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Can Risks be Reduced in the Derivatives Market? Lessons from the Deal Structure Analysis of Modern Financial Engineering Debacles

Jongho Kim*

Die kunst über geld nachzudenken: Wer viel geld hat, kann spekulieren; wer wenig geld hat, darf nicht spekulieren; wer kein geld hat, muß spekulieren (loosely translated as “nothing ventured, nothing gained”).

—German investor Andre Kostolany

Look before you leap.

—Proverbial wisdom

I. INTRODUCTION

In the last couple of decades, modern “financial engineering”¹ has made great strides under the Securities Act of 1933,² the Securities Exchange Act of 1934,³ and the Commodities Exchanges Act.⁴ Notwithstanding the catastrophic collapse of the “derivatives”⁵ operation,

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1. “The term ‘financial engineering’ refers to creating tailor-made solutions to highly complex problems in managing the financial risk of price fluctuations.” Peter H. Huang, *A Normative Analysis of New Financially Engineered Derivatives*, 73 S. CAL. L. REV. 471, 477 (2000). “The process of combining derivatives with other financial instruments, derivatives or otherwise, is known as financial engineering.” Willa E. Gibson, *Investors, Look Before You Leap: The Suitability Doctrine is Not Suitable for OTC Derivatives Dealers*, 29 LOY. U. CHI. L.J. 527, 537 (1998).

2. See generally THOMAS LEE HAZEN, *THE LAW OF SECURITIES REGULATION* 21-22 (5th ed. 2005).

3. See generally *id.* at 22.

4. See generally *id.* at 807-17.

5. “Derivatives are financial instruments whose value is based on or derived from other assets or variables.” HAL S. SCOTT & PHILIP A. WELLONS, *INTERNATIONAL FINANCE TRANSACTIONS, POLICY, AND REGULATION* 936 (10th ed. 2003). See also Huang, *supra* note 1, at 483; Allen D. Madison, *Derivatives Regulation in the Context of the Shingle Theory*, 1999 COLUM. BUS. L. REV. 271, 274 (1999) (“[D]erivatives are financial instruments whose value is determined by or derived from an underlying reference rate, index, or asset.”); Jason M. Rosenthal, *Incorporation May Not Mean Sophistication: Should There be a Suitability Requirement for Banks Selling Derivatives to Corporations?*, 71 CHI.-KENT L. REV. 1249, 1252 (1995).

the "over-the-counter ("OTC") market"⁶ has drastically expanded.⁷ As indirect investment asset management, the OTC derivatives vehicles clearly constitute assets under the Acts.⁸ As a matter of course, current global markets grow rapidly and domestic financial institutions, such as investment banks, security firms, and insurance companies, as well as foreign investment banks, engage in the transaction of OTC derivatives.⁹ However, permitting large financial companies with the characteristics of investment banks to operate in derivatives in the OTC market provides a revolutionary opportunity for further development of this market.

Why is the OTC derivatives market important?¹⁰ Most of all, given the global and open economy characteristics of the U.S. economy, the OTC derivatives market is *sine qua non*.¹¹ In terms of the real economy, the U.S. economy depends to a high degree on imports and exports of goods as well as capital. In addition, after the numerous economy crises and turmoil,¹² as the capital market has been entirely opened, the geographical capital market is largely influenced by the movements of foreign or global investors.¹³ In other words, due to

6. See generally SCOTT & WELLONS, *supra* note 5, at 792.

7. Through the Securities and Exchange Act and Commodities Exchanges Act, the operation of derivatives transactions in the OTC market has become a rolling stone. However, in investment bank and securities companies' businesses, whose basic assets include such derivatives products as swaps, forwards, and options that make the basic assets of currencies, interest rates, stocks (individual stock prices, basket index, stock index), things seem to have settled down. In 1991, the notional amount of OTC derivatives trading surpassed exchange-traded derivatives, and, in 1992, credit derivatives began to trade in the OTC market. See ROBERT E. WHALEY, *DERIVATIVES: MARKETS, VALUATION, AND RISK MANAGEMENT* 15 (2006).

8. According to the Acts, the indirect investment asset management that has been gradually permitted since 1972 and the first OTC derivatives are stipulated as being applicable subjects in 1980. Now under the Acts, the exchange-based derivatives, the OTC derivatives, real estate, and actual assets are stipulated as the subjects for working assets. See *id.* at 13-15.

9. See Todd E. Petzel, *Derivative: Market and Regulatory Dynamics*, 21 J. CORP. L. 95 (1995) ("The United States was the birthplace to . . . [derivative industry] innovation, but it has been transported and rapidly applied to virtually every active capital market in the world."). See also Christine Cuccia, *Informational Asymmetry and OTC Transactions: Understanding the Need to Regulate Derivatives*, 22 DEL. J. CORP. L. 197, 199 (1997) ("As corporations have become more international and rely more heavily on foreign markets, Wall Street financial institutions have developed new products to help corporate clients manage varied financial risks.").

10. See generally SCOTT & WELLONS, *supra* note 5, at 1024.

11. See Joan E. McKown & Anita T. Purcell, *Enforcement Actions Involving Derivatives: BT Securities Corp. and Beyond*, 65 U. CIN. L. REV. 118-19 (1996) (indicating that a number of factors have combined to bring derivatives to the forefront of today's financial marketplace).

12. Examples include the 1997 Asian exchange currency crises, 1998 Russia moratorium, and 2001 Argentina sovereign crisis.

13. See Eric D. Roiter, *Investment Companies' Use of OTC Derivatives: Does the Existing Regulatory Regime Work?* 1 STAN. J.L. BUS. & FIN. 271, 273 (1995) ("[D]erivatives can provide an opportunity for an investment company to geographically reorient its portfolio by allocating a greater portion of its asset mix to a specific region such as Latin America or East Asia.").

external factors beyond the control of the United States, volatility in the capital market has increased.¹⁴ Therefore, from the standpoint of corporations or investors, various means of managing such risks have become necessary.¹⁵

Derivatives are used as a means of risk management while the OTC derivatives market is in a complementary relationship with the exchange-based derivatives market.¹⁶ The OTC derivatives make customized management possible,¹⁷ something which the exchange-based derivatives cannot offer.¹⁸ The OTC derivatives market development is of great significance as a means of managing the risk of price volatility in financial markets that is necessary in the global and open economy.

Promotion of OTC derivatives is also important in terms of balanced growth in the capital market. In U.S. financial markets, direct finance centered on the capital market is growing significantly. For balanced growth of the capital market, the securities, bonds, and derivatives markets should all grow together, particularly because the OTC derivatives can be used in new securities planning in connection with either bonds or stocks. This allows for the development of various securities, with the equity-linked security that is becoming an issue in the United States serving as an example.

From the perspective of promoting the operation of the investment banks, the OTC derivatives market has significance. The core opera-

14. According to Willa Gibson:

Financial derivatives began assuming a predominant role in the financial markets in the early 1970s, after the world's major industrial countries abandoned the Bretton Woods system of fixed currency rates. During this period, the financial markets also faced an increase in the volatility of interest rates, resulting from governmental policy changes that permitted interest rates to fluctuate more freely. With the increased volatility in both the exchange and interest rate systems, businesses faced new risks. Consequently, derivatives contracts emerged as vehicles to manage the newly faced risks and as a means of allowing traders to profit from market fluctuations.

Gibson, *supra* note 1, at 532.

15. Modern portfolio theory classifies the risk associated with any particular financial assets into two broad categories: "alpha" and "beta" risk. The former is firm specific, while the latter results from the economic situation. Lynn A. Stout, *Betting the Bank: How Derivatives Trading Under Conditions of Uncertainty Can Increase Risks and Erode Returns in Financial Markets*, 21 J. CORP. L. 53, 58 n.13 (1995); Huang, *supra* note 1, at 487 ("Derivatives permit global capital market participants to hedge volatility in those underlying financial market."); Gibson, *supra* note 1, at 531 ("Investors use derivatives instruments as a means of transferring risk associated with the fluctuation of some underlying asset or reference rate . . .").

16. See Rosenthal, *supra* note 5, at 1254-55.

17. See Saul S. Cohen, *The Challenge of Derivatives*, 63 FORDHAM L. REV. 2001 (1995).

18. See Rosenthal, *supra* note 5, at 1253. See also Christian O. Nagler, *Derivatives Disclosure Requirements: Here We Go Again*, 6 CORNELL J.L. & PUB. POL'Y 441, 444 (1996).

tion of the investment bank is the undertaking of securities.¹⁹ In other words, along with selling, the main function of the investment bank is the planning and undertaking of securities that can satisfy both investors and the company. Therefore, an investment bank needs the ability to plan various securities, along with a systematic base for doing so. As the OTC derivatives can create various designed-structured securities via a combination of securities,²⁰ they can be very useful in securities planning. In addition, if the OTC derivatives are efficient from the viewpoint of a securities company and an investment bank that have issued designed-structured securities with built-in derivatives, the risk can be efficiently hedged.

What kinds of features do these important OTC derivatives have? As OTC derivatives are a kind of a derivative, they have the basic features of derivatives. However, they are differentiated from such exchange-based derivatives as the "stock index futures"²¹ or the "stock index options"²² that are currently traded in the exchange market. The OTC derivatives do not have standardized product structures. Thus if the exchange-based derivatives can be thought of as ready-made clothes, the off-exchange derivatives are custom-made ones.²³ It is possible to create various OTC derivatives according to their purpose, with the only factor limiting the development of products through OTC derivatives being imagination.

However, expert knowledge is required in the planning of the OTC derivatives, setting prices, and risk management. Therefore, in most countries the counterparts of the transactions of OTC derivatives are limited to corporate or accredited investors meeting certain requirements.²⁴ As the term indicates, the transactions of OTC derivatives are made through the contract between the concerned parties, but not in an official market. Therefore, risk management is done through the

19. An investment bank is one whose "primary purpose is to acquire financing for businesses, esp. through the sale of securities. An investment bank does not accept deposits, and apart from selling securities, does not deal with the public at large." BLACK'S LAW DICTIONARY 154 (8th ed. 2004).

20. See generally Bernard J. Karol, *An Overview of Derivatives as Risk Management Tools*, 1 STAN. J.L. BUS. & FIN. 195, 200 (1994) (giving examples of uses of caps, floors, and collars in combined contracts).

21. "[Stock] [i]ndex futures are standardized contracts, with a number of conventions regarding denomination, expiration, and method of settlement." WHALEY, *supra* note 7, at 477.

22. "Stock index options are written on both stock index futures and the stock index. There are subtle differences in the contracts design . . ." *Id.* at 478.

23. See Huang, *supra* note 1, at 485.

24. In the United States, accredited investors refer to those individuals or companies who have over \$5 million for an investment balance, or corporate investors with an investment balance in excess of \$25 million. See *infra* note 289 and accompanying text.

credit and collateral of the concerned parties of the transaction. Unlike the exchange-based derivatives market, the “counterparty risk” is regarded important in OTC derivatives transactions.²⁵

To summarize the above discussion, it can be shown that the OTC derivatives market is an important axis of the capital market. In the United States, the promotion of OTC derivatives is a requisite for the economic system, the development of the capital market, and the reinforcement of the functions of the investment banks in the securities industry.²⁶ However, as the structure of OTC derivatives is not standardized, if not properly used, the risk is higher as compared to that of exchange-based derivatives.²⁷ Particularly when a concerned party to the OTC derivatives transaction goes bankrupt, it leads to a series of bankruptcies of the organically-linked participants affecting the stability of the entire financial system.²⁸

Accordingly, development of the OTC derivatives market must include protection against the factors leading to failure. However, due to their nature, just as the derivatives are not standardized, but rather vary in kind, the factors affecting failure are also diverse. Therefore, it is very meaningful to analyze the factors of failure through actual cases of OTC derivatives failure and, thus, find the critical issues.

The analysis of cases of OTC derivatives failure can be the cornerstone for inducement of the best practice in the use of OTC derivatives. Lessons derived from case analysis can offer useful information to not only the market players directly carrying out the operation of OTC derivatives, but also the policy makers, regulators, and investors. Based on such a critical mindset, the purpose of this Article is to deduce the issues useful, not only for U.S. market players, but also for global capital market participants, by describing the factors of failure through analysis of cases involving the main domestic and foreign OTC derivatives.

The organization of this Article is as follows: Part II discusses the *Orange County* repo and inverse floater-rate note (“FRN”) case. In Part III, the focus turns to the *Procter & Gamble* (“P&G”) and *Gibson Greetings*’s leverage interest-rate-swap cases. Part IV deals with

25. “In the context of the credit derivatives market, counterparty credit risk refers mainly to the chance that a protection seller will fail to make good on its promise to make previously agreed-upon payments in the event of qualified defaults by reference entities.” ANTULIO N. BOMFIM, UNDERSTANDING CREDIT DERIVATIVES AND RELATED INSTRUMENTS 267-68 (2005).

