997 WL 431079, at \*1 (S.D.N.Y. July 30, 1997).

370. *See id.*

371. *See id.*

asked Bessemer Trust Company (BTC), his brokerage firm, to protect his investment from downward movement in the stock price.<sup>372</sup> BTC replied that due to the restrictions on his ownership, there was no "immediate protection from downward price movement."<sup>373</sup> A broker at another firm informed Levy some six months after hiring BTC, that indeed there was protection from downward price movement.<sup>374</sup> The competing dealer recommended a "European options collar", a combination put and call option.<sup>375</sup> If BTC had entered into this type of transaction for Levy six months earlier, his stock price would have a floor of \$33.33 per share and a ceiling of \$44 per share.<sup>376</sup> By the time Levy had fired BTC and hired another broker to enter the transaction, however, his price floor was \$24.75 per share and capped at \$31.90 per share.<sup>377</sup>

The district court denied the defendant's motion to dismiss, allowing the claims to go forward as sufficient to state a cause of action.<sup>378</sup> Levy alleged inter alia that BTC failed to know and advise him of the availability of downside price protection; was unaware of an investment protective strategy available and did not find out about such a strategy despite his repeated inquiries; made misrepresentations about its expertise in asset management and investment advise; breached its fiduciary duty as investment advisor by giving erroneous information and thereby induced him to maintain his account with BTC and forego other advice; and that BTC knowingly made false statements about its services and expertise in order to induce Levy to retain its services.<sup>379</sup>

In *Brane v. Roth*,<sup>380</sup> directors of a rural grain elevator cooperative (co-op) failed to adequately hedge in the grain market and were sued by shareholders for the losses.<sup>381</sup> The co-op's gross

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372. See *id.*

373. *Id.*

374. See *id.*

375. See *id.*

376. See *id.*

377. See *id.* at \*1-2.

378. See *id.* at \*6.

379. See *id.* at \*3-5.

380. 590 N.E.2d 587 (Ind. App. 1992).

381. See *id.* at 589.

profit had fallen continuously for four years.<sup>382</sup> After a substantial loss in the third year, the co-op accountant recommended hedging in the grain market to minimize future losses.<sup>383</sup>

Directors gave authority to hedge to an inexperienced manager. Only \$20,050 of the co-op's \$7,300,000 in grain sales were hedged. The court found probative evidence that the co-op's losses were due to a failure to hedge.<sup>384</sup> The court ruled that the directors breached their duties by: (1) retaining a manager inexperienced in hedging; (2) failing to maintain reasonable supervision over him; (3) failing to have knowledge of hedging fundamentals, and the ability to direct hedging activities; and (4) acting in a grossly inattentive manner. The court found that failing to minimize risk to grain profits caused the loss of \$424,038.89.<sup>385</sup>

Plaintiffs overcame the business judgment rule by showing that the directors failed to inform themselves of all material information available. This case implies that directors have a duty to hedge against business risk if it could thereby be reduced. Additionally, a director's duty of care dictates that it have sufficient knowledge of hedging strategy and that it consider all alternatives reasonably available. In the context of derivatives, directors would have a duty to consider derivatives as alternative hedging tools if hedging would reduce business risks. In conjunction with the logic of *Paramount Communications*<sup>386</sup> and *Van Gorkom*,<sup>387</sup> if derivatives prove to be the most beneficial tool available to hedge risk, directors have a duty to use them.

Shareholders suing on this theory must overcome the business judgment rule. Three ways to overcome the rule were presented above: proving (1) breach of the duty of care; (2) breach of the duty of loyalty; or (3) failure to act in good faith. These tactics are equally applicable to plaintiffs suing for failing to use derivatives; however, a fourth method exists to overcome the rule where inaction, rather than imprudent action, is the complaint. The business judgment rule provides no protection to directors

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382. *See id.*

383. *See id.*

384. *See id.*

385. *See id.* at 592.

386. *See supra* note 346.

387. *See supra* notes 335, 341-46 and accompanying text.

who have adequate information indicating a course of action, but fail to act absent a conscious decision not to act.<sup>388</sup> According to the Delaware Supreme Court, this is neglect, and as such should be judged by a negligence standard rather than gross negligence.<sup>389</sup> With a lower standard for a plaintiff, the business judgment rule is no longer an insurmountable obstacle in these types of cases.<sup>390</sup>

### *C. Measuring Shareholder Losses Caused by Not Using Derivatives*

Asset-pricing models can be used to quantify the loss that a firm's shareholders suffer when the firm does not use derivatives. This section discusses the two major asset-pricing models: the Capital-Asset Pricing Model and Arbitrage Pricing Theory. It shows how an ex post variant of Arbitrage Pricing Theory can be used to quantify the risk that shareholders face when a firm does not use derivatives,<sup>391</sup> and it provides an example of how using derivatives could have greatly reduced the foreign-currency risk that shareholders of one firm faced.

#### *1. The Capital-Asset Pricing Model*

The Capital Asset-Pricing Model (CAPM) is a capital market theory that provides that, in equilibrium, a security will have an expected return that is a positive linear function of its covariance with the market portfolio.<sup>392</sup> A security's total risk

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388. See Spiotto, *supra* note 331, at 373.

389. See *Rabkin v. Phillip A. Hunt Chem. Corp.*, 547 A.2d 963, 972 (Del. Ch. 1986).

390. See *id.*; Spiotto, *supra* note 331. However, other "commentators have concluded that a gross negligence standard may be appropriate." *Id.* at 374.

391. For more on the distinction between ex ante and ex post asset pricing models, see Edward S. Adams & David E. Runkle, *Solving a Profound Flaw in Fraud-on-the-Market Theory: Utilizing a Derivative of Arbitrage Pricing Theory to Measure Rule 10b-5 Damages*, 145 U. PA. L. REV. 1097 (1997).

392. "Market portfolio" as used here is a term of art. The market portfolio in the context of the CAPM specifically refers to:

A portfolio containing all marketable assets in proportions  $x_i$ , where  $x_i =$  total value of assets: total value of all assets in the market. The reason all marketable assets must be in [the market portfolio] is simply that if an asset were not in [the market portfolio], no investor would own it and

can be divided into unsystematic risk, that portion unique to the company that can be diversified away, and systematic risk, the nondiversifiable portion that is related to the movement of the stock market and is therefore unavoidable.<sup>393</sup> The CAPM is characterized by the descriptive equation,  $r_i = r_f + \beta_i(r_m - r_f)$ , where  $r_i$  is the expected return on security  $i$  for the period,  $r_m$  is the expected return on the market portfolio for the period,  $r_f$  is the return on a risk-free security<sup>394</sup> for the period, and  $\beta_i$  is the sensitivity or risk coefficient of security  $i$  relative to the market portfolio—that is,  $\beta_i$  is a measure of security  $i$ 's systematic risk. The CAPM indicates that investors do not receive unsystematic risk compensation in equilibrium; they receive only the risk-free rate and a risk premium proportional to a security's level of systematic risk. In sum, the CAPM signifies that, given market conditions expressed in  $r_m$  and  $r_f$ , the expected return on a security is a linear function of the security's systematic risk. The greater the risk, the greater the expected return.

Because a well-diversified portfolio can eliminate company-specific risk, investors are not compensated for bearing unsystematic risk. Furthermore, because properly diversified investors are exposed only to systematic risk, with the CAPM, the relevant risk in the trade-off between the financial market's risk and expected return is systematic rather than total risk. Therefore "an investor is rewarded with higher expected returns for bearing only market-related risk."<sup>395</sup>

"Beta is the standard measure of risk in the CAPM. It [measures] the tendency of the return of a security to move in parallel with the return of the stock market as a whole."<sup>396</sup> Thus, beta can be thought of as a measure of a security's volatility relative to the market's volatility. "In [the] CAPM, the risk premium is

thus markets would not clear.

GORDON J. ALEXANDER & JACK CLARK FRANCIS, *PORTFOLIO ANALYSIS* 109 (Ezra Solomon ed., 3d ed. 1986).

393. See David W. Mullins, Jr., *Does the Capital Asset Pricing Model Work?*, *HARV. BUS. REV.*, Jan.-Feb. 1982, at 107.

394. As used herein, risk-free means that the nominal return for the period is known with certainty. The term does not consider risks to the purchasing power of the principal from inflation.

395. Mullins, *supra* note 393, at 107.

396. *Id.* at 108.

measured as beta [multiplied by] the expected return on the market less the risk-free rate. The risk premium of a security is a function of the risk premium on the market,  $R_m - R_f$ , and varies directly with . . . beta.<sup>397</sup>

If the CAPM describes market behavior correctly, the relevant gauge of a security's risk is its market-related, or systematic, risk measured by beta. "If a security's return bears a strong positive relationship with the return on the market and thus has a high beta, it will be priced to yield a high expected return."<sup>398</sup> Conversely, if a security has a low beta, it will be priced to yield a low expected return.<sup>399</sup>

## 2. *The Arbitrage-Pricing Theory Model*

Somewhat problematically, the CAPM assumes that only one factor, the market excess return, explains the undiversifiable return to any security. However, there are good reasons to believe that other factors can explain stock returns. For example, in the late 1970s and early 1980s, rising interest rates caused the market value of the mortgages owned by savings and loan associations to fall much more rapidly than the market value of their liabilities.<sup>400</sup> In this case, the CAPM could not explain the returns to publicly traded stocks of savings and loans as well as an asset-pricing model that included both the market excess return and bond returns.<sup>401</sup>

Arbitrage-Pricing Theory (APT), like the CAPM, is a theory of asset pricing that describes the cross-section of returns of assets in equilibrium as a linear function of systematic risk. However, unlike the CAPM, which explains the cross-section of returns as a function of the "covariance between asset returns and an endogenous preference-based aggregate,"<sup>402</sup> APT explains the cross-

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397. *Id.* The assumption of proper diversification has eliminated the need for a measure of unsystematic risk in the risk premium. *See id.*

398. *Id.*

399. *See id.* Financial markets price securities according to systematic risk. *See id.*

400. *See* Mark J. Flannery & Christopher M. James, *The Effect of Interest Rate Changes on the Common Stock Returns of Financial Institutions*, 39 J. FIN. 1141, 1148-52 (1984).

401. *See id.*

402. Jay Shanken, *Multi-Beta CAPM or Equilibrium-APT?: A Reply*, 40 J. FIN.



section of returns as a function of the "covariance between asset returns and factors in the return generating process."<sup>403</sup> APT holds that "the expected return on any asset is directly related to that asset's sensitivity to unanticipated movements in major economic factors."<sup>404</sup>

In both the APT and the CAPM, it is assumed that unsystematic risk can be eliminated by proper diversification. The APT further assumes that competitive forces in the market quickly, and without bias, eliminate arbitrage profit opportunities. The absence of arbitrage opportunities means that "investor[s] cannot earn a positive expected rate of return on any combination of assets . . . without making some net investment."<sup>405</sup> The absence of arbitrage profits follows from the APT's assumption that investors prefer more return to less for a given level of risk and prefer less risk to more for a given level of return. Investors acting in accordance with this assumption therefore will change their portfolio asset composition by assuming both long and short positions when given an opportunity to increase return without increasing risk or decrease risk without decreasing return. In summary, the APT assumes a world in which "the relationship between return and risk will be determined by self-interested investors who will exploit opportunities to build portfolios of short and long positions, while making zero investment [as the proceeds from the short positions finance the long positions] but certain, positive returns."<sup>406</sup>

The APT return-generating process is characterized by the following linear  $K$ -factor model:

$$R_{it} = E_i \sum_{k=1} b_{ik} \delta_{kt} - it^v \quad [1]$$

1189, 1189 (1985).

403. *Id.*

404. Richard Roll & Stephen A. Ross, *The Arbitrage Pricing Theory Approach to Strategic Portfolio Planning*, FIN. ANALYSTS J., May-June 1984, at 14, 18.

405. Michael A. Berry et al., *Sorting Out Risks Using Known APT Factors*, FIN. ANALYSTS J., Mar.-Apr. 1988, at 29-30.

406. Dorothy H. Bower et al., *Arbitrage Pricing Theory and Utility Stock Returns*, 39 J. FIN. 1041, 1043 (1984).

where:

$R_{it}$  is the return on asset  $i$  between dates  $t-1$  and  $t$ ,  $E_i$  is the asset's expected return,  $\delta_{kt}$  is the realization of the  $k$ th common factor (normalized to have a zero population mean),  $b_{ik}$  is the sensitivity of the return of asset  $i$  to the  $k$ th common factor (called the factor loading), and  $\epsilon_{it}$  is the . . . [unsystematic] return on the  $i$ th asset, which is assumed to have zero mean and finite variance, and to be sufficiently independent across securities so that . . . [unsystematic] risk can be eliminated in large well-diversified portfolios.<sup>407</sup>

The APT further assumes that investors "agree on both the factor coefficients,  $[b_{ik}]$  and the expected returns,  $E_i$ ."<sup>408</sup> The return-generating process described by equation [1] states that the return to an asset is equal to the asset's expected return ( $E_i$ )<sup>409</sup> plus the asset's unanticipated return ( $b_{ik} \delta_{kt}$ )<sup>410</sup> plus the asset's unsystematic risk return ( $\epsilon_{it}$ ).<sup>411</sup>

The developer of the APT, Stephen A. Ross,<sup>412</sup> as well as others, demonstrated that:

absence of riskless arbitrage opportunities implies that expected returns  $[E_i]$  must satisfy (approximately):

$$E_i = \lambda_0 + b_{i1}\lambda_1 + \dots + b_{iK}\lambda_K, \quad [2]$$

as the number of assets satisfying the factor model [1] tends toward infinity where  $\lambda_0$  is the intercept of the pricing relation and  $\lambda_k$  is the risk premium on the  $k$ th common factor,  $k = 1, \dots, K$ .<sup>413</sup>

407. Bruce N. Lehmann & David M. Modest, *The Empirical Basis of the Arbitrage Pricing Theory*, 21 J. FIN. ECON. 213, 215 (1988).

408. Richard Roll & Stephen A. Ross, *An Empirical Investigation of the Arbitrage Pricing Theory*, 35 J. FIN. 1073, 1082 (1980).

409. The sum of the asset's returns to anticipated changes in the systematic risk factors.

410. The sum of the asset's return to unanticipated changes in the systematic risk factors.

411. The return to the asset's unsystematic risk, a return that is assumed to have a mean of zero.

412. Ross developed APT in *The Arbitrage Theory of Capital Asset Pricing*, 13 J. ECON. THEORY 341 (1976).

413. Lehmann & Modest, *supra* note 407, at 215.

Roll points out that in equation [2]:

If there is a riskless asset with return,  $E_o$ , then  $b_{oi} = 0$  and

$$E_o = \lambda_o,$$

hence [equation 2 may be expressed as follows]

$$E_i - E_o = \lambda_1 b_{i1} \dots \lambda_k b_{ik},$$

with the understanding that  $E_o$  is the riskless rate of return if such an asset exists, and is the common return on all "zero-beta" assets, i.e., assets with  $b_{ij} = 0$ , for all  $j$ , whether or not a riskless asset exists. . . .