26. See WHALEY, *supra* note 7, at 18 (comparing an analysis of exchange-traded and OTC derivatives activity as of December 2003).

27. Derivatives also include exchange-traded instruments, such as options and futures, with standardized contracts for size, maturity, and delivery. See Cohen, *supra* note 17, at 2000-01.

28. See *infra* Part IV.

Long-Term Capital Management's trading, in which the volatility of securities cases are analyzed and the issues deduced. Part V analyzes a local market case: Diamond Fund's total return swap. Because derivatives include exchange-based instruments,²⁹ some failure cases are selected for discussion. Thus, Part VI covers Metallgesellschaft Refining and Marketing's ("MGRM") commodity futures stack hedge transaction; Part VII discusses Barings's straddles and arbitrage of stock index futures transaction; and Part VIII addresses NatWest Capital Market's ("NatWest") interest rate options and swaptions. In Part IX, cases analyzed in the previous sections are integrated and factors of failure are compared and reviewed. Issues focused on systematic *infra*, investment bank and securities companies, and investors and counterparts in transactions; issues concerning supervision and supervisory and regulatory authorities are classified and solutions are suggested.

II. ORANGE COUNTY'S REPOS AND INVERSE FRN TRANSACTIONS

In 1994, Orange County in California suffered a loss of \$1.69 billion due to the investment failure in OTC derivatives.³⁰ In the end it filed for bankruptcy.³¹ The investment by Orange County was led by Robert Citron, the treasurer.³² The resulting Chapter 9 petition filed by Orange County in December 1994³³ was recorded as the largest financial failure by a local government in the history of the United States.³⁴

A. Background

In Orange County, in which the mainstream faction was Republicans,³⁵ Citron was a Democrat who was elected treasurer seven times and, thus, administered the investment fund of Orange County for 24 years.³⁶ The size of the fund in 1994 was \$7.5 billion, of which some 187 public institutions, such as other municipalities, the office of education, and managers of pension funds, had made investments.³⁷ Cit-

29. Cohen, *supra* note 17, at 2000.

30. Rob Jameson, *Orange County*, ERISK.COM, June 2001, <http://www.erisk.com/Learning/CaseStudies/orangecounty.pdf>.

31. At that time, Orange County was the fifth largest municipality in the United States, with a GDP larger than those of Portugal, Israel, and Singapore. *See generally* PHILIPPE JORION, BIG BETS GONE BAD: DERIVATIVES AND BANKRUPTCY IN ORANGE COUNTY 92 (1995) [hereinafter JORION I].

32. McKown & Purcell, *supra* note 11, at 120.

33. Jameson, *supra* note 30, at 2.

34. *Id.* at 1.

35. MARK BALDASSARE, WHEN GOVERNMENT FAILS: THE ORANGE COUNTY BANKRUPTCY 41-46 (1998) (describing the political propensity of Orange County voters).

36. *See* JORION I, *supra* note 31, at 7.

37. Jameson, *supra* note 30, at 1. *See also* Nagler, *supra* note 18, at 458.

ron set a great rate of return on investment with a 9.4% annual average.³⁸ While the average rate of return on investment was 5 to 6% during the 1991 to 1993 depression, the Orange County Investment Pool ("OCIP"), which was under Citron's management, reached a rate of return of 8 to 9%.³⁹

Such a difference in the rate of return yielded a difference in returns of \$500 million; such a return had a very significant meaning in Orange County, a place extremely hostile to tax increases.⁴⁰ In other words, it provided the financial foundation to administer the local government without increasing the tax burden. Thanks to such a marvelous rate of return, Citron was free from any intervention by the supervisory board over funds and was able to manage the fund on his own.⁴¹ In addition, the investment banks refrained from criticizing Citron's management decisions or investments, as they wanted to maintain their relationship with Orange County, the big hand feeding them.⁴²

With the economic situation in California at the time, the importance of Citron became even more apparent. During the continuing depression from 1992 to 1993, the value of assets decreased and the relative importance of the property tax in the entire Orange County budget went from 60% to 25%, a rapid slide.⁴³ In contrast, the relative importance of the rate of return from the bond-type investors increased from 3% to 35%.⁴⁴ The returns from the fund had become such an important financial source, and fund manager Citron was able

38. JORION I, *supra* note 31, at 84.

39. One Congressional hearing revealed the Citron fund was earning interest at an annualized rate of 7.8% in April 15, 1994. *Statement for the Record for the S. Foreign Relations Comm. Hearings on the Nomination for Dir. of the Peace Corps*, 107th Cong. 4 (2001), available at <http://peacecorpsonline.org/scanned/ocbankruptcy2.pdf> [hereinafter *Statements*] (articles from the Orange County Register).

40. See BALDASSARE, *supra* note 35, at 61-67 (illustrating Orange County tax policy).

41. Dr. Gilman, Special Assistant to the Director of the United States Office of Government Ethics, explains:

Robert Citron, the County Treasurer of Orange County, California was made responsible by the Board of Supervisors for effectively investing receipts to allow a decrease in taxes and fees. The high risk investment strategy he employed led to bankruptcy of the county and felony charges against him. This was a purely entrepreneurial "gamble" on Citron's part, but it was devoid of any compliance to any set of standards.

STUART GILMAN, *REALIGNMENT AND PUBLIC SECTOR ETHICS: THE NEGLECTED MANAGEMENT PROBLEM IN THE NEW PUBLIC ADMINISTRATION* (1997), available at <http://www.oecd.org/dataoecd/40/15/2093526.pdf>.

42. See JORION I, *supra* note 31, at 8.

43. See *id.* at 15.

44. See *id.*

to arbitrarily make investment decisions almost without any supervision.⁴⁵

Through lobbying activities in the early 1980s, Citron prepared the foundation to make investments in repurchase agreements ("repos")⁴⁶ and inverse floating-rate notes ("FRNs"),⁴⁷ rather than simple forms of securities. It was risky for Citron to invest money he obtained from reverse repos into inverse FRNs because such an investment strategy is made in anticipation of falling interest rates; if the interest rate increased, investors would face a huge risk. Contrary to expectations, the interest rate did increase, and OCIP assumed an enormous loss.

However, the possibility of loss had been anticipated to a certain extent,⁴⁸ at least by those other than Citron. During the 1994 election for Citron's seventh term as Orange County treasurer, John M. W. Moorlach, Citron's rival, criticized Citron's investment strategy as being "a major bull market in the middle of a bear market," noting it could lead to \$1.2 billion in loss.⁴⁹ Citron ascribed Moorlach's assertions to political maneuvering based on groundless allegations, especially Moorlach's assertion that a decline in the credibility of both Orange County and the fund would give rise to a huge loss to the investors, the city, the office of education, and the public institutions.⁵⁰ Subsequently, Citron defeated Moorlach.⁵¹

However, contrary to Citron's expectation, in February 1994 the Federal Reserve Board ("FRB") raised the interest rate.⁵² Because most of the investment pool of Orange County had been put into investments that were interest-rate volatile, the pool's value took a nose-dive.⁵³

45. One commentator describes him as being "no new kid on the block." Jameson, *supra* note 30, at 1.

46. See generally JOHN C. HULL, *OPTIONS, FUTURES, AND OTHER DERIVATIVES* 77 (6th ed. 2006).

47. See generally BOMFIM, *supra* note 25, at 43-51.

48. Orange County Assistant Treasurer Matt Raabe and Citron were aware that:

[A]n investment manager can run into trouble with reverse repurchase agreements. If the market value of the bonds used as collateral falls, a dealer will want cash to bring the value of the collateral up to market value. If no cash is available, the investment manager may have to sell bonds at reduced value, creating a loss for the fund.

Statements, *supra* note 39, at 8.

49. JORION I, *supra* note 31, at 87.

50. *Id.* at 16.

51. *Id.* at 9.

52. Jameson, *supra* note 30, at 1; see also SATYAJIT DAS, *STRUCTURED PRODUCTS & HYBRID SECURITIES* 987 (2001).

53. See JORION I, *supra* note 31, at 67-68.

B. *Investment Strategies*

Citron set investment strategies based on the assumption the interest rate would continue to drop, or at least remain stable.⁵⁴ Through reverse repos, financial leverage was secured by investing funds in structured bonds, such as inverse FRNs,⁵⁵ to be bought and held to an average maturity of 4 years.⁵⁶

Thus, Citron engaged in a speculative transaction where a high return would be received if the interest rate fell, but a high loss might be suffered if the interest rate rose.⁵⁷ In terms of duration, financing was made through short-term bonds, but was invested in long-term, high-risk bonds.⁵⁸ In terms of leverage, it was an investment strategy with high leverage from both financing and investment-object perspectives.⁵⁹ In other words, with respect to financing, the leverage was not only raised through reverse repos, but also by adding structured bonds in terms of investment.⁶⁰ The strategy of buying bonds and holding them to maturity was also used. For this particular strategy to succeed, a sufficient cash reserve must exist to meet the margin call, and it must be correctly assumed that the investors will not make a repurchase request before bond maturity.⁶¹

In October 1992, Merrill Lynch warned Citron that the average maturity of OCIP was 1.4 years, but the effective duration was 7 years.⁶² "When Merrill Lynch informed Citron of the risks and volatility that had been built into the Orange County portfolio and suggested he reduce the portfolio's market risk exposure, Citron politely re-

54. Nagler, *supra* note 18, at 458.

55. Note that FRN is not a credit derivative. See BOMFIM, *supra* note 25, at 43.

56. See WHALEY, *supra* note 7, at 666.

57. See *id.*

58. This investment pattern is called "riding the yield curve" in the financial industry. *Id.* at n.14.

59. See McKown & Purcell, *supra* note 11, at 120.

60. See DAS, *supra* note 52, at 987.

61. Citron's strategy, doubling up, requires a sufficient investment amount in reserve to succeed.

In theory it seems fine as we all know that neither one nor the other result of an even money bet will continue to come up forever. So if we are betting on Odd and it hasn't come up in 2 or more spins we just keep doubling our wager amount until it does. There are three problems with this approach. The first is we can't double forever as there is a table limit to the amount we can wager. The second is we would need a huge stake to cover the size of some of the bets. And the third is we can be placing a huge bet to win a single dollar.

Zen Gambling, *Roulette Betting Strategy 1: Doubling Up*, ZENGAMBLING.COM, <http://www.zengambling.com/roulette-betting-strategy.htm> (last visited Feb. 5, 2008).

62. See JORION I, *supra* note 31, at 29.

fused.”⁶³ In 1994 when the short-term interest rate rose by 3%, the loss to the \$7.5 billion fund was about \$1.6 billion.⁶⁴

Generally duration and maturity are either the same, or the duration is shorter than maturity. Therefore, in the case of OCIP, how could the average maturity end up longer than the duration? The answer is that reverse repos were used.⁶⁵

1. Financing by Reverse Repos

Repurchase agreements are financial contracts in which a certain bond is sold on condition that it is either repurchased at a specified price or resold.⁶⁶ Generally, a repo refers to selling the bond holdings to finance, while a reverse repo refers to raising bonds by paying in cash.⁶⁷ In short, from the bond dealer's standpoint, repos are when cash is financed and reverse repos are when bonds are raised.⁶⁸

The repo of OCIP is either an “open repo,” with a maturity of 3 to 6 months, or a “term repo.”⁶⁹ Reverse repos, in particular, played the

63. Jonathan E. Duchac & Jack E. Wilkerson, Jr., *Evaluating and Controlling Derivatives Operational Risk*, 1996 J. BANK COST & MGMT. ACCT. 25, 28 (1996), available at http://findarticles.com/p/articles/mi_qa3682/is_199601/ai_n8740425/pg_1.

64. Making a substitution in “amount of loss = duration × amount of the portfolio × percent increase of interest rate,” $7 \times \$7.5 \text{ billion} \times 0.03 = \$1,575,000,000.00$.

65. See LILLIAN CHEW, *MANAGING DERIVATIVE RISKS: THE USE AND ABUSE OF LEVERAGE* 17 (1996).

66. Repurchase agreements, commonly known as “repos,” “are . . . nothing more than financing arrangements by which one party provides funds to another for a short period of time.” *Gen. Motors Corp. v. Franchise Tax Bd.*, 16 Cal. Rptr. 3d 41, 51 (Cal. Ct. App. 2004).

67. See *Salina P'ship LP v. Comm'r*, No. 25084-96, 2000 WL 1700928, at *21 n.4 (T.C. 2000). Generally, complicated transactions called “repurchase and reverse repurchase agreements” are applied in financing. “A repurchase agreement transaction, or repo, as it is commonly referred to, is a short-term investment vehicle that can be used for cash management purposes by an institutional [or individual] investor.” Michael A. Spielman, *Whole Loan Repurchase Agreements: An Assessment of Investment Transaction Risk in Light of Continuing Legal Uncertainty*, 99 COM. L.J. 476, 476 (1994).

68. As a hybrid loan transaction, “the repo[s] generally consist of U.S. Treasury securities, commercial paper, corporate securities, or whole loan mortgages.” Spielman, *supra* note 67, at 476. Moreover:

In each repo transaction, one party is a provider, and one party is a user, of funds. The provider of funds (hereinafter “Buyer”), enters into a contract with a user of funds (hereinafter “Seller”), whereby the Buyer purchases agreed-upon financial instruments, while the Seller simultaneously agrees to buy back the financial instruments at a specified date, or on the Buyer's demand, for a price exceeding the purchase price. The additional amount received by the Buyer upon resale of the financial instruments reflects the accrued interest which is earned on the transaction. From the perspective of the Seller, the transaction is referred to as a “repo”, whereas from the perspective of the Buyer, the transaction is referred to as a “reverse repo.”

Id. at 476-77.

69. An open repo refers to one in which the maturity is not previously specified and the agreement can be terminated by either party's notification of repurchase. “In ‘open’ repurchase

deciding role in the bankruptcy of OCIP. In December 1993, OCIP was in possession of approximately \$100 million in Federal National Mortgage Association ("FNMA") bonds maturing in 1998.⁷⁰ Citron offered the bonds as a security to Credit Suisse First Boston ("CSFB") at a fixed interest rate for 30 days, and made a reverse repo for financing in the amount of \$100 million.⁷¹ If the interest rate for the repo was 3% with the size of the bonds at \$100 million, Orange County had to pay interest of \$250,000 ($\$100 \text{ million} \times 3\% \times 30/360$), plus a total of \$100.25 million to CSFB.

The reason Orange County financed using a reverse repo is it expected the interest rate to decline, or at least remain stable; in which case, it wanted to expand its investment in FNMA bonds where high returns were achievable. As FNMA bonds are inverse FRNs, they have a structure where interest income becomes higher when the standard interest rate declines. Thus Citron increased the size of its investment by reinvesting the financed funds from reverse repos in inverse FRNs.⁷²

Reverse repos had the function of increasing the effective duration of a portfolio as much as the rate of leverage. The structure of creating leverage through reverse repo required three steps: first, FNMA invested \$100 million in inverse FRNs; second, it invested additional investments through reverse repos (totaling \$200 million invested); and third, it invested additional investments through reverse repos (totaling \$300 million invested).⁷³ For simplification purposes, a 0% haircut⁷⁴ was assumed.⁷⁵

When a reverse repo contract is made, the bonds are not sold in their entirety. Because bonds had to be repurchased after a certain time, Orange County was still exposed to the volatility of the interest rate. Due to the constant increase in interest rates between December 1993 and November 1994, the return on the bonds rose from 5.24% to

agreements, the interest charge on the loan fluctuates with the prevailing market rate, entitling the investor to an interest expense deduction since a profit or loss may be realized on the transaction." *In re Messinger*, 627 A.2d 162, 163 (N.J. 1993). A term repo is a repo agreement that has the maturity specified for a certain period. HULL, *supra* note 46, at 77.

70. See JORION I, *supra* note 31, at 51.

71. See McKown & Purcell, *supra* note 11, at 120-21.

72. See Jameson, *supra* note 30, at 2. See also WHALEY, *supra* note 7, at 666.

73. "[W]hen Orange County bought an inverse floater with notional amount of \$100 million, it had an exposure equal to non-leveraged inverse floater worth of \$300 million. This type of synthetic leverage allows an investor to execute leveraged plays with cash instruments, and without having to borrow funds." CHEW, *supra* note 65, at 17.

74. See HULL, *supra* note 46, at 494. See also Cohen, *supra* note 17, at 2020-21 n.150.

75. In this case, theoretically the investment amount can be expanded infinitely. If the haircut is 2%, the size of investment can be expanded up to fifty times.

7.88%, while the price of the bonds dropped from \$100.44 to \$92.34.⁷⁶ The three-fold leverage effect, due to two reverse repos, increased the duration of the bonds, thus expanding the magnitude of the loss.⁷⁷

This led to a margin call by CSFB.⁷⁸ As the decline in the price of bonds meant a decline in the value of collateral, the counterpart of the reverse repo contract, CSFB, who had the bonds, asked for additional collateral from Orange County.⁷⁹ When Orange County failed to respond to the request to put up additional collateral, CSFB quickly liquidated the bonds it kept as collateral, which put Orange County on the road to bankruptcy court.⁸⁰

2. Investment with Inverse FRNs

In the investment failure of OCIP, inverse FRNs had an important function. As an FRN is re-adjusted regularly by the coupon rate, which reflects the market interest rate, it is equivalent to making a promise to "rollover" during the period of the short-term discount bond. Therefore, the sensitivity to the value of bonds against the volatility in interest rate is as low as in the discount bonds.

Inverse FRN refers to a bond whose coupon rate varies inversely to the volatility of its reference rate. For example, the coupon interest rate of the inverse FRN can be expressed as $\text{MAX}[10\% - \text{LIBOR}, 0]$. Generally, the lowest coupon interest rate is set at zero. This means the issuing company has sold the inverse FRN to investors at a price outside the interest rate caps. As in the previous example, if the coupon interest rate is set as $[10\% - \text{LIBOR}]$, the coupon interest rate decreases when LIBOR (London Interbank Offered Rate) increases. In the extreme case that LIBOR exceeds 10%, the coupon interest rate becomes zero, the worst case for investors.

As the inverse FRN is very sensitive to the change in interest rate, it is a highly risky subject of investment.⁸¹ As for a fixed-interest bond, the coupon interest remains the same when the interest rate is on the rise, but when the market interest rate increases, the value declines. However, as to the inverse FRN, when the coupon interest rate declines and the market interest rate goes up, the value will decline more than a fixed-interest-rate bond would. In other words, the sensitivity

76. JORION I, *supra* note 31, at 95.

77. The duration of five-year bonds with the addition of three-fold leverage has about the same level of duration as twenty-five-year bonds. The duration of a five-year bond is 4.4; when the three-fold leverage is taken into consideration, the duration becomes 13.2.

78. See HULL, *supra* note 46, at 27.

79. JORION I, *supra* note 31, at 36.

80. *Id.* at 36-37.

81. BOMFIM, *supra* note 25, at 46, 51.

of the value of a bond to the volatility of interest rate is increased in the inverse FRN. For example, the risk of a five-year maturity inverse FRN is about twice a five-year fixed-interest-rate bond,⁸² making it similar to that of a ten-year maturity fixed-interest-rate bond. Generally, at the beginning, a relatively high coupon interest rate is preferred, but with the rise in the interest rate, the value of the bond rapidly declines.

As FNMA invests in long-term assets, paying fixed interest rates, such as a mortgage, by financing short-term funds becomes a problem of mismatched assets and liabilities. When the interest rate went up, the cost of financing increased; however, because the income from the mortgage was fixed, FNMA tried to settle the difference through inverse FRNs. In other words, inverse FRNs were issued as a means of hedging against the risk of an increase in the interest rate. When an inverse FRN was issued, the interest expense was reduced once the interest rate increased.

In anticipation of the stability in interest rate or the continuance of its decline, OCIP invested \$1 million in inverse FRNs issued by FNMA using the formula of $[15.5\% - 2 \times \text{LIBOR}]$.⁸³ As LIBOR was multiplied by the leverage multiplier 2, it had a structure in which the degree of decline in the coupon interest rate was expanded by the amount of the interest rate increase. The risk is about three times higher compared to a fixed-interest-rate bond with the same maturity.⁸⁴ As LIBOR rapidly increased from 3.63% in January 1993 to 6.5% in November 1994, the coupon interest rate took a nose dive from 8.25% to 2.5%.⁸⁵ As a result, the value of the bond fell sharply, which was directly linked to OCIP's loss.

82. By dividing the cash flow of the fixed-interest-rate bond, FRN and inverse FRN can be created. Adding the values of FRN and inverse FRN should equal the value of the fixed-interest-rate bond. For example, assume that a five-year maturity fixed-interest-rate bond has a value of \$100, and the values of FRN and inverse FRN are \$50 each. Assume also for the purpose of this example (perhaps somewhat unrealistically in the real world) that the duration of a five-year fixed-interest-rate bond is 5 and that of FRN is 0. If the interest rate goes up 1%, the value of the fixed-interest-rate bond declines by \$95. As the duration of FRN is 0, the \$5 decline in value occurs in inverse FRN and the value declines from \$50 to \$45. In this case, the duration of inverse FRN become $10(50/5)$. That is, the risk of a five-year maturity inverse FRN is about twice that of a five-year maturity fixed-interest-rate bond.

83. JORION I, *supra* note 31, at 51.

84. *Id.*

85. *Id.*

C. Structure of OCIP

OCIP held various securities, but the \$800 million in FNMA bonds were the majority of the bonds issued by the public agencies.⁸⁶ In 1994, the FRB raised the interest rate three times, resulting in a 6% decline in value of the FNMA bonds.⁸⁷ Considering the leverage of 2.71 using the reverse repo, the actual decline in value of the FNMA bonds was about 16%. The decline in value of the overall investment pool was about 21%.

Table II-1 below shows the sizes and average maturity of various securities in which OCIP invested. During the treasurer election campaign, based on this information, Moorlach very accurately forecasted a bankruptcy.⁸⁸ However, Moorlach's assertion lacked persuasive power because the information was formulated in a document prepared by financial experts who wanted to remain anonymous due to the influence of Merrill Lynch and Citron, the big guns in the capital market.⁸⁹ Consequently, Moorlach's claim was treated as only a political opinion.

The influence of both Citron and OCIP can be seen in the California city of Irvine, for example, which invested in OCIP by financing through bond issuance.⁹⁰ Standard and Poor's ("S&P"), a company that provides financial market intelligence, gave the highest credit rating to the Irvine bonds conditioned on the funds being invested in OCIP.⁹¹ Peer Swan, the mayor of Irvine, compared Moorlach's assertion to shouting "fire" in a movie theater and further claimed that Irvine's cost of financing rapidly increased as a result of Moorlach's statement.⁹² Ironically, as OCIP's potential insolvency was revealed,

86. *Id.* at 93.

87. "[T]he Federal Reserve pushed interest rates up from 3.25 percent in February to 5.5 percent Nov. 15, [1994;] the market value of the bonds Citron has borrowed against declined, forcing him to either invest more cash or sell the leveraged securities at a loss." *Statements, supra* note 39, at 36 (testimony of Gaddi Vasquez).

88. The Orange County board of supervisors has now discovered "the concerns John Moorlach had regarding the safety of the Orange County Investment Pool (OCIP), in his race for county treasurer against Robert L. Citron, were true. Higher returns do mean higher risks." *Id.* at 38.

89. JORION I, *supra* note 31, at 15-18.

90. *Id.* at 131.

91. *Id.* at 94.

92. Note that:

By investing in short-term "reverse repurchase" arrangements, and using the money to buy long-term bonds, Citron has earned an arbitrage, or differential profit, that even Moorlach says gave the county "incredible performance numbers." But if interest rates continue to rise, as they have in the past six months, Citron will be stuck with billions of dollars worth of bonds returning less-than-market rates, Moorlach said. If he's forced to sell the bonds in a down market, the losses could cut into principal. "I'm not trying to

Swan was the first to withdraw the Irvine monies from OCIP.⁹³ Table II-1 also reflects the structure of OICP:

Classification of Asset	Face value (in millions of dollars)	Cost (in millions of dollars)	Average Maturity
Treasury Bond	582	591	4.5
Agency fixed-rate notes	8,480	8,493	4
Agency floating-rate notes	5,693	5,692	4
Corporate notes	1,912	1,912	4
MBS	127	127	10
Certificate of deposit	1,609	1,609	4
Mutual funds	421	421	NA
Discount notes	686	683	0
Commercial paper	350	349	0
Total securities value	19,860	19,879	
Reverse repo	-12,529	-11,833	
Net securities value	7,331	8,046	
Leverage	2.71		

TABLE II-1. STRUCTURE OF OCIP⁹⁴

D. Result of Derivatives Application

1. Astronomical Loss

The investment results of OCIP indicate it was achieving excess profits until 1993.⁹⁵ However, as the FRB increased the interest rate

cry wolf or scream fire in a theater,” Moorlach said. “All I’m saying is, ‘Board of Supervisors, look, this is risky.’ If interest rates rise, based on how he’s grown his garden, the harvest isn’t going to be very attractive. Win, lose or draw, the problem’s still there.” Citron said Moorlach’s dire scenarios are based on speculation. “We don’t believe that situation will crop up,” Citron said. “If interest rates do go up, not all of the securities we have will (lose value) in that way. “We may not be earning the very high interest rates, but we are still predicting that we will earn no less than 6.5 percent in the fiscal year that begins July 1.