. . . .

The pricing relationship [ $E_i = \lambda_o \lambda_1 b_{i1} \dots \lambda_k b_{ik}$ ] is the central conclusion of the APT . . . , but it is natural to ask what interpretation can be given to the  $\lambda[k]$  factor risk premia. By forming portfolios with unit systematic risk on each factor and no risk on other factors, each  $\lambda[k]$  can be interpreted as  $\lambda[k] = E[k] - E_o$ , the excess return or market risk premium on portfolios with only systematic factor  $k$  risk. Then [ $E_i = \lambda_o \lambda_1 b_{i1} \dots \lambda_k b_{ik}$ ], can be rewritten as,

$$E_i - E_o = (E_1 - E_o) b_{i1} \dots (E_k - E_o) b_{ik}.^{414}$$

The assumptions of the APT, like those of the CAPM, tend to differ as the theoretical derivation of the model under investigation tends to vary from the original proponent's explication. As a general matter, it is acknowledged that the assumptions of the APT are less restrictive than those of the CAPM. In addition to the assumptions detailed above, the following assumptions, or a subset of the following assumptions, are common to theoretical derivations of the APT:

1. Each asset has small idiosyncratic [unsystematic] variance, i.e.,  $\text{var}(E_i)$  is small.
2. Each asset has small supply in the economy (at least in

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414. Roll & Ross, *supra* note 408, at 1078-79.

the limit).

3. There is a portfolio which, up to a constant, mimics factor  $j$  (at least approximately, perhaps in the limit).
4. Some agent holds a well-diversified portfolio that does not contain any idiosyncratic risk.
5. There is no arbitrage (directly or in some asymptotic sense).
6. There is Pareto efficiency and/or aggregation. . . .
8. All assets are in positive supply.<sup>415</sup>

### *3. Using Arbitrage-Pricing Theory to Determine Hedging Strategies*

The APT can be used to determine empirically both risks the shareholders of a firm face and derivative strategies that can be used to reduce those risks. For example, if the APT showed that a firm's stock price was sensitive to bond returns or changes in foreign-exchange rates, the APT can also show how hedging can reduce that risk. Suppose, for instance, that both overall stock returns and the returns to ten-year bonds affected the stock price of a particular bank. Furthermore, assume that linear regression analysis showed that this relation took the following form:

$$r_i = \alpha \beta_i(r_m - r_f) \gamma_i r_b$$

where  $r_i$  is the return for the bank's stock,  $r_m$  is market return,  $r_f$  is the risk-free rate, and  $r_b$  is the return on ten-year bonds. Suppose further, that the regression estimates showed that the relation was:

$$r_i = 1.4(r_m - r_f) 0.5 r_b$$

This equation shows that for every 1% increase in the value of the stock market, the value of the bank's stock would rise by 1.4%, on average, with all other factors held constant. A one-

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415. Philip H. Dybvig & Stephen A. Ross, *Yes, the APT Is Testable*, 40 J. FIN. 1173, 1175 (1985).

percent increase in the value of the ten-year bond would be associated with a half-percent increase in the value of the bank's stock.

This regression shows that the bank's shareholders are faced with interest-rate risk. Certainly, the bank should inform its shareholders of that risk. It could also reduce that risk by hedging. One way the bank could hedge would be to take a short position in ten-year bonds—that is, it could hedge by selling bonds.<sup>416</sup> If the bank wanted to eliminate completely its shareholder's interest-rate risk by selling ten-year bonds, it would short bonds with a market value of 0.5 times the market value of the firm's stock. Every one percent decrease in the value of the ten-year bond would be associated with a one-half percent decrease in the value of the firm's stock. However, every one-percent decrease in the value of the ten-year bond would cause a one-half percent increase in the value of the bank's short position in ten-year bonds, offsetting the market loss caused by the unhedged interest-rate sensitivity.<sup>417</sup>

Thus, using regression analysis and the APT can help determine the risks that a firm's shareholders face and suggest how hedging can be used to reduce those risks.

#### *4. An Example of How Failing to Use Derivatives Increased Shareholder Risk*

Micron Electronics, Inc. is the third-largest direct seller of personal computers.<sup>418</sup> In recent years, Micron's stock price has fluctuated greatly, as have the stocks of many computer manufacturers and semiconductor firms. Between July 1997 and January 1998, the value of Micron's shares fell by over fifty percent, causing a loss in market value of over \$900 million.<sup>419</sup>

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416. There are many ways that the bank could hedge using derivatives, including using interest-rate options, swaps, futures, or forwards. The bank could also sell fixed-rate loans or issue long-term fixed-rate liabilities.

417. Hedges with derivatives may actually be easier in this case, but this example is the simplest way to understand how the hedge works.

418. See *Digest*, WASH. POST, Sept. 28, 1999, at E1, available in LEXIS, News Library, Major Newspapers File.

419. See 55 Value Line Investment Survey: Ratings & Reports 1099 (Oct. 22, 1999).

The collapse in Micron's stock price happened at the same time as the turmoil in Asian currency markets, suggesting that there might be a relationship between returns to Asian currencies and the price of Micron's stock. In fact, there is such a relationship. Between the beginning of 1996 and March 1998, the relation between the weekly stock returns for Micron, the returns to the Wilshire 5000 index, and the dollar-dominated returns to the Malaysian ringgit were:<sup>420</sup>

$$ri = 1.53(rm - rf) 0.61 rr \\ (0.45)(0.28)$$

where  $ri$  is the return for the Micron's stock,  $rm$  is the return on the Wilshire 5000,  $rf$  is the risk-free rate, and  $rr$  is the return on the Malaysian ringgit. The numbers in parentheses are the standard errors for the regression coefficients. Both coefficients are significantly different from zero at the five percent level.

This regression suggests that Micron shareholders were subject to substantial foreign-currency risk during this period. Every percentage point decrease in the value of the ringgit was associated with a 0.61% decline in the value of Micron's stock, even after taking into account the relation between movements in Micron's stock price and the Wilshire 5000 index.

Micron shareholders probably were not aware that they faced such substantial foreign currency risk. Micron could have informed them of that specific risk. It failed to do so in any public disclosures made to shareholders. Micron also could have hedged this risk by selling ringgit forward contracts. It failed to do that as well.

Suppose that Micron had sold six-month ringgit forward contracts in July 1997. Then in January 1998, Micron would have gained on its ringgit forward contracts if the value of the ringgit

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420. The Wilshire 5000 is one of the broadest stock-market indices available for the United States. See KENNETH M. MORRIS & ALAN M. SIEGEL, *THE WALL STREET JOURNAL GUIDE TO UNDERSTANDING MONEY & INVESTING* 68 (1993). Thus, it may capture overall stock-price movements better than more narrowly targeted indices. The ringgit was chosen for this illustrative example because there is a market in ringgit forward contracts. The constant is omitted from the regression because its estimated value was zero.

had dropped to a lower value that Micron agreed to in the forward contracts. If Micron had fully hedged its ringgit risk in July, then by January it would have gained over \$400 million on those contracts, which would have reduced Micron shareholders' losses by almost forty-five percent.<sup>421</sup>

Thus, it appears that more than \$400 million in Micron shareholder's losses could have been avoided by proper use of derivatives. In this case, not using derivatives exposed shareholders to greater risk than was appropriate, we contend, given the steps Micron could have easily taken to mitigate such risk—a breach of its fiduciary duty to its shareholders.<sup>422</sup>

#### IV. HOW CAN DERIVATIVES BE USED SAFELY?

In light of the previous examples, it is clear that a proper approach to derivatives use is needed. Several private sector risk management initiatives have evolved that propose recommendations for safe and effective derivatives use. The most widely recognized and influential is the 1993 report of the Group of Thirty entitled *Derivatives: Practices and Principles*,<sup>423</sup> and a follow-up survey in 1995 on industry practice.<sup>424</sup> This study was conducted by representatives of dealers, end-users, academics, accountants, and lawyers involved with derivatives and has been endorsed by international regulators.<sup>425</sup> It presents twenty recommendations directed at the OTC derivatives market, but that are also beneficial for corporations. Although these recommenda-

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421. Micron's value in July was approximately \$1.9 billion. See 55 Value Line Investment Survey: Ratings & Reports 1099 (Oct. 22, 1999). If one assumes a 35% gain in the short position of futures contracts between July and January, Micron could have fully hedged by taking a short ringgit position of 0.61 dollars worth of ringgits for every dollar in Micron's market value. The resulting gain on the short position would have been  $0.61 \times 0.35 \times \$1.9 \text{ billion} = \$413 \text{ million}$ .

422. It might have been easier for individual shareholders to have hedged themselves against the foreign currency risk if they had been aware of it than for Micron to have taken such a large ringgit position itself.

423. See GROUP OF THIRTY, *supra* note 40.

424. See Joanne T. Medero, *Managing Risk of Derivatives—Recent Developments Affecting Dealers and End-Users*, in 27TH ANNUAL INSTITUTE ON SECURITIES REGULATION 1995, at 409 (PLI Corp. L. and Prac. Course Handbook Series No. B-907, 1995).

425. See Joanne T. Medero, *Swaps and Other Derivatives: Regulatory and Legislative Developments*, 10 S&P'S REV. OF BANKING & FIN. SERVS. 117, 117 (1994).

tions are "without the force of law," many market participants have adopted or incorporated them into their own internal policies and procedures.<sup>426</sup> The common thread running through all of the recently proposed initiatives is the emphasis on management controls. This is not unusual considering that the lack of management controls was a contributing factor in each of the derivatives case studies presented above. According to Leslie Rahl, a principal in Capital Market Risk Advisors Inc., a financial consulting firm in New York, "[i]t's not derivatives causing the problem, but a lack of management controls, and process."<sup>427</sup>

### A. *EPIC Management Control System*

This Article embraces the Group of Thirty recommendations and proposes a four step process for sound, effective derivative use: the EPIC management control system. The four steps are: education, policy, implementation, and control.

#### 1. *Education*

EPIC's first step is complete corporate education with respect to derivatives and risk exposure. Consequently, senior management must take all necessary steps to ensure that those in the institution responsible for carrying out the policies regarding derivatives be educated properly.<sup>428</sup> According to Brandon Becker, Director of the Market Regulation Division of the SEC, the best protection in an OTC derivatives transaction is an "informed investor."<sup>429</sup> An informed investor must understand both how and when to use derivatives and understand the firm's risks. Understanding how and when to use derivatives includes

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426. See generally *Hearings*, *supra* note 203, at 167 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.).

427. Bencivenga, *supra* note 63, at 5.

428. See Roger D. Blanc, *Developing Internal Controls to Manage Derivatives*, *INSIGHTS*, Apr. 1995, at 9.

429. *Fields Says No Immediate Need for OTC Derivatives Legislation*, *Banking Rep.* (BNA), (Feb. 27, 1995); see Nusbaum, *supra* note 246, at 62. Woody Teel, the executive vice president at Bank of America who heads Bank of America's trading exposure, control and compliance department, considers "a knowledgeable board of directors" the first of six recommendations "for an effective risk management structure." *Id.* at 62-63.



knowing the types of derivatives that are available, how each functions within a particular investment strategy and the advantages and disadvantages of each. Understanding the firm's risks encompasses "identify[ing] the full scope of risks [to which] the business is exposed" and understanding the variables that effect those exposures.<sup>430</sup> In addition, it is important to know the firm's tolerance for loss. In other words, determining how much loss the firm can shoulder realistically.

## 2. Policy

The second step of the EPIC management control system involves setting the corporate derivatives policy. A policy concerning derivatives should be instituted with the active participation of the board of directors and senior management<sup>431</sup> and should consist of a statement explaining the purpose for the use of derivatives. It should also include the extent to which derivatives will be used in pursuit of the overall business objectives<sup>432</sup> and a clear and concise risk management policy. The risk management policy should establish specific and consistent risk management expectations by setting limits to market and credit risk exposure<sup>433</sup> as well as guidelines to minimize legal<sup>434</sup> and liquidity risk.<sup>435</sup>

These policies should be communicated in unambiguous terms and distributed in writing to senior management and all those involved in any of the phases of the EPIC management control system. Without the completion of the educational phase, however, the objectives and directives of the corporate derivatives policy

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430. *Using Derivatives*, *supra* note 200, at 34.

431. *See generally id. passim* (providing eight experts' comments regarding the importance of derivative knowledge by every top-level manager).

432. *See* Blanc, *supra* note 428, at 9; *Derivatives Reconsidered*, *supra* note 56, at \*3.

433. *See Using Derivatives*, *supra* note 200, at 34.

434. *See infra* notes 478-90 and accompanying text.

435. The EPIC management system as a whole is designed to minimize operational risk. Systemic or liquidity risk is largely beyond the control of a single entity. Essentially it requires the cooperation of large portions of the market in order to minimize these risks. A few recommendations of activities a single entity can take to help reduce liquidity risk are mentioned later in this section, but a complete discussion of this type of risk management is beyond the scope of this Article.

will be meaningless because of the diverse levels of understanding regarding derivatives, risks and investment strategies.

### 3. *Implementation*

The third step of the EPIC management control system is the implementation of "a comprehensive derivatives' [investment] strategy designed to clarify the specific circumstances under which [the corporation] will use derivatives."<sup>436</sup> The purpose of this strategy is to aid a corporation in meeting the goals established in the derivatives policy. The implementation of the investment strategy should always involve the active participation of the board of directors and senior management and be consistent with the board's authorization.<sup>437</sup> The goals and resources will vary from firm to firm and there is no boilerplate strategy that will be effective for all firms; however, several recommendations apply almost universally. First, derivative use should correspond in quantity, complexity, and risk with the objectives of the corporation.<sup>438</sup> Second, unnecessary risk should be avoided in the areas of speculation and leveraging.<sup>439</sup> Consequently, derivatives should be used almost exclusively for hedging. Hedging strategies should involve views on market direction. Investors should not use derivatives to increase expected short term profits, but rather to adjust exposures to risk.<sup>440</sup> The general rule should be to use derivatives as a means of shifting risk and not as a means of trading in risk.<sup>441</sup> If a corporation decides to avoid risk by employing derivatives exclusively as a hedging instrument, it is advisable to express this intention clearly to all individuals involved in the trading of derivatives and to set clear

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436. *Derivatives Reconsidered*, *supra* note 56, at \*3.

437. *See id.* According to the Economist Intelligence Report, most companies are currently employing derivatives with senior management involvement and approval. *See id.*

438. *See Using Derivatives*, *supra* note 200, at 34. Barings and Gibson are prime examples of inappropriate quantity. Gibson is a textbook example of inappropriate complexity. Orange County and Barings are examples of inappropriate risk.

439. *See id.*

440. *See id.* at 37; *Derivatives Reconsidered*, *supra* note 56, at \*3.