Statements, supra note 39, at 24 (testimony of Gaddi Vasquez).

93. Note that:

[W]hen IRWD’s Swan approached county officials last week and asked for his deposits, he was told he would not be able to collect the money for 30 days. Tuesday, Swan said, he learned that he would also have to take a 20 percent loss — his share of the market decline. “I’m not panicked about the deal,” Swan said. “The most prudent thing to do would be to take the money out. But for the benefit of the people of the county I would be willing to leave the money there, as long as I can participate in the (investment) review committee.

Id. at 37.

94. JORION I, *supra* note 31, at 92. See also WHALEY, *supra* note 7, at 668.

95. JORION I, *supra* note 31, at 8.

six times to curb inflation in 1994, the fundamental basis of investment strategies began shaking.⁹⁶ Citron's anticipation of the interest rate decline was ascribed to the belief that the U.S. economy would continue to remain in a stagnation phase.⁹⁷ This erroneous belief seems to have resulted from the inability of the state of California (unlike other U.S. states) to come out of the depression.⁹⁸ Despite anticipation of having at least an inconsistent economic situation, Citron continued a high-risk investment strategy of expanding the fund leverage by means of reverse repos to compensate for the previous loss.⁹⁹ Below Table II-2 shows the leverage of OICP from June 1990 to December 1994.

Date	Holdings	Borrowings	Leverage
June 1990	3.6	1.7	1.5
June 1991	3.9	1.9	1.5
June 1992	5.6	3.9	1.7
June 1993	7.7	7.5	2.0
June 1994	9.4	12.7	2.3
Dec. 1994	7.6	13.0	2.7

TABLE II-2. LEVERAGE OF OCIP¹⁰⁰

During the Orange County treasurer election, Moorlach argued the need for investigation into the fund.¹⁰¹ Although there were four investigations after 1994, no restriction was put in place regarding the management of the fund.¹⁰²

In the end, the total loss to the OCIP reached \$1.6 billion in November 1994.¹⁰³ The average maturity of the fixed-interest-rate bonds was 4 years, during which a total of \$12 billion was invested. Between

96. *Statements*, *supra* note 39, at 47.

97. JORION I, *supra* note 31, at 87.

98. *Id.*

99. The most significant characteristics of "derivatives make it possible to start large positions with small amount of money by using leverage." CHEW, *supra* note 65, at 15.

100. JORION I, *supra* note 31, at 88.

101. See BALDASSARE, *supra* note 35, at 104-07 (describing campaign for Orange County treasurer election).

102. JORION I, *supra* note 31, at 89-90.

103. SEC. & EXCH. COMM'N, EXCHANGE ACT RELEASE NO. 36,761, REPORT OF INVESTIGATION IN THE MATTER OF COUNTY OF ORANGE, CALIFORNIA AS IT RELATES TO THE CONDUCT OF THE MEMBERS OF THE BOARD OF SUPERVISORS (1996), available at <http://www.sec.gov/info/municipal/mbonds/publicof.htm> [hereinafter SEC ORANGE COUNTY REPORT]. "The County also suffered a loss of \$157 million in estimated and budgeted interest earnings from the County Pools, contributing to a projected deficit for fiscal year 1994-95 of approximately \$172 million." *Id.* See also BALDASSARE, *supra* note 35, at 123-24.

December 1993 and November 1994, as the interest rate increased from 5.2% to 7.8%, the rate of loss of the fixed-interest-rate bonds was 3%, equal to \$360 million.¹⁰⁴ The maturity of inverse FRN was 5 years, with a total of \$800 million invested.¹⁰⁵ Likewise, as the interest rate increased by 2.6% during the same period, the value dropped by 12.8%; considering the coupon interest rate of 5%, the rate of loss was 7.8%, yielding an investment loss of \$620 million.¹⁰⁶ In addition, if the money financed was \$1.24 billion and the short-term borrowing cost was 5%, the total amount of loss came up to \$1.6 billion.¹⁰⁷ Below Table II-3 provides an analysis of OCIP's losses.

Subject of Investment	Amount of Investment (in billions of dollars)	Revenue rate (Jan.-Dec. 1994)	Loss (in millions of dollars)
Initial Portfolio	\$7.6		
Fixed-rate notes	\$12.0	-3.0%	\$360
Inverse FRN	\$8.0	-7.8%	\$620
Loan cost	\$12.4	-5.0%	\$620
Total portfolio: Estimated loss		-21%	\$1,600

TABLE II-3. ANALYSIS OF OCIP LOSS¹⁰⁸

2. Bankruptcy of Orange County

In December 1994, Orange County entered bankruptcy proceedings for adjustment of debts of a municipality pursuant to Chapter 9 of the U.S. Bankruptcy Code, which governs the bankruptcy of municipalities.¹⁰⁹

Chapter 9 allows for reorganization only of the financial asset structure of the municipality.¹¹⁰ Because the means of bankruptcy liquidation for a municipality is not mentioned in Chapter 9, many other means were considered for the liquidation of the portfolio; a public auction was the means selected.¹¹¹ Because the restructuring was made very quickly, the process was completed within 5 months.¹¹² A total of \$7.5 billion worth of securities was sold; after paying off the

104. JORION I, *supra* note 31, at 95.

105. *Id.*

106. *Id.*

107. *Id.*

108. *Id.*

109. 11 U.S.C. § 901 (2006).

110. *See generally id.*

111. JORION I, *supra* note 31, at 77.

112. "Prompted by due date of certain repo transactions, Orange County file[d] for Chapter 9 protection" on December 6, 1994, and the "US Bankruptcy Court endorse[d] settlement of what [was] left in the investment pool" on May 2, 1995. Jameson, *supra* note 30, at 2.

remaining debts, \$4.8 billion of the recovered amount was returned to Orange County.¹¹³ In 1996, Citron was sentenced to a year in jail and fined \$100,000.¹¹⁴

3. Litigation Against Merrill Lynch

In January 12, 1995, Orange County sued Merrill Lynch for having irresponsibly sold high risk securities; Orange County alleged Merrill Lynch was responsible for the \$1.7 billion loss.¹¹⁵ At that time, Merrill Lynch had focused on financing by municipalities; it was the leader in the field of undertaking bonds issued by municipalities.¹¹⁶ The two points at issue in the litigation were as follows:

First, whether Merrill Lynch provided OCIP with sufficient information on the risk of the structured bond position vis-à-vis the interest rate change.¹¹⁷ Merrill Lynch insisted it had told Citron of the possible negative result of an interest rate hike and of its intentions to repurchase the structured bond in the amount of \$3.5 billion.¹¹⁸ However, Citron claimed that between October 1992 and November 1994, Merrill Lynch sold inappropriate additional structured bonds of \$2.8 billion in the form of the inverse FRNs.¹¹⁹

The second issue was whether the structured bonds Merrill Lynch offered to OCIP were suitable.¹²⁰ Though it is difficult to define the concept of suitability, in securities law, the client should at least be protected from speculative products suggested by the broker.¹²¹ Orange County alleged the product offered by Merrill Lynch was unlaw-

113. JORION I, *supra* note 31, at 81.

114. Andrew Pollack, *First Boston To Pay Fine in Orange County Bond Offering*, N.Y. TIMES, Jan. 30, 1998, at A1.

115. JORION I, *supra* note 31, at 97.

[In the related lawsuit,] [p]laintiffs argue[d] that Merrill Lynch permitted, encouraged, and advised Citron to pursue an unlawful, speculative scheme that included the borrowing, primarily through short-term Repos, of billions of dollars and the transfer of billions of dollars of securities owned by the County to Merrill Lynch. As a result of this investment strategy, the County suffered catastrophic losses in 1994.

County of Orange v. Merrill Lynch & Co. (*In re* County of Orange), 191 B.R. 1005, 1010-11 (Bankr. C.D. Cal. 1996).

116. BALDASSARE, *supra* note 35, at 171.

117. See generally *id.* at 170-74.

118. JORION I, *supra* note 31, at 99.

119. *Id.*

120. This issue arises because "derivatives are often such complex and highly leveraged products." Aaron Rubinstein, *Common Law Theories of Liability in Derivatives Litigation*, 66 FORDHAM L. REV. 737, 743 (1997). But see Gibson, *supra* note 1, at 546 (noting that federal securities laws do not impose liability rules).

121. Dealers and brokers can normally obtain the necessary information through standard questionnaires and customer profiles in the course of business. Rosenthal, *supra* note 5, at 1260. Generally, the doctrine of suitability can be defined as:

ful in that it was completely inconsistent with the investment purpose of OCIP.¹²²

Although this litigation ended in a \$400 million settlement paid by Merrill Lynch to Orange County in June 1998,¹²³ other suits followed. The creditors of Orange County filed a suit against Merrill Lynch and Citron;¹²⁴ also, Orange County sued Nomura Securities, who had immediately disposed of a security worth \$900 million in violation of the automatic stay provision of the Bankruptcy Code.¹²⁵

E. Implications

In terms of supervision, a major problem was people in authority in Orange County failed to understand the investment strategy of OCIP. In other words, a sufficient analysis of the risk factors regarding the subject for investment, its suitability to the municipality, or even why OCIP had previously achieved excess profit was not given to the investors.¹²⁶

In conclusion, it is estimated the main cause of Orange County's failure in the use of derivatives lay not in the derivatives themselves, but in the people who acted without knowledge of them,¹²⁷ as well as

[A] legal principle by which brokers (and, potentially dealers) owe a duty to investors to make suitable recommendations regarding the purchase of investment instruments. In the context of derivatives, suitability relates to a dealer's responsibility for ascertaining the extent to which the counter-party understands the risks of the transactions into which it enters—i.e., is the counter-party "suitable?"

David C. Sienko, *The Aftermath of Derivatives Losses: Can Sophisticated Investors Invoke the Suitability Doctrine Against Dealers under Current Law?*, 8 DEPAUL BUS. L.J. 105, 115 (1995).

122. See JORION I, *supra* note 31, at 99 (noting that the issue of the suit against Merrill Lynch was suitability).

123. Andrew Pollack & Leslie Wayne, *Ending Suit, Merrill Lynch to Pay California County \$400 Million*, N.Y. TIMES, Jun. 3, 1998.

124. Chapter 9 of the U.S. Bankruptcy Code prohibits investors from filing a lawsuit against the municipality. See *infra* note 125 and accompanying text.

125. John Greenwald, *The California Wipeout*, TIME, Dec. 19, 1994, at 55. In Chapter 9 of the U.S. Bankruptcy Code, the collection of the assets of a bankrupt entity by the creditors is prohibited through the applicable automatic stay. 11 U.S.C. §§ 362(a), 901(a) (2006). In Chapter 11 of the U.S. Bankruptcy Code where the bankruptcy cases of general private firms are dealt with, repo is subject to exemption from the automatic stay. In other words, at the time of bankruptcy, the creditors can dispose of the secured debts. However, at that time, it was not clear whether repo was subject to the exemption from the automatic stay provision in Chapter 9 of the U.S. Bankruptcy Code, leaving it a matter to be settled by the bankruptcy court. BALDASSARE, *supra* note 35, at 172.

126. Under the California Government Code Section 25303, County Supervisors are required to oversee the official conduct of independently elected officials such as Citron and their responsibility with regard to "the assessing, collecting, safekeeping, management and disbursement of public funds." CAL. GOV'T CODE § 25303 (2007). However, they did not meet those legal obligations. *Statements*, *supra* note 39, at 3, 46.