441. *See Using Derivatives*, *supra* note 200, at 37.

and unambiguous guidelines to reinforce those expectations.<sup>442</sup> Because leveraging magnifies the risk of a transaction, it should be avoided in most cases. The third recommendation is to avoid the use of derivatives that are extremely complex.<sup>443</sup> Most hedging can be accomplished with fairly straightforward derivatives. Fourth, any personnel authorized to engage in derivatives transactions must be well-qualified, appropriately trained, and informed of the firm's investment strategy and tolerance for loss. Fifth, senior management should indicate clearly "the lines of decision-making authority" for the investment of derivatives.<sup>444</sup> Sixth and finally, a timely derivatives activities report should be given to senior management so as to keep them informed of the current derivatives investment status.<sup>445</sup>

#### 4. Control

The final step in the EPIC management control system is the control phase. Here, the investor must establish and maintain a key set of internal controls to ensure that all of the derivatives transactions taking place are authorized and in accord with the policies and strategies that have been enacted, and that any deviations from these standards are reported.<sup>446</sup> This control mechanism is accomplished by the use of a valuation procedure that incorporates all of the relevant risk factors and produces a model of possible outcomes that are compared with actual performance.<sup>447</sup> All of the analyzed risk exposures should be quantified using ranges and relative probabilities because no single value method currently exists.<sup>448</sup> It is critical to the effectiveness

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442. *See id.*

443. Always remember Gibson Greetings. *See generally* Craig & Hume, *supra* note 4 (discussing the plight of Gibson Greetings).

444. *Using Derivatives*, *supra* note 200, at 36.

445. *See id.*

446. *See* Adams & Runkle, *supra* note 391, at 21-22, 24-25; Blanc, *supra* note 428, at 9. The Group of Thirty recommendations have been very influential in this phase of the EPIC management control system. *See Derivatives Reconsidered*, *supra* note 56, at \*3; *Using Derivatives*, *supra* note 200, at 36.

447. *See* Nusbaum, *supra* note 246, at 63 (presenting six recommendations made by Woody Teel, the Executive Vice President of Bank of America).

448. *See supra* notes 391-417 and accompanying text (discussing risk measurement mechanisms); *see also Using Derivatives*, *supra* note 200, at 34. Well-reasoned

of the overall control mechanism that all derivatives positions and risk exposures are monitored frequently and regularly by well-qualified and knowledgeable people.<sup>449</sup> A system of checks and balances is also recommended for the collection and disbursement of derivatives transactions information in order to prevent a repeat of the Barings Bank disaster, and as a means of analyzing the data received from those with varying levels of derivatives experience and risk tolerance.<sup>450</sup> A recent GAO report<sup>451</sup> recommended that two separate groups, one of traders with customer contact and one of administrative staff with accounting and operations responsibility, provide a desirable check on each other as long as each is independent of unwanted influences and each other.<sup>452</sup> For example, a risk manager should not report to anybody whose compensation depends on revenues from trading or receive bonuses based on the revenue performance of the traders they monitor.<sup>453</sup>

### *B. Managing Risk*

To understand how this type of control mechanism helps to manage risk, it is helpful to understand how each of the five primary types of risk associated with all investments is minimized by the use of this process. The principal risks associated with derivatives include: market risk, credit risk, legal risk, liquidity or systemic risk, and operational risk.

#### *1. Market Risk*

Market risk is the exposure to the possibility of financial loss caused by adverse changes in the values of assets or liabilities.<sup>454</sup> This risk exists in all investments. Managing market risk can be

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quantification involving ranges and probability, although admittedly imperfect, can be a powerful tool in reducing risk exposure. *Id.*

449. See Nusbaum, *supra* note 246, at 62-63; see also Adams & Runkle, *supra* note 391, at 24-25.

450. See *Using Derivatives*, *supra* note 200, at 36.

451. See GAO REPORT, *supra* note 32, at 24.

452. See Nusbaum, *supra* note 248, at 63.

453. See *id.*

454. See GAO REPORT, *supra* note 32, at 60.

very complex.<sup>455</sup> It requires measuring market risk, which in turn is dependent upon an accurate valuation of the instrument.<sup>456</sup> This can be difficult because many factors affect derivatives' values. "Accurately measuring the market risk for derivatives portfolios requires the use of modern computer systems and software that rely on the most advanced mathematical, statistical, and database techniques."<sup>457</sup> Once a computer valuation model is created, mark to market<sup>458</sup> the derivatives portfolios on a regular basis, preferably at least once a day.<sup>459</sup> This will produce a measure of the derivatives' current values that can be used to gather information about market risk.<sup>460</sup>

Market risk can be calculated using the value-at-risk methodology. In spite of the described inaccuracies inherent in this methodology, it is considered an accepted risk measurement mechanism.<sup>461</sup> Once the amount predicted to be lost from an adverse market movement is determined, this amount should be compared to market risk limits that have been agreed upon by senior management and the board of directors. This comparison acts as a way to evaluate the current derivatives strategy. In addition, it enables the investor to implement an appropriate hedging strategy to minimize these excessive market risks. It is important to note that an unanticipated positive performance is just as dangerous as an unanticipated negative performance.<sup>462</sup> Both results indicate that some aspect of the derivatives strategy has not been understood properly.<sup>463</sup> Although value-at-risk is useful for monitoring daily market risk exposure, it does

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455. See *id.*; see also Brandon Becker & Francois Mazur, *Risk Management and Internal Controls*, in 27TH ANNUAL INSTITUTE ON SECURITIES REGULATION, 1995, at 351 (PLI Corp. L. and Prac. Handbook Series B-907, 1995) (discussing the management of specific types of risk).

456. See GAO REPORT, *supra* note 32, at 60.

457. *Id.*

458. "Mark to market" refers to revaluing the investment instrument at the end of the trading day based on prices established during the trading session.

459. Intraday or real time valuations provide even greater accuracy and assurance in risk management calculations. See Becker & Mazur, *supra* note 455, at 369.

460. See *id.* at 369-70; *Hearings*, *supra* note 203 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.).

461. See Becker & Mazur, *supra* note 455, at 371.

462. See *Using Derivatives*, *supra* note 200, at 34.

463. See *id.*

not provide an accurate representation of the maximum potential loss. In order to determine how unusually volatile events will effect the market risk exposure and valuation of a portfolio, stress tests should be conducted.<sup>464</sup>

## 2. Credit Risk

Credit risk is the risk that a counterparty will not have sufficient resources to meet the obligations contained in the contract and thus will default.<sup>465</sup> "Managing . . . credit risk can be difficult because the extent of exposure can change rapidly."<sup>466</sup> "Credit risk [exposure can be minimized] and controlled by implementing procedures to measure and monitor credit risk exposure, executing . . . netting agreements<sup>467</sup> with counterparties, and seeking collateral or other credit enhancements."<sup>468</sup> The first step in managing credit risk is full and accurate measurement of the credit risk associated with the derivatives. It is recommended that two individual credit risk measurements be computed: one measuring the current level of credit risk exposure and the second measuring the potential level of credit risk exposure.<sup>469</sup> The current exposure measurement, as the name implies, measures the credit risk exposure level at a given point in time. The potential exposure measurement is an estimate of the worst case

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464. See *Hearings, supra* note 203, at 237 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.); Becker & Mazur, *supra* note 455, at 372.

465. See *Hearings, supra* note 203, at 237 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.).

466. GAO REPORT, *supra* note 32, at 56.

467. A netting agreement is defined by the Federal Deposit Insurance Corporation Improvement Act of 1991 as

a contract or agreement between [two] . . . financial institutions that . . . is governed by the laws of the United States, any State, or any political subdivision of any State, and . . . provides for netting present or future payment obligations or payment entitlements (including liquidation or close-out values relating to the obligations or entitlements) [between] the parties to the agreement. . . .

Federal Deposit Insurance Corporation Improvement Act of 1991, Pub. L. No. 102-242, § 402(14), 105 Stat. 2236, 2373. This means that a netting agreement is enforceable, notwithstanding the insolvency of one of the parties.

468. Becker & Mazur, *supra* note 455, at 374.

469. See *id.*

scenario over a certain time period. An investor should total all of the credit risk to which it is regularly exposed because credit risk can change rapidly. To minimize the impact of credit risk exposure, it is important to establish limits on the amount of exposure per each counterparty individually<sup>470</sup> and to avoid concentrating derivatives transactions with a single counterparty.<sup>471</sup> Once credit risk limits are set for each counterparty, credit risk exposures for each counterparty should be compared regularly to the established limits.<sup>472</sup> As with market risk management, it is critical that credit risk management be independent to ensure objectivity.<sup>473</sup> Investors can take at least two steps to reduce both current and potential credit risk exposure. First, investors are advised to enter into bilateral netting agreements to reduce credit risk exposure.<sup>474</sup> A bilateral netting agreement is a contract between counterparties in which the parties agree to be bound by the obligations of the investment transactions even in the face of insolvency. Second, investors are advised to consider using credit enhancements, such as collateral, guarantees, and letters of credit to reduce credit risk exposure.<sup>475</sup>

### 3. *Legal Risk*

There are two types of legal risk. One type of legal risk refers to the possibility of financial loss resulting from an action by a court, a regulatory entity, or a legislative body that invalidates a financial contract.<sup>476</sup> The second type of legal risk refers to the possibility of financial loss when a party to a contract is deemed, by law, to have lacked the authority to have entered into the contract.<sup>477</sup> These types of risks can exist in any contract and are not unique to derivative contracts.

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470. See *Using Derivatives*, *supra* note 200, at 36. The determination of what to set as a limit can be based on the credit rating of the counterparty. See *id.*

471. See Becker & Mazur, *supra* note 455, at 376.

472. See *id.*

473. See GAO REPORT, *supra* note 32, at 56; Becker & Mazur, *supra* note 455, at 377.

474. See GAO REPORT, *supra* note 32, at 57; Becker & Mazur, *supra* note 455, at 377. For a definition of a netting agreement, see *supra* note 467.

475. See Becker & Mazur, *supra* note 455, at 377.

476. See GAO REPORT, *supra* note 32, at 64.

477. See *id.* at 65.

The status of derivatives can be the cause of legal risk because most of the laws governing their use were enacted prior to the use of many of today's derivatives.<sup>478</sup> In addition, the numerous configurations that a derivative instrument can take often pose problems in determining which law applies to the transaction. Legal risk resulting from the lack of authority of a counterparty has occurred most commonly in the context of a broker entering into an agreement with a government entity that was not authorized to enter into the contract. In these cases, the transaction often is found to be null and void.<sup>479</sup> Unlike market and credit risk, legal risk is not the type that can be managed by setting limits to the extent of allowable exposure and taking action to conform to those limits. Rather, legal risk is minimized most effectively by adopting a best practices guideline. Best practices guidelines are developed by researching the legal status of current derivatives and the authority of the counterparty to enter into transactions.<sup>480</sup> In addition, thorough and concise policies and procedures should be established requiring that all new derivatives transactions involve the legal determination of the status of the transaction and the authority of all counterparties to enter into it.

#### 4. Liquidity Risk

Liquidity risk is the possibility that a disruption in one market will cause further disruption in other markets.<sup>481</sup> The result is a restricted ability to sell, dispose or close out a current position, thus affecting its value.<sup>482</sup> This risk is the same for all investments and is not unique to derivatives.

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478. See Becker & Mazur, *supra* note 455, at 381. One example of a transaction that faces formidable legal risks concerning enforceability in some jurisdictions is a netting agreement when a counterparty has become bankrupt or insolvent. See *id.* at 388.

479. See *Hazell v. Hammersmith & Fulham London Borough Council*, 2 Q.B. 697 (Eng. C.A. 1990). The House of Lords ruled that the London Borough of Hammersmith and Fulham was acting beyond its authority and the capacity of its council when it entered into swap transactions. See *id.* at 700.

480. See Becker & Mazur, *supra* note 455, at 390.

481. See *Hearings*, *supra* note 203, at 238 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.).

482. See generally GAO REPORT, *supra* note 32, at 39-40 (discussing the impact of liquidity problems in one market on all related markets).



There are two types of liquidity risk. Market liquidity risk, or systemic risk, is the risk that disruptions in the market or the lack of available positions will prevent an investor from offsetting a current position with a competitively priced derivatives transaction at the appropriate time.<sup>483</sup> The second type is funding liquidity risk. It is the risk that mismatched durations of inflowing and outflowing funds will lead to an investor's inability to make payment obligations.<sup>484</sup> There is nothing an investor can do to eliminate market liquidity risk because it concerns the continuing liquidity in both the underlying market and the derivatives market, something that is beyond the control of any one investor.<sup>485</sup> The best that an investor can do to manage market liquidity risk is to understand thoroughly both the derivatives market and the market of the underlying asset.<sup>486</sup> This can be made easier by working with other market participants and regulators,<sup>487</sup> which will help the investor recognize what harbingers exist to warn of ensuing liquidity difficulties, thus enabling appropriate action to be taken prior to the inaccessibility of the market. Management of funding liquidity risk is achieved most effectively through the identification of mismatched payment and delivery obligations and the implementation of models that characterize the effects of market changes on these cash flows.<sup>488</sup>

### 5. Operational Risk

Operational risk is the possibility of financial loss resulting from inadequate systems, management failure, faulty controls, deficient procedures, human error, or fraud.<sup>489</sup> The EPIC man-

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483. See Becker & Mazur, *supra* note 455, at 379.

484. See *id.*

485. See Angela Drolte, *Fed Risk Guidelines for End-Users of Derivatives Due Soon*, *Phillips Says*, *Banking Rep. (BNA)*, (Mar. 24, 1995). See generally GAO REPORT, *supra*, note 32, at 36-42 (analyzing the concentration of derivatives dealer activity and its effect on market liquidity).

486. See Becker & Mazur, *supra* note 455, at 380.

487. See *Hearings*, *supra* note 203, at 238 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.).

488. See Becker & Mazur, *supra* note 455, at 380.

489. See *Hearings*, *supra* note 203, at 237 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.); Becker & Mazur, *supra* note 455, at 390.

agement control system, although protecting against many types of risk exposure, is ultimately an operational risk minimizer. The four most effective steps that can be taken by an investor to reduce operational risk consist of the education of employees, the establishment of clear investment policies, the implementation of investment strategies that achieve the objectives of the company while following the set policies, and an independent control system that continually monitors and reports derivatives performance, risk exposure, and the effectiveness of the investment strategies. These four steps to minimize operational risk are also the four phases of the EPIC management control system. In addition, each of these operational risk reducers are embedded throughout the EPIC management control system.

According to the Economist Intelligence Unit's survey results, the use of derivatives is widespread and growing.<sup>490</sup> Although this report also indicates that the majority of companies use them responsibly and employ adequate risk management systems,<sup>491</sup> such as the Group of Thirty's recommendations, it is obvious that not everyone is using them properly. Orange County, Barings, and Gibson Greetings would have reduced the possibility of experiencing their tremendous losses, if not prevented it all together, if they would have employed a thorough risk management system like the one proposed here.