127. Rosenthal, *supra* note 5, at 1252.

the lack of suitability between the investment purpose and the subject of investment.¹²⁸ There would have been no problem if such an investment strategy had been used by a hedge fund rather than a municipality. For a municipality, a high-risk investment is erroneous because of the city's purpose. Before making this investment decision, the municipality should have determined whether the characteristics of the possible investment were suitable for its purpose, selecting only an investment that allowed its objectives to succeed.¹²⁹

In 1997, as the person in charge of Orange County was replaced and the governance structure reformed, a system of direct reporting to the supervisor by the internal auditors was installed, and a strict investment policy was put in place.¹³⁰ In the new Orange County investment policy statement, guarantees of the principal and liquidity were established.¹³¹ Moreover, restrictions were placed on certain investment strategies; specifically, borrowing for investment purposes, repos, restructured bonds (particularly inverse FRNs), and derivatives (particularly options) were prohibited.¹³²

Because OCIP was a fund for taxpayers and their families, a clear investment purpose reflecting such characteristics should have been made. By its nature, the first priority of OCIP's investment purpose should have been guaranteeing its principal. Once the investment purpose is clearly established, it must be accomplished through risk management guidance and management. For example, by setting the maximum exposure to the market risk through VaR,¹³³ the investment

128. There is however a different argument:

Regarding the justifiable reliance element, if Citron was as ignorant [warning] . . . Merrill Lynch could argue that Citron would have bought the financial instruments anyway. [In such a case,] Orange County could have responded that the *shingle theory* was intended to protect unsophisticated investors, thus giving rise to a duty to disclose that the investments were unsuitable prior to selling them to the investor. Nevertheless, there are circumstances where Merrill Lynch would not be under a duty to disclose the unsuitability of the transactions. For example, Citron may have called [Merrill Lynch salesperson] and told him exactly what he wanted to purchase and on what terms. The suitability doctrine probably would not provide relief to Orange County based on this scenario because [salesperson] would have been acting as an order taker rather than adviser.

Madison, *supra* note 5, at 295.

129. McKown & Purcell, *supra* note 11, at 121.

130. Jameson, *supra* note 30, at 3.

131. *Id.* at 4.

132. *Id.*

133. HULL, *supra* note 46, at 435.

purpose can be controlled, but in OCIP's case, a risk management of portfolio was not made.¹³⁴

There is a risk not only in derivatives, but in all investments in financial products. The question is how much risk investors can tolerate, and Orange County assumed too much. As a result, out of an investment pool of \$7.5 billion, a \$1.6 billion loss, or 22% of the pool, was generated.¹³⁵ In contrast, in 1994 the average loss to passive investors was only 4%.¹³⁶

The excessive risk Orange County faced was due to the speculative transactions (for example, inverse FRNs, structured bonds, and repos) that were engaged in, causing a high leverage unsuitable for a fund managed by a municipality.¹³⁷ In addition, as there was absolutely no control over the use of excess leverage, Citron was able to make decisions on his own, which was an important risk management problem in itself. Moreover, the fact that it was difficult to quickly hedge or dispose of the Orange County portfolio due to its complexity was another factor that led to such a large-scale loss.

However, it would be extremely erroneous in a regulation plan to preclude derivatives or products with built-in derivatives on account of their possible application problems. At that time, there was an assertion that filing litigation should be made easy by stipulating that a municipality is an unsophisticated investor. However, the Securities and Exchange Commission ("SEC") disapproved of that approach on the grounds that it would be ineffective; an honest securities company was likely to get caught in a lawsuit merely because the client lost money with the securities company, ultimately passing on such a cost to the client.¹³⁸ The SEC concluded the best practice for regulating

134. "A sophisticated party will measure the market risk to its overall portfolio. That is, it will measure its net exposure after accounting for all its positions." Norman Menachem Feder, *Deconstructing Over-the-Counter Derivatives*, 2002 COLUM. BUS. L. REV. 677, 722 (2002).

135. JORION I, *supra* note 31, at 9, 132.

136. *Id.* at 133.

137. It should be noted "derivatives are not necessarily more or less risky than the underlying assets. The degree of risk is related to the degree of leverage." Cohen, *supra* note 17, at 2007 n.73.

138. There were some critics who have criticized SEC actions in the municipal securities market. Rachel Witmer, *McLucas Defends SEC's Enforcement of Laws in Municipal Securities Market*, 28 SEC. REG. & L. REP. 5 (1996). They believed Arthur Levitt, SEC Chairman, "has been biased in favor of bringing individual actions and should not have participated in SEC decisions to file them." *Id.* However, the SEC Enforcement Director William McLucas argued that "[t]his attitude of shoot the messenger misses the mark." *Id.* On January 30, 1996, Director McLucas asserted that "the SEC is pursuing plain vanilla securities fraud and has not applied new fraud standards in the [municipal securities] market." *Id.* (emphasis changed). According to McLucas, the SEC policies with respect to the municipal securities market are reasonable. *Id.* Indeed, it should be noted that:

derivatives was to have the investment agencies and securities clarify the investment purpose and investment guide, establish a risk management system, and reinforce public notice to the investors.¹³⁹

What we must notice that the SEC in the United States did not make the mistake of burning down the house to get rid of the mice. In other words, based on the understanding that structured bonds are basically useful securities, the SEC adhered to its position of settling the problem raised due to erroneous application of the investment vehicle. There are situations where price setting for the structured bonds can be difficult, including those when a particular purpose calls for a special structure. In addition, though the structured bonds have various built-in derivatives, as they are often traded as bonds, unsophisticated investors are likely to misunderstand them as secure products. Therefore, rather than regulating the structured bonds themselves, regulations were established to reinforce the necessity of an explanation of the inherent risks of the structure bonds when they are sold to unsophisticated investors.

After *Orange County*, a G-30 Study Group Report proposed the best practice for risk management of the OTC derivatives.¹⁴⁰ The specifics are as follows: First, the range of OTC derivatives transactions should be determined on the top management level.¹⁴¹ Second, by evaluating the market prices of the OTC derivatives every day, the size of profits and losses should be understood.¹⁴² Third, the market risk¹⁴³ that could occur in the worst possible situation should be one measured.¹⁴⁴ Fourth, the credit risk¹⁴⁵ of the transaction counterpart should be frequently evaluated.¹⁴⁶ Fifth, an individual department,

The scope and even the existence of investor protection rules vary according to the regulator and the type of instrument regulated, ranging from fairly rigorous requirements to looser provisions that essentially amount to only risk disclosure. The Securities and Exchange Commission . . . has enacted bright-line rules that in some cases impose fewer restrictions on transactions involving parties that meet certain objective criteria, such as particular levels of income and net worth.

Geoffrey B. Goldman, *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, 1114 (1995).

139. SEC ORANGE COUNTY REPORT, *supra* note 103.

140. GROUP OF THIRTY, DERIVATIVES: PRACTICES AND PRINCIPLES (July 1993), <http://riskinstitute.ch/136160.htm>.

141. GROUP OF THIRTY, THE RECOMMENDATIONS: GENERAL POLICIES 1 (July 1993), <http://riskinstitute.ch/138280.htm> [hereinafter RECOMMENDATIONS].

142. *Id.*

143. "It is best measured as [VaR] using probability analysis based upon a common confidence interval . . . and time horizon." *Id.*

144. *Id.*

145. HULL, *supra* note 46, at 481. See also SCOTT & WELLONS, *supra* note 5, at 1035.

146. RECOMMENDATIONS, *supra* note 141.

separate from the department engaged in the transaction, should perform the function of supervision and risk management.¹⁴⁷ Sixth, derivatives transactions should be permitted to be used only by professionals with the necessary knowledge, skill, and experience.¹⁴⁸

Government bonds or municipal bonds that have been issued by the government or a municipality with a credit risk,¹⁴⁹ however low, are not free from market risk,¹⁵⁰ or in other words, the risk of interest rate volatility. In 1994, although government bonds did not have a credit risk, there was a large loss of 12% due to the market risk.¹⁵¹ Therefore, an investor must be able to understand and control the market risk and the credit risk¹⁵² at the same time. Based on regular reports, the value of the investment position and VaR¹⁵³ must be accurately understood.

In addition, when an investment decision is made regarding a particular OTC derivative, the investor must be aware of all relevant risk factors affecting the investment and the degree of exposure to this risk. From an unsophisticated investor's standpoint, it is advisable not to invest in a product whose fair value is not easily determined due to its complex structure.¹⁵⁴

III. LEVERAGE INTEREST RATE SWAP TRANSACTIONS OF PROCTER & GAMBLE AND GIBSON GREETINGS

Among many other cases of derivatives failure in 1990s, the interest rate swap contracts¹⁵⁵ between Procter & Gamble ("P&G") and Bankers Trust ("BT"), and between Gibson Greetings and BT

147. *Id.*

148. *Id.*

149. "Credit risk involves exposure to possible losses resulting from a counter-party's failure to meet its financial obligations." Gibson, *supra* note 1, at 542.

150. "Market risk involves exposure to possible financial losses from an adverse movement in the interest or currency rates, equity or commodity prices, or other market factors." *Id.*

151. JORION I, *supra* note 31, at 157.

152. "The credit quality of both the reference asset and the counterparty are the principal determinants of credit risk." Andre Scheerer, *Credit Derivatives: An Overview of Regulatory Initiatives in the United States and Europe*, 5 FORDHAM J. CORP. & FIN. L. 149, 163 (2000).

153. "Value at Risk analysis expresses the potential loss in fair values, earnings, or cash flows of market risk sensitive instruments . . ." SCOTT & WELLONS, *supra* note 5, at 1076.

154. Who are unsophisticated investors? One commentator has presented one standard to this question which are "[i]dentity, age, education, intelligence, and investment and business experience of the [investor]." Sienko, *supra* note 121, at 127. Under this standard, "if the [investor] is engaging in derivatives transactions such as swaps, it is logical to assume that they have a fair degree of experience and sophistication. Indeed, such requirements are included in the CFTC's exemption allowing swaps to occur off-exchange." *Id.*

155. "A swap contract is a bilateral agreement that obligates the contracting parties, who are referred to as counter-parties, to exchange a series of cash-flow payments at specified times." Gibson, *supra* note 1, at 534-35.

presented the biggest issues.¹⁵⁶ The cases of *P&G* and *Gibson Greetings* developed from inappropriate sales practices by BT, who held the leading position in the field of derivative instruments.¹⁵⁷ This was not the last word of the debate, but rather was the starting point of regulatory and legal issues regarding OTC derivatives transactions.

A. *P&G's Failed Transactions*

1. Background

P&G, a leader in cosmetics, infant products, and grocery industries, offered almost 250 products to 5 billion consumers in 130 countries.¹⁵⁸

In August 1993, as the maturity of the interest rate swap approached what P&G had paid, that is [CP Federal Funds Rate – 0.40%], the company relied on BT for a swap contract replacing the interest rate swap in order to maintain BT's financing structure.¹⁵⁹ Although BT proposed a swap contract similar to the previous swap in structure, P&G refused on account of its inconsistency with P&G's risk factors.¹⁶⁰ Later, the second swap contract proposed was a swap linked with the rate of return on 5-year/30-year maturity U.S. Treasury bonds.¹⁶¹

Instead of refinancing at a fixed rate, the company may enter into a swap contract to hedge against the risk of increases in the interest rate. Through a swap contract, the company can swap the floating-rate loan payment liability for a fixed-rate payment liability to insure against rises in the interest rate.

Id. at 535.

156. Feder explained:

A swap is an exchange of cash flows. A cash flow is a series of future cash payments. In a swap, a party agrees to make future payments to the counterparty determined by reference to a certain fixed or floating rate on a notional amount, and the counterparty agrees to make reciprocal payments at a market floating rate on a notional amount.

Feder, *supra* note 134, at 701-02.

157. See CHEW, *supra* note 65, at 33-37, 47-49.

158. See PROCTOR & GAMBLE, FORM 10-K 2-3 (1998), <http://ccbn.10kwizard.com/xml/download.php?repo=tenk&ipage=504540&format=PDF>.

159. See CHEW, *supra* note 65, at 33.

160. See Baird et al., *Recent Developments in Litigation Involving Derivative Contracts*, in ALI-ABA COURSE OF STUDY, SECURITIES LITIGATION: PLANNING AND STRATEGIES FOR THE '90s AND BEYOND 310-12 (1996) (introducing swap contracts between P&G and BT based on the complaint that file by P&G in federal court in Cincinnati).

161. CHEW, *supra* note 65, at 33-34 ("The United States District Court for the Southern District of Ohio [] held that a derivative product, referred to as a 5s/30s swap, sold by BT to another counterparty was not a security within the meaning of Section 3(a)(10) of the Securities Exchange Act."). See *Procter & Gamble Co. v. Bankers Trust Co.*, 925 F. Supp. 1270, 1282 (S.D. Ohio 1996). However, SEC has a different angle on this issue:

In *BT Securities and Vazquez*,[] the Commission found that the Treasury-Linked Swap was a security. There are some similarities to and some differences between the 5s/30s swap and the Treasury-Linked Swap here. In any event, the Commission disagrees with the Court's analysis and reiterates its position that the Treasury-Linked Swap is a secur-

The main motive for P&G's entrance into an interest rate swap contract with a 5-year maturity with BT in November 1993 was reduction of the borrowing cost.¹⁶² P&G anticipated the interest rate would decline between November 1993 and May 1994.¹⁶³ Therefore, P&G entered into an interest rate swap contract to convert the fixed-interest-rate debt in its possession into a debt with a floating interest rate.