## V. WHAT DOES AND SHOULD THE FUTURE HOLD FOR DERIVATIVES?

Most experts agree that negative press coverage will not slow the use of derivatives. One recent survey completed by more than one hundred financial executives found that ninety-five percent of respondents indicated a favorable attitude toward derivatives.<sup>492</sup> In fact, fifty-two percent regularly use them as essential tools.<sup>493</sup> "Despite the well-publicized blow-ups, few companies are pulling their oars from the derivative waters," said Bill Millar, editor of the Economist Intelligence

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490. See *Derivatives Reconsidered*, *supra* note 56, at \*1.

491. See *id.*

492. See *id.* at \*2.

493. See *id.*

Unit's finance division and author of the report.<sup>494</sup> A survey published by Institutional Investor found that only around three percent of institutional investors and corporate treasurers who used derivatives indicated that they expected to decrease their use of derivatives in 1995.<sup>495</sup> In fact, some experts predict that in the coming decade nearly all funds will use derivatives to some extent.<sup>496</sup> One reason for these optimistic attitudes and positive predictions is the recognition that derivatives are effective, low-cost risk management tools that are becoming essential to corporations that do business in the diverse and often volatile global marketplace.

In spite of the promising future, derivatives still bear some stigma. In an interview with *Fortune* magazine, a representative for Bankers Trust refused to reveal the names of some CEOs who are trading in derivatives, responding, "Nobody's going to come out and say anything publicly, because they get skewered by the press and everybody else. You know, 'so-and-so's in derivatives.'"<sup>497</sup> The interviewer, Carl Loomis, said he experienced this attitude first-hand when he conducted a company survey recently. When he asked company representatives whether they were trading in derivatives, many were evasive.<sup>498</sup> "You would have thought we'd asked about incest," he said.<sup>499</sup>

Three major questions remain for the future: whether additional regulation will be imposed on the use of derivatives; whether litigation resulting from derivatives losses will increase or decrease; and whether derivatives will tend toward customization or standardization.

### A. Regulation

Regulation and legislation are natural responses to recent derivatives losses. A principal supporter of additional control in the derivatives market has been the General Accounting Office

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494. *Id.*

495. See Muehring, *supra* note 1, at 39.

496. See Frankel, *supra* note 159, at 330.

497. Loomis, *supra* note 4, at 68.

498. See *id.*

499. *Id.*

(GAO). In a detailed, published report to Congress, the GAO recommended greater accountability and possibly new regulations to force market participants to act responsibly.<sup>500</sup> Congress has joined the cause by introducing several bills that would require derivatives to be regulated similarly to securities and commodities.<sup>501</sup>

Despite significant support for additional regulation of the derivatives market, far more support exists to prevent further regulation. The arguments against additional regulation fall generally into two areas: (1) allow caveat emptor to guide investment; and (2) regulation imposes unnecessary costs on the market.

The caveat emptor argument requires two preconditions: (1) the current securities and commodities rules must sufficiently regulate the derivatives market,<sup>502</sup> and (2) most of the deriva-

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500. See Craig & Hume, *supra* note 4, at 117. The Report urged "Congress to bring unregulated derivative affiliates of securities and insurance firms under federal regulation by assigning this responsibility to the SEC." *Id.* Most of these recommendations to regulators would not require legislation, and in fact regulators are already exercising their authority in many of the suggested areas.

501. See, e.g., Financial Accounting Fairness Act of 1998, H.R. 3165, 105th Cong.; Accurate Accounting Standards Certification Act of 1997, S. 1560, 105th Cong.; Commodity Exchange Amendments Act of 1997, S. 257, 105th Cong.; Derivative Safety and Soundness Supervision Act of 1995, H.R. 31, 104th Cong.; Risk Management Improvement and Derivative Oversight Act of 1995, H.R. 20, 104th Cong.; Craig & Hume, *supra* note 4, at 169; see also Markey Introduces Derivatives Bill: SEC Would Oversee Unregulated Dealers, *supra* note 279, at \*1 (describing legislation introduced by Rep. Edward Markey seeking to expand SEC jurisdiction to cover currently unregulated derivatives dealers). For a discussion in support of the regulation of swaps dealers, see Hu, *supra* note 142, at 333.

502. See, e.g., Frankel, *supra* note 159, at 304-05 ("[M]isleading statements about any investment by a broker or investment advisor are already punishable under [common law and] the securities [and commodities] laws."). This leads to the argument that derivatives present no clear justification for additional regulation. See *Hearings*, *supra* note 203, at 241 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.) (stating that the current regulatory environment and voluntary efforts by industry participants and sufficient for managing current derivative activity). Richard B. Roberts told Congress that although derivatives transactions are not without risk, federal regulators, industry experts, and the ABA believe that the Senate should not pursue any restrictive actions that would inhibit the ability of banks to enter into derivatives transactions. See *id.* at 236 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.) ("[T]he ABA believes that its members are adequately managing the risks associated with the use of derivatives; that the Federal regulators are appropriately

tives losses must be due to investor conduct (such as inadequate internal controls or greed) rather than dealer conduct. Caveat emptor places the burden on investors to inform themselves about the uses of derivatives and to recognize the limits of their understanding. The argument treats derivatives no differently than other complicated investments. It applies most forcefully to sophisticated fund managers who have access to advanced risk management and market analysis models. It is not so persuasive when applied to the lay investor. According to Alan Greenspan, Chairman of the Federal Reserve, "[m]arkets function most efficiently when both parties to financial transactions are free to enter into transactions at their own discretion, unhampered by any perceived need to serve the interests of their counterparties."<sup>503</sup>

Additional regulations may lead to additional costs for all market participants. Richard Roberts told the Committee on Banking, Housing and Urban Affairs that any effort to restrict engagement in derivatives transactions would increase "costs and burdens to the industry and the communities served by these institutions."<sup>504</sup> Specifically, Roberts noted that additional regulations would force financial intermediaries to take on more interest rate risk, or force them to restrict the amount of credit they make available to local communities.<sup>505</sup> In addition, many dealers "could be denied the ability to acquire investment securities appropriate to that institution's investment philosophy."<sup>506</sup> In his statement to the Committee, Greenspan warned that by "singling out derivative instruments for special regulatory treatment," investment transactions would be determined by the "artificial incentives" that these regulations would produce rath-

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supervising bank activity in this area; and that no other need exists for legislation.").

503. *Hearings, supra* note 203, at 53 (statement of Alan Greenspan, Chairman, Bd. of Governors of the Fed. Reserve System); see also *Derivatives Debacle; Orange County Woes Unlikely to Spur U.S. Action, supra* note 223, at \*1 (reporting Acting Treasury Secretary Frank N. Newman's comment that the administration sees no need for major legislation on derivatives).

504. *Hearings, supra* note 203, at 236 (statement of Richard B. Roberts, Executive Vice President and Treasurer, Wachovia Corp.).