The only difference from the ordinary interest rate swap was the spread took on the characteristics of an option in the equation that determined the variable rate. However, contrary to P&G's expectations, the FRB raised the interest rate, and P&G incurred a large loss.¹⁶⁴ P&G filed a lawsuit against BT on the grounds that BT had breached its fiduciary duty by failing to provide a clear explanation of the characteristics of OTC derivatives.¹⁶⁵ The two companies reached an out-of-court settlement,¹⁶⁶ but the lawsuit set off an examination of the need for regulation of the sales practices used by sellers of OTC derivatives.¹⁶⁷

2. Structure of Derivatives Deal

The interest rate swap contract that P&G entered into with BT had a 5-year maturity, \$200 million face value, and semiannual interest payment.¹⁶⁸ In return for receiving a fixed interest payment of 5.30%

ity within the meaning of the federal securities laws because it was in actuality a cash-settled put option on the spread between the price and yield of two different Treasury securities.

Missner, 62 S.E.C. 265, n.4 (1996), available at <http://www.sec.gov/litigation/admin/337304.txt> and 1996 WL 316296.

162. See CHEW, *supra* note 65, at 33.

163. *Id.* at 34-35; see also Michael S. Bennett & Michael J. Marin, *The Casablanca Paradigm: Regulatory Risk in the Asian Financial Derivatives Market*, 5 STAN. J.L. BUS. & FIN. 1, 7 (1999).

164. See ERisk, *Case Study: Bankers Trust*, ERISK.COM, <http://www.erisk.com/Learning/CaseStudies/BankersTrust.asp>. (last visited Feb. 9, 2008) [hereinafter ERISK CASE STUDY I].

165. Rosenthal, *supra* note 5, at 1267. See also *Procter & Gamble Co. v. Bankers Trust Co.*, 925 F. Supp. 1270, 1275 (S.D. Ohio 1996).

166. CHEW, *supra* note 65, at 37.

167. See, e.g., William K. Maready, Jr., *Regulation for Disaster: Federal Attempts to Control the Derivatives Market*, 31 WAKE FOREST L.REV. 885, 898-912 (introducing several federal solutions that related to solve the derivatives problems, i.e., "The Derivatives Limitations Act of 1995," "Risk Management Improvement and Derivatives Oversight Act of 1995," "The Derivatives Safety and Soundness Supervision Act of 1995," "The Derivatives Dealers Act of 1995," and "The SEC's Proposed Amendments."). In the International Symposium on Derivatives and Risk Management, held at Fordham University School of Law in 2000, one practitioner argued various issues in derivatives dealing practice, i.e., capacity, ultra vires, Statute of Frauds, misrepresentation, fraudulent concealment, fiduciary duty, etc. See Denis M. Forster, *Derivative Litigation and Dispute Resolution*, 5 FORDHAM J. CORP. & FIN. L. 65, 71-76 (2000).

168. Nagler, *supra* note 18, at 457.

from BT, P&G agreed to pay a floating interest payment of [Daily 30-day average CP interest rate - 0.75% + spread].¹⁶⁹

The characteristics of the interest rate swap P&G entered into with BT are as follows: Unlike ordinary swap transactions where the floating interest rate is interlocked with LIBOR, here the floating interest rate was determined by the CP interest rate.¹⁷⁰ In calculating the CP interest rate, a 30-day average CP interest rate was used instead of the CP interest rate of a particular day.¹⁷¹ Additionally, a spread with the characteristics of an option was added to the formula that determined the floating rate.¹⁷² This spread had a structure determined by the price difference between a 5-year government bond and a 30-year government bond, or the difference in the rate of return,¹⁷³ demonstrating the core characteristic of the interest rate swap between P&G and BT.

The formula for the spread included in the interest rate swap entered into between P&G and BT is as follows:

$$\text{Spread} = \max [0, 98.5 \times (5\text{-year government bond})/5.78\% - 30\text{-year market price of government bond}].^{174}$$

For the first six months of the 5-year contract, the spread was 0, while for the remaining 4 years and 6 months (i.e., nine semesters), the spread was determined by the standard of the price of the 30-year government bond and the rate of return of the 5-year government bond as of May 4, 1994, six months after the beginning of the contract.¹⁷⁵ In this way, once the spread was determined, it was fixed for the remaining period.¹⁷⁶ As the spread is determined by the rate of return on a 5-year Treasury bond and the price of a 30-year Treasury bond, the interest rate swap is called a "5/30 leveraged swap."¹⁷⁷

169. *Procter & Gamble*, 925 F. Supp. at 1276.

170. *Id.* at 33. See also CHEW, *supra* note 65, at 33.

171. Similar to this, the structure in which the average price of a certain period is used instead of the price of a certain date is called an Asian structure. In case of an option, the option whose strike price is determined by the average price for a certain period is called an Asian option. See DON M. CHANCE, *AN INTRODUCTION TO DERIVATIVES* 651-52 (4th ed. 1998).

172. See CHEW, *supra* note 65, at 34-35.

173. See *id.* at 29.

174. *Id.* at 33. See also *Procter & Gamble*, 925 F. Supp. at 1276.

175. CHEW, *supra* note 65, at 33-35.

176. The rate of return on a five-year Treasury bond is the rate of return of the five-year Constant-Maturity Treasury Note ("CMT"). The price of a thirty-year maturity government bond, the thirty-year Treasury ("TSY"), is the mid-price between the price asked and the price offered on the 6.25%, maturing in August 2023; accrued interest is not included.

177. CHEW, *supra* note 65, at 34. The reason this swap was called a "leveraged swap" is it increased the possibility of the volatility of the interest rate by adding a spread with the characteristics of an option. *Id.* at 35.

The formula for spread had the characteristics of an option in which P&G was the option seller and BT became the option buyer. The deduction of 0.75% from the interest rate of BT referred to the “option premium” P&G receives.¹⁷⁸ The spread increased when the rate of return on the 5-year Treasury bond rose and the price (the rate of return) of the 30-year Treasury bond became lower (higher).¹⁷⁹ In other words, as the price of the bond declined and the rate of return rose, the P&G’s exposure to risk increased. When the spread became 0, it was most advantageous for P&G because P&G paid only [CP interest rate – 0.75%] for five years. Considering that the CP interest rate was 0.25% higher than the 30-day short-term T-bill on average, as the deduction item of 75bp is included, when the spread became 0, it amounted to P&G assuming an interest rate even lower than that of the short-term T-bill.

Consider when the spread was 0: on May 4, 1994 (the date of determining the spread), if the rate of return on the 5-year Treasury bond and the price of the 30-year Treasury bond were 5.02% and 102.58 (rate of return 6.06%), respectively, on November 2, 1993 (the date of the swap contract), the spread would be 0. In other words, the spread at the time of contracting the swap is defined as “out-of-the money.”¹⁸⁰

Table III-1 shows the change of the spread according to the change in the rate of return on two Treasury bonds. For the convenience of discussion, assume the rate of return on the 5-year Treasury bond is 5.00% while that of the 30-year Treasury bond is 6.00%.

In this case, the spread was –18.21%. The larger the rate of return on the 5-year bond, the larger the spread, and the larger the rate of return on the 30-year bond, the larger the spread. In other words, the spread appears to be determined by the difference in the rates of return on two bonds, but, in fact, as the rate of return on bonds increases, so does the spread.

178. *Id.* at 35.

179. *Id.* at 34-35.

180. See HULL, *supra* note 46, at 188.

30 yrs 5 yrs	5.75	6.00	6.25	6.50	6.75	7.00	7.25
4.75	-26.08	-22.47	-19.04	-15.79	-12.69	-9.75	-6.96
5.00	-21.82	-18.21	-14.78	-11.52	-8.43	-5.49	-2.70
5.25	-17.56	-13.95	-10.52	-7.26	-4.17	-1.23	1.56
5.50	-13.30	-9.69	-6.26	-3.00	0.09	3.03	5.82
5.75	-9.04	-5.43	-2.00	1.26	4.35	7.29	10.08
6.00	-4.78	-1.17	2.26	5.52	8.61	11.55	14.34
6.25	-0.52	3.09	6.52	9.78	12.87	15.81	18.60
6.50	3.74	7.35	10.78	14.04	17.13	20.07	22.86
6.75	8.00	11.61	15.05	18.30	21.39	24.33	27.12
7.00	12.26	15.87	19.30	22.56	25.65	28.59	31.38

TABLE III-1. PERCENTAGE CHANGE IN SPREAD¹⁸¹

In such a situation, the change in the spread varies due to the change in the slope of the "yield curve." If the rate of return on the 5-year Treasury bond is intact at 5.00%, while that of the 30-year Treasury bond increases to 7.00% (an increase of 1%), the spread becomes -5.49% as the slope of the yield curve increases. If the rate of return on the 5-year Treasury bond increases to 6.00% (an increase of 1%), and that of the 30-year Treasury bond remains intact at 6.00% (or in other words when the slope of the yield curve declines), the spread becomes -1.17%. These two cases demonstrate the spread is more sensitive to the change in the rate of return on the 5-year bond. Finally, if the rates of return on the two bonds increase by 1% each, resulting in the fixed difference between their rates of return (or in other words, when the slope of the rate of return curve moves in a parallel way), the spread becomes 11.55%.

From the option seller's standpoint, P&G could make a profit if there was no change in the rates of return on the two bonds between November 1993 and May 1994 or if the rates of return did not increase to the point where the spread has a positive value. Although P&G's profit was limited to 0.75% semiannually,¹⁸² it was not limited on the amount of potential loss because there was no limit or ceiling existed on the rise in rate of return of the bond.

The compensation structure of the "interest rate swap" that P&G entered into can be duplicated by combining the "plain vanilla swap" that pays a fixed interest rate and a put-option on the Treasury bond.¹⁸³ The strategy P&G used was intended to reduce the cost of

181. For a different analysis, see CHEW, *supra* note 65, at 33-37.

182. *Id.* at 35.

183. CHANCE, *supra* note 171, at 575.

borrowing stemming from use of the premium of 0.75% by issuing an option.¹⁸⁴

It was normal to issue an option to reduce the cost of borrowing on the exchange, but adding an option on an OTC swap was very novel. P&G added an option on the OTC swap for several reasons.

As the “strike price”¹⁸⁵ and maturity are limited for the OTCs, there was no product suitable for P&G’s situation. P&G needed an option expiring precisely in May 1994, but products on the exchange were only for March and June, and, as most futures options on the Treasury bonds were centered on the nearest-to-delivery contracts, they did not meet P&G’s time constraints.¹⁸⁶

Differences in accounting treatments of these two strategies were also important. From P&G’s standpoint, entering into an OTC swap contract with a built-in option and issuing an option on the exchange were financially the same, but could achieve different effects from an accounting perspective. The reason for these different accounting treatments was due to the difference in recognition of profit and expenses. At that time, in generally accepted accounting principles (“GAAP”), the estimated profit and loss on the option was stipulated to be included in the current term, as directly issuing an option on the exchange was regarded not as a hedge, but as an intention to sell.¹⁸⁷ In other words, it was not possible to defer the estimated profit or loss. On the other hand, as there was no clear guideline in the accounting treatments for the built-in derivatives, the swap with a built-in option was treated as a plain vanilla swap. In turn, treatment as a plain vanilla swap became the subject of hedge accounting because it was not necessarily risk-free and because the amount of change in the market price (the estimated profit or loss) was to be deferred.¹⁸⁸ In addition, the premium from the built-in option was depreciated during the swap maturity.¹⁸⁹ For example, if the value of a fixed-interest-rate swap declined due to the interest rate hike, the estimated profit or loss was not reported on the current financial statements in hedge accounting.

184. CHEW, *supra* note 65, at 35.

185. See Scott & Wellons, *supra* note 5, at 960.

186. See CHEW, *supra* note 65, at 33-37.

187. See Baird et al., *supra* note 160, at 319-21 (arguing SEC’s proposed rulemaking on the accounting of derivatives).

188. See Karol, *supra* note 20, at 200 n.12.

189. CHEW, *supra* note 65, at 36.

3. Results

In February 1994, as the FRB tightened monetary policy, Treasury bond yields increased and became a factor working against P&G.¹⁹⁰ At that time, the pattern of the increase in the rate of return of yield on the 5-year/30-year maturity Treasury bonds had continued to climb upward, with a gentle slope continuing from early 1993 through the first half of 1994.¹⁹¹

However, as the yield curve of the Treasury bond rose, it became flat, and the difference in the yields between the 5-year and the 30-year bonds narrowed. On May 4, 1994, the date for determining the spread, the yield on the 5-year Treasury bond was 6.71% and the price of the 30-year Treasury bond was 86.84 (yield 7.35%);¹⁹² thus, the spread was expected to be 27.5%.¹⁹³

If the equation for the spread was not adjusted and the price of spread was fixed in May, P&G was in a situation where it would pay [CP interest rate + 26.75%] instead of receiving a fixed interest rate of 5.30% on the principal of \$200 million for the next 4.5 years.¹⁹⁴

In the end, P&G and BT amended the swap contract terms.¹⁹⁵ The date to set the spread was postponed from May 4 to May 19, and the floating rate of the swap was adjusted to [CP interest rate – 0.88% + spread].¹⁹⁶ The reason for this postponement was an anticipated change in the development of the yield on the Treasury bond, as the Federal Open Market Committee (“FOMC”), the highest legislative branch for the open market management, was scheduled to meet on May 17.¹⁹⁷ From the standpoint of the option theory, a review of the significance of the amendments to the interest rate swap between P&G and BT was as follows:

190. *Id.* at 35.

191. See MICHAEL H. MOFFETT & BARBARA S. PETTIT, PROCTER & GAMBLE VERSUS BANKERS TRUST: CAVEAT EMPTOR 16, app. 4 (2005).

192. See CHEW, *supra* note 65, at 34 Table 2.3.

193. The numerical percentage can be acquired through this formula: Spread = Max [0, 98.5 (6.71% / 5.78%) – 86.84] = 27.5%.

194. CP interest rate plus the spread 27.50% and subtract 0.75% equals CP interest rate plus 26.75%.

195. Procter & Gamble Co. v. Bankers Trust Co., 925 F. Supp. 1270, 1282 (S.D. Ohio 1996).

196. *Id.*

197. Expected federal funds rate was 4.25 on May 17, 1994. Daniel L. Thornton & David C. Wheelock, *A History of the Asymmetric Policy Directive*, FEDERAL RESERVE BANK OF ST. LOUIS (Sept./Oct. 2000), available at <http://research.stlouisfed.org/publications/review/00/09/0009dt.pdf>. Arguably, “[p]rior to the Federal Reserve’s Federal Open Market Committee (FOMC) meeting in February 1994, monetary policy objectives for the federal funds rate and the outcome of the FOMC meeting itself had been confidential and had never been announced.” Selva Demiralp & Oscar Jordá, *The Announcement Effect: Evidence from Open Market Desk Data*, 8 ECON. POL’Y REV. 29 (May 13, 2002), available at <http://www.ny.frb.org/research/epr/02v08n1/0205demi.pdf>.

P&G came to receive an additional premium of 0.13%, a deduction of 0.75% from 0.88%; while, from BT's standpoint, not only was the maturity increased by 2 weeks, but it received an option that was worth even more as the volatility increased. However, had the yield on the Treasury bond continued to rise, P&G thought it more advantageous to lock in the spread in March than to wait until the amended date to set it, thus increasing the risk of the position.¹⁹⁸ In the end, with the spread fixed at 15%, \$50 million on March 10, \$50 million on March 14, and \$100 million on March 29 were applied in three phases, resulting in a \$106 million loss to P&G.¹⁹⁹ It was an extraordinary situation to have a loss exceeding \$100 million from a swap with a face amount of \$200 million; the cause was found to be leveraging of up to 31 times from the spread equation.²⁰⁰

In October 1994, P&G filed a suit against BT alleging fraud and misrepresentation in the sale of derivatives, claiming a total of \$200 million in damages.²⁰¹ In the first allegation, fraud, P&G argued it had not received a sufficient explanation regarding the spread equation, and it would not have entered into the swap contract had it known about the impact of the spread equation on the swap value.²⁰² In other words, P&G acknowledged BT had explained how the spread would be determined, but it claimed BT failed to explain how the spread was to be determined 6 months in advance. In addition, P&G stated BT told them their position would not be very affected by the change in the interest rate if BT fixed the spread 6 months in advance.²⁰³ The safety of the swap transaction would be guaranteed regardless of the change in the interest rate. In the second allegation, misrepresentation, one issue was the calculation method for the spread as explained at the time of entering into the contract differed from the actual method used.²⁰⁴

BT denied P&G's allegations in their entirety, insisting P&G knew the swap transaction had characteristics of an option and the formula

198. *Procter & Gamble Co. v. Bankers Trust Co.*, No. C-1-94-735, 1994 WL 16135846, at *7 (S.D. Ohio Nov. 17, 1994).

199. *Id.*

200. See CHEW, *supra* note 65, at 48.

201. *Procter & Gamble Co. v. Bankers Trust Co.*, 925 F. Supp. 1270, 1274 (S.D. Ohio 1996); see also Gibson, *supra* note 1, at 556 (describing the parties' allegations).

202. See Nagler, *supra* note 18, at 456-57.

203. See Henry T. C. Hu, *Illiteracy and Intervention: Wholesale Derivatives, Retail Mutual Funds, and the Matter of Asset Class*, 84 GEO. L.J. 2319, 2346 (1996) (quoting P&G's allegation against BT in the complaint).

204. See *Procter & Gamble Co. v. Bankers Trust Co.*, No. C-1-94-735, 1995 WL 17141442, at *14-19 (S.D. Ohio Feb. 6, 1995).

used for the spread reflected these option characteristics.²⁰⁵ BT added P&G was also aware that P&G did not have any contractual right over the formula for the spread.²⁰⁶

This statement by BT was in accord with the annual report of P&G, indicating P&G did receive sufficient information that the spread would vary according to the value of the option.²⁰⁷ BT also claimed that P&G had a lot of experience in complex derivatives transactions, possessed sufficient knowledge regarding the characteristics and the inherent risk of the derivatives, and could have estimated the value of the swap on their own.²⁰⁸

In the end, the suit between P&G and BT was settled on May 9, 1996, two weeks before the public hearing.²⁰⁹ Because "[t]he settlement occurred before the facts of the case were litigated, [it is] difficult to determine if Banker's Trust would have been liable under a traditional suitability analysis."²¹⁰ Of the \$106 million that P&G originally would have owed BT, P&G was only required to pay \$35 million per the settlement; the stock prices of both companies increased because P&G's loss was less than expected and BT's loss of reputation was avoided to a certain extent.²¹¹

205. BT alleged in its answer that:

P&G was aware that the Transaction (and the proposed transactions reviewed by P&G in the period April 1993-August 1993) in effect contained the economic equivalent of an imbedded put option, the value of which would change as market conditions changed; avers that Bankers Trust informed P&G that Bankers Trust, like other firms that engage in derivatives transactions, would be willing to quote a price to P&G if P&G wished to amend the Transaction by buying back or "tearing up" all or a part of the option-like component of the Transaction.

Procter & Gamble Co. v. Bankers Trust Co., No. C-1-94-735, 1994 WL 16135846, ¶ 21 (S.D. Ohio Nov. 17, 1994).

206. See Nagler, *supra* note 18, at 456-57.

207. BT answered against P&G's complaint that "P&G requested, and that Bankers Trust supplied, historical information about the yields and volatilities of the 5-year and 30-year Treasuries." *Procter & Gamble*, 1994 WL 16135846, at *7.

208. BT pleaded in its answer that:

P&G well knew, the Transaction entailed the risk that if Treasury yields increased, P&G's payments could increase substantially. . . . P&G is a sophisticated company that suffered losses in this case because of risks it knowingly took and because of its own refusal to cap its losses after those losses were made known to it.

Id. at *2. BT further answered that "in many swap transactions and other derivative transactions, including the Transaction that is the subject of the Complaint, P&G knowingly increased (rather than decreased) P&G's exposure to interest rate fluctuations by taking on floating interest rate obligations." *Id.*

209. See ERISK CASE STUDY I, *supra* note 164, at *2. See also Paul Wilmott, *The Use, Misuse and Abuse of Mathematics in Finance*, 358 PHIL. TRANS. R. SOC. LON. 63, 65 (2000).

210. Madison, *supra* note 5, at 305-06.

211. See ERISK CASE STUDY I, *supra* note 164, at *2. See also Kimberly D. Krawiec, *More than Just New Financial Bingo: A Risk-Based Approach to Understanding Derivatives*, 23 J. CORP. L. 1, 27 n.136. (1997).

B. Gibson Greetings's Failed Deal

1. Background Regarding Application of OTC Derivatives

Gibson Greetings ("Gibson"), an American manufacturer of cards and wrapping paper, is one of the companies that suffered a large-scale loss by entering into a complex swap contract with BT.²¹² With the purpose of reducing short-term debt and funding cost, Gibson issued preferred debt in the amount of \$50 million with a fixed rate coupon of 9.33% in May 1991.²¹³ Long-term debt rapidly increased in 1991;²¹⁴ in addition, because one of the retail drug stores of its business clients filed for Chapter 11 reorganization, Gibson could not recover on a \$1.6 million note receivable, and its net profit in 1992 was reduced by 84% compared to the previous year.²¹⁵

Under such financial circumstances and in anticipation of the decline in the interest rate, Gibson intended to change its fixed rate debt to floating rate debt and increase its net profit.²¹⁶ On October 1, 1992, Gibson entered into two additional swap contracts²¹⁷ known as the "ratio swap"²¹⁸ and the "basis swap."²¹⁹ The terms of the swap con-

212. See McKown & Purcell, *supra* note 11, at 124-25.

213. See CHEW, *supra* note 65, at 38.

214. See Gibson Greetings, Inc., 60 S.E.C. 1154 (1995), available at 1995 WL 597476, at *3. See also Letter from David Damant, Chair of AIMR Financial Instruments Task Force, to Jim Saloman, Technical Director of International Accounting Standards Board, Attachment C (Jan. 18, 2002), in CFA INSTITUTE CENTRE ADVOCACY COMMENT LETTERS, available at <http://www.cfainstitute.org/centre/issues/comment/2002/02jwgdraft-c.html> [hereinafter "Damant Letter"].

215. "The decline in business acquisition costs reflects lower amortization costs resulting from the write-off of long-term sales contracts with Phar-Mor Inc. totaling \$16.4 million in 1992. Phar-Mor, the Company's largest customer in 1991, filed for bankruptcy in September 1992." Gibson Greetings Inc., 1992-1993 Amended Quarterly Report (Form 10-Q/A) (Aug. 29, 2004), available at <http://sec.edgar-online.com/1994/08/29/00/0000717829-94-000025/Section6.asp>.

216. See CHEW, *supra* note 65, at 38-39.

217. Missner noted:

While called a swap, the Treasury-Linked Swap was in actuality a cash-settled put option that was written by Gibson and based initially on the "spread" between the price of the 7.625% 30-year U.S. Treasury security maturing on November 15, 2022 and the arithmetic average of the bid and offered yields of the most recently auctioned obligation of a two-year Treasury note.

Missner, 62 S.E.C. 265, n.4 (1996), available at <http://www.sec.gov/litigation/admin/337304.txt> and 1996 WL 316296. The structure of a swap linked with the rate of return on 5-year/30-year maturity U.S. Treasury bonds will be discussed in detail in the following section.

218. In the Gibson case:

Under the Ratio Swap, based on a \$30 million notional amount (the amount used to determine the periodic payments between the counterparties), for a period of five years Bankers Trust would swap an interest payment determined at a fixed rate of 5.50% in exchange for Gibson's variable rate interest payment determined by the square of the six-month [LIBOR] rate divided by 6%, i.e., (LIBOR X LIBOR)/6%.

Gibson Greetings, 60 S.E.C. at app.

219. In the Gibson case:

tracts were set as a 5-year maturity, coupon rate of 5.50% with a face value of \$30 million and, as a 4.5-year maturity, coupon rate of 5.50% with a face value of \$30 million.²²⁰ Through the swap, Gibson was able to change the fixed interest rate debt of the preferred debt to floating interest rate debt during the swap contract period.²²¹

2. Structure of the Derivatives

The swap contract Gibson entered into was a structured swap with a new form of floating interest rate structure. Unlike the plain forms of swap contracts where the floating rate was determined by the standard of the LIBOR interest rate, the floating interest rate of this swap contract was determined by $[\text{LIBOR}^2 / 6.0\%]$.²²²

The LIBOR was 3.08% during the first swap period between October 1992 and April 1993, and, after receiving a fixed interest rate of 5.50%, Gibson paid a floating rate of 1.58%, acquiring a net interest rate of 3.92%.²²³ The preferred \$50 million debt issued by Gibson in May 1991 was paying a coupon rate of 9.33%.²²⁴ Taking away the fixed interest rate of 3.92% achieved through the swap, Gibson was paying only 5.41% of the cost of financing.²²⁵ In addition, between April 1993 and October 1993, the LIBOR interest rate became 3.37%, and, after Gibson received a fixed interest rate of 5.50%, the deal paid a floating rate of 1.89%, acquiring a net interest rate of 3.61%.²²⁶

Under the Basis Swap, for a period of four-and-a-half years, based on a notional amount of \$ 30 million, Bankers Trust and Gibson would swap variable rate interest payments structured such that Gibson would receive a net semiannual payment of as much as fourteen basis points, i.e., \$42,000, as long as six-month LIBOR was not more than 0.29% lower than six-month LIBOR at the beginning of the immediately preceding semiannual period. If six-month LIBOR fell more than 0.29%, Gibson would have to pay \$1,500 to Bankers Trust for each additional basis point, or 0.01%, decline in six-month LIBOR.