505. See *id.*

506. *Id.*

er than on the appropriateness of the investment instruments themselves.<sup>507</sup> Greenspan believes that this would lead to the use of investment instruments less efficient than derivatives in order to avoid new regulations.<sup>508</sup> This would result in higher costs to market participants and reduce market efficiency.<sup>509</sup> Some commentators have pointed to the recent regulations imposed on heavily leveraged derivatives, requiring investors to value them on a mark-to-market basis.<sup>510</sup> Although most companies agree that this is a wise practice, many companies feel that mark-to-market accounting is too costly to employ. It is predicted that the use of these types of derivatives will likely be reduced due to this regulation.<sup>511</sup>

Greenspan has suggested more indirect control through investor education or assistance:

[T]here may be cases in which certain customers can, in principle, use complex instruments to reduce risk or enhance yield, but, in practice, cannot reasonably be expected to understand the instruments and the risks sufficiently well to achieve these objectives without assistance. For such customers, a way must be found to ensure that transactions are used effectively for the purposes for which they are intended.<sup>512</sup>

This in no way means more regulation. In fact, he specifically warned that if investors shift risks back to dealers through legal recourse enabled by more regulation, dealers will "likely . . .

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507. *Id.* at 52-53 (statement of Alan Greenspan, Chairman, Bd. of Governors of the Fed. Reserve System).

508. *See id.* at 53.

509. *See id.*; *see also* Baker, *supra* note 209, at \*1 (stating that substantial losses could occur if restrictions on the use of derivatives force dealers to substitute more expensive and less accurate strategies). Another way new regulation can be detrimental to the derivatives industry concerns proposed legislation to eliminate speculation activity. This type of regulation would result in the reduction of liquidity in the derivatives market and the innovation of new risk management instruments. In addition it would force investors who need such devices, to move to riskier strategies.

510. *See Loomis, supra* note 4, at 68.

511. *See id.*

512. *Hearings, supra* note 203, at 53 (statement of Alan Greenspan, Chairman, Bd. of Governors of the Fed. Reserve System).

charge an additional premium to compensate them for the uncertainties of future legal claims.<sup>513</sup>

Any attempt at regulation has been met with intense debate. The Financial Accounting Standards Board (FASB) had continually postponed release of its controversial proposals, but after ten years of debate and two years of construction, the FASB formally issued a standard for derivatives and hedge accounting in June 1998.<sup>514</sup> The new standard mandates sweeping changes in the way companies account for derivatives. As of June 15, 1999, companies must record the fair-market value of derivatives, as assets or liabilities, on their balance sheets.<sup>515</sup> When derivatives do not zero out a loss or a gain on the instruments they were to hedge, the company must account for the changes in the derivatives' value in the earnings.<sup>516</sup> The FASB has rejected Greenspan's advice to maintain current "best practices" in historical cost-based accounting while requiring large firms to file supplemental disclosures based on fair value amounts.<sup>517</sup> Currently, many derivative instruments are not carried on the balance sheet and their effects on income are difficult to discern.<sup>518</sup> The derivatives industry claims that the FASB standards could discourage the use of valuable hedging tools.<sup>519</sup>

Bankers and derivatives dealers lobbied vigorously against the rules, and Congress contemplated restricting FASB's power to regulate derivatives, even though Congress originally pushed the FASB to adopt standards for derivatives in response to the Orange County disaster.<sup>520</sup> There was, however, some support for the standards, especially with the Asian currency crisis rippling through the derivatives industry. It is important to note, however, that the FASB proposal does not address the risk of not

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513. *Id.*

514. See Elizabeth MacDonald, *FASB Approves Controversial Derivatives Rule*, WALL ST. J., June 2, 1998, at A3.

515. See *id.*

516. See *id.*

517. *FASB Rejects Greenspan Advice Concerning Derivatives Proposal*, 29 Sec. Reg. & L. Rep. (BNA) No. 45, at 1610 (Nov. 14, 1997).

518. See *id.*

519. See Paul Beckett, *FASB Postpones Expected Proposals on Derivatives*, WALL ST. J., Dec. 18, 1997, at B11.

520. See MacDonald, *supra* note 514, at A3.

using derivatives. If a firm is subject to foreign currency risk or commodity-price risk, the firm does not need to quantify its exposure in its disclosures. Thus, shareholders may be lulled into complacency by believing that a firm that does not use derivatives is safer than one that does. However, as our previous discussion illustrated,<sup>521</sup> there are many cases when not using derivatives may be very risky indeed.

### B. Complexity

The recent losses at Gibson Greetings and Proctor & Gamble, involving highly complex derivatives, would tend to encourage the use of simpler derivatives. According to Stephen Savage, the editor of the Value Line Mutual Fund Survey, “[t]here’s been an arms race to create more exotic, esoteric derivative securities, with firms carving up securities and then getting exotic with the leftovers that hadn’t been put together with much forethought. But you can now expect to see a slowdown in creation of new derivatives.”<sup>522</sup> As for Proctor & Gamble, it plans to continue to use “straightforward derivatives—plain vanillas,” because they provide a very “effective way of managing interest rates and foreign [currency] exposures.”<sup>523</sup> Conversely, there are those who believe that today’s foreign currency exchange, interest rate, and commodity risks will require more complex, custom-tailored products designed to hedge the specific risk in the particular context.<sup>524</sup>

### C. Lawsuits

Many believe that the volume of lawsuits in this area is likely to increase as rulings are made in the pending cases.<sup>525</sup> According to Edward Brodsky, a partner at Proskauer Rose LLP who

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521. See *supra* notes 418-22 and accompanying text.

522. Leckey, *supra* note 3, at C3 (quoting Stephen Savage).

523. Loomis, *supra* note 4, at 68 (quoting Proctor & Gamble’s CEO Edwin Astect).

524. See *Derivatives Reconsidered*, *supra* note 56, at \*3 (reporting a view held by Adam Frieman, managing director of the Strategic Derivatives Group at Bankers Trust, the investment firm that has been sued by Gibson Greetings and Proctor & Gamble, in part because of the complexity of the derivatives being recommended).

525. See Bencivenga, *supra* note 63, at 5.



handles corporate and securities litigation, “[o]nce people start hearing about big settlements, and I suspect they will, we’ll be hearing about other people joining the bandwagon.”<sup>526</sup> It is likely that most of the pending cases will end in settlement.<sup>527</sup> Lawyers often prefer private settlements for their clients when suing a broker because settlements can avoid the unpleasant publicity that often sparks suits by shareholders against the corporation.<sup>528</sup> Lawsuits against brokers may also become increasingly rare in the coming years due to the public’s interest in increasing the “transparency, integrity, and liquidity” of the derivatives market.<sup>529</sup> To that end, organized exchanges may become the preferred trading venue. In addition, new disclosure requirements in the OTC market may reduce the potential for lawsuits due to increased investor knowledge and oversight of transactions.

### CONCLUSION

Derivatives are dangerous only when used for speculation or placed in the hands of inexperienced investors with inadequate control or training. When properly used to hedge against risk, derivatives are an essential corporate tool. Management and corporate directors have a duty to educate themselves on how derivatives could protect their corporation; set clear risk management policies that detail if and how derivatives can be used; prudently implement the company’s risk management policies within sound, conservative parameters; and finally, diligently oversee the investment strategy of the authorized employees to ensure the policies of the corporation are adhered to within the parameters clearly set out.

When corporations achieve this standard, risk will be allocated in the derivatives market between those investors who knowingly assume the burden of speculating and those corporations who shift risk out of their portfolio. If derivatives debacles con-

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526. *Id.*

527. *See id.*

528. *See id.*

529. Alfred Steinherr, *Taming the Wild Beast of Derivatives*, FIN. TIMES, Dec. 16, 1994, at \*2, available in LEXIS, News Library, Fintme File.

tinue to make headlines, pressure may mount to implement stronger government regulation of derivatives. The current majority view, held by Alan Greenspan on down through commentators in financial circles, is that the private market is best able to manage these products. It is incumbent on corporations to take responsibility for their risk management policies, use the best products available, and control the agents who implement them.