Id.

220. See CHEW, *supra* note 65, at 40-41.

221. See Damant Letter, *supra* note 214, at 69-70.

222. For further discussion, see CHEW, *supra* note 65, at 33-49.

223. See CHEW, *supra* note 65, at 40. The numerical number came from this expression: $5.50\% - [(3.08\%)^2 / 6.00\%] = 5.50\% - 1.58\% = 3.92\%$. See also Damant Letter, *supra* note 214, at Attachment C.

224. See CHEW, *supra* note 65, at 38.

225. See *In re BT Sec. Corp.*, CFTC No. 95-3, 1994 WL 711224, at *1 ¶ 6 (Dec. 22, 1994).

226. The numerical number came from this expression: $5.50\% - [(3.37\%)^2 / 6.00\%] = 5.50\% - 1.89\% = 3.61\%$. CHEW, *supra* note 65 at 39. See also Damant Letter, *supra* note 214, at Attachment C.

3. Result of the Use of Derivatives

In February 1994, the interest rate increased as the FRB tightened the monetary policy.²²⁷ When the interest rate rose, Gibson incurred a loss of \$3 million from the interest rate swap; a month later, in April, Gibson announced it had suffered an additional loss of \$16.7 million.²²⁸ Around the same time, it was revealed that P&G, who had had a similar transaction with BT, also had suffered a loss of \$106 million from the interest rate swap.²²⁹ Further, it became known both Federated Paper Board and Air Products & Chemicals suffered losses of \$11 million and \$122 million, respectively.²³⁰

The derivatives these four companies entered into with BT had common features. They were all swap contracts with complex floating interest rate formulas, with these formulas being used as the source of the leverage. The customary accounting practices that had not been systematically maintained were the primary factor in the parties entering into the swap contracts.

Gibson filed a lawsuit against BT on the grounds that BT failed to provide a sufficient explanation of the inherent risk of the swap contract and that BT intentionally reported the anticipated amount of loss from the swap as being small.²³¹ The subsequent administrative investigation revealed Gary S. Missner, the treasurer in charge of BT derivatives, had intentionally underreported by more than 50% of the estimated amount of loss from the swap calculated through BT's computer model.²³² Unaware of the actual amount of loss, Gibson, therefore, continued to purchase interest swaps and entered into some 29 swap contracts, subsequently suffering a large-scale loss.²³³

In November 1994, as BT was shown to have failed to both fulfill its fiduciary duties and protect the best interest of derivatives purchasers,²³⁴ Gibson reached an out-of-court-settlement leaving the legal

227. See CHEW, *supra* note 65, at 47.

228. It is hard to know exactly what amount of Gibson's portfolio was damaged because BT purposely misled Gibson about the losses. See Krawiec, *supra* note 211, at 29-30 (presenting a progress of Gibson's disastrous losses from the swap transaction with BT).

229. See *supra* note 200 and accompanying text.

230. Both cases ended via out-of-court settlement. See MOFFETT & PETITT, *supra* note 191, at 8.

231. See Baird et al., *supra* note 160, at 310 (1996) (noting Gibson alleged Bankers Trust violated Section 4b(2)(C)(i)-(ii) of the Commodity Exchange Act).

232. See Missner, 62 S.E.C. 265, n.4 (1996), available at <http://www.sec.gov/litigation/admin/337304.txt> and 1996 WL 316296.

233. See CHEW, *supra* note 65, at 48.

234. Nagler, *supra* note 18, at 456 n.94. See also Rubinstein, *supra* note 120, at 743.

The battle over the legal relationship between the buyer and seller often focuses on the term "fiduciary." While customers maintain that the seller was a fiduciary, the sellers

question unanswered.²³⁵ Unlike BT's case against P&G, BT did not file a counterclaim alleging sufficient knowledge about derivatives against Gibson. Of the \$23 million loss and the \$50 million claimed in punitive damages, Gibson paid only \$6.2 million to BT.²³⁶

In December 1994, the SEC and Commodity Futures Trading Commission ("CFTC") concluded that BT had violated reporting requirements,²³⁷ the prohibition against fraud in the Securities Exchange Act,²³⁸ and the anti-fraud provision of the Commodities Exchange Act²³⁹ when it underestimated the loss Gibson would incur, causing Gibson to report a lesser amount of loss from the transaction in derivatives on its financial statements.²⁴⁰ A fine of \$10 million was imposed on BT,²⁴¹ and the SEC and CFTC required BT to allow review of all

maintain that legally they are no more than a counterparty to an arms-length derivatives contract. Indeed, on some level, they are both correct. It is often the case that the seller performs a dual role in derivatives trading. On the one hand, it advises the customer and, as customers have alleged, is engendered with the customer's utmost trust and confidence. On the other hand, the seller is often the counter-party to the derivatives contract and, thus, the seller alleges that the transaction was negotiated at arms length.

Id.

235. Nagler, *supra* note 18, at 456; Rubinstein, *supra* note 120, at 743.

236. CHEW, *supra* note 65, at 37.

237. McKown & Purcell, *supra* note 11, at 127. "The derivative products which are the subject of this [SEC] Order were sold to Gibson by BT Securities Corporation ("BT Securities"), a broker-dealer registered with the Commission pursuant to Section 15(b) of the Exchange Act." Gibson Greetings, Inc., 60 S.E.C. 1154, n.2 (1995), *available at* 1995 WL 597476, at *2, n.2.

238. The Commission concludes that:

[M]issner participated in providing Gibson with valuations which materially understated Gibson's losses from derivatives transactions. Gibson used the values in its financial statements, and those statements materially understated the company's losses from derivatives activities. As set forth above, Missner thus caused violations of Section 13(a) of the Exchange Act and Rules 13a-1 and 12b-20.

Missner, 62 S.E.C. 265 (1996), *available at* <http://www.sec.gov/litigation/admin/337304.txt> and 1996 WL 316296.

The Treasury-Linked Swap and the Knock-Out Call Option, along with the amendments to those derivatives, were securities under the federal securities laws. As set forth above, Missner made material misrepresentations and omissions in the offer and sale of these derivative securities to Gibson. This conduct violated Section 17(a) of the Securities Act, Section 10(b) of the Exchange Act and Rule 10b-5.

Id. "[T]he Commission finds that Missner willfully violated Section 17(a) of the Securities Act and Section 10(b) of the Exchange Act and Rule 10b-5, and that Missner caused violations of Section 13(a) of the Exchange Act, and Rules 13a-1 and 12b-20." *Id.* at *5-6.

239. See generally HAZEN, *supra* note 2, at 807-17; see also *supra* note 4 and accompanying text.

240. "The Commodity Exchange Act has specific procedures that must be followed in executing and reporting trades." Petzel, *supra* note 9, at 106.

241. See ALFRED STEINHERR, DERIVATIVES: THE WILD BEAST OF FINANCE 76 (2000). See also Cohen, *supra* note 17, at 2015 n.119; *In re* BT Sec. Corp., CFTC No. 95-3, 1994 WL 711224, at *6 (Dec. 22, 1994).

of the derivatives it was selling outside the exchange.²⁴² In addition, the SEC insisted a thorough verification procedure be followed by sellers regarding the risks and earnings of the products containing derivatives beginning with Gibson's derivatives with BT.²⁴³ In other words, it recommended the seller of derivatives have an accurate knowledge of the change in the value of the products according to the possible market scenarios. Moreover, the buyer of derivatives must also sufficiently understand the characteristics of derivatives. Finally, assurance that the needs of the buyer and the characteristics of derivatives match must exist; or, in short, the suitability of the product ("know thy customer" element) must be considered by the seller before entering into the contract.²⁴⁴

C. *Implications*

In 1994, there were no comprehensive and systematic accounting stipulations for derivatives in the United States other than the customary and general practices.²⁴⁵ Depending on the purpose of the use of derivatives, the accounting treatment changed.

When derivatives were used for the purpose of trading or speculation, a market evaluation must have been made; in other words, the unrealized profit and loss must have been reflected in the profit for the current term. In contrast, if the derivatives were used for hedging, the profit or loss from the "hedge position"²⁴⁶ must have occurred at the same time the profit or loss from the items subject to hedging was realized²⁴⁷ (i.e., the profit or loss from the use of derivatives for hedg-

242. See Baird et al., *supra* note 160, at 306.

243. This treatment was not a setting out with carefully reasoned analysis. "[T]he SEC has elevated the standards of OTC derivatives dealer behavior through the simple expedient of the 'security' classification." Hu, *supra* note 203, at 2338.

244. In the United States:

The burdens are especially heavy in the areas of risk disclosure and trading practices. Risk disclosure rules in the United States assume that no one opening an account understands any of the risks of futures and options. In addition to meeting suitability requirements, a prospective customer must sign a uniform, complicated set of risk disclosure documents that is intimidating at best.

Petzel, *supra* note 9, at 105.

245. See Mairiu Btethnach, *US Generally Accepted Accounting Principles-Credit Derivatives*, in CREDIT DERIVATIVES: TRADING & MANAGEMENT OF CREDIT & DEFAULT RISK 502-11 (Satyajit Das ed., 1998).

246. WHALEY, *supra* note 7, at 22 ("Hedge positions refer to selling (buying) the futures when you hold a long (short) position in the underlying asset.").

247. See Scheerer, *supra* note 152, at 190.

ing purposes could be deferred until the time the profit or loss of the items subject to hedging was realized).²⁴⁸

The basic theory of hedge accounting is premised on the matching principle for profit and loss. As items, such as derivatives, used for hedging purposes and items subject to hedging, such as basic assets, are very closely linked financially, it is rational to realize the profit and loss related to both in the same period.

Several conditions must be met for hedge accounting to be applied. First, the items subject to hedging should, in fact, expose the company to risk. From an accounting standpoint, a risk refers to the possibility of change in company profit due to changes in prices, interest rates, and exchange rates. Therefore, items with no possibility of causing a change in the corporate profit cannot be the subject of hedge accounting. Second, a risk must be reduced through the hedge position. For this, the correlation between the market value of the hedge position and that of the item subject to hedging must be high. Third, the use of derivatives for hedging purposes must be stipulated *ex ante*. In other words, after the loss is recognized from the use of derivatives, a claim that derivatives were used for hedging purposes to defer the loss is not acknowledged in hedge accounting. On this point, there was confusion due to the difference in the application of accounting rules, such as Statements of Financial Accounting Standard ("SFAS") No. 52 versus SFAS No. 80.²⁴⁹

It is normal that the interest rate swaps are done in conjunction with a contract linked with interest rate swap contracts.²⁵⁰ As previously stated, it is also rational to realize profit and loss at the same time for linked transactions. According to this theory, it is irrational to realize the profit and loss from only the swaps without realizing the profit and loss in the basic assets when the value of swap contracts change.

In case of a plain vanilla swap, this theory is reasonable. At that time, the options on the exchange were not acknowledged as a hedge, but as previously stated, the interest rate swaps were subject to hedge

248. See Petzel, *supra* note 9, at 108 ("This approach makes sense as far as it goes, but is applicable only in the classic application of hedges as offsetting [derivatives] transactions.").

249. Robert H. Herz, *Accounting, Financial Reporting, and Disclosure for Derivatives and Synthetics*, in *DERIVATIVE RISK AND RESPONSIBILITY: THE COMPLETE GUIDE TO EFFECTIVE DERIVATIVES MANAGEMENT AND DECISION MAKING* 353, 364-96 (Robert A. Klein & Lederman Jess eds., 1996) (arguing the application of each standard).

250. See Madison, *supra* note 5, at 300 ("A . . . party . . . will generally enter into an interest rate swap agreement to hedge interest rate fluctuations. The hedging party enters into the agreement with a party that assumes the interest rate risk and charges a fee for the assumption of that risk . . .").

accounting, in which profit and loss could be deferred;²⁵¹ P&G chose the OTC swaps instead of the options on the exchange.²⁵² However, in the leveraged swaps made between P&G and BT, options other than general interest rate swaps were built in.²⁵³ These options had the role of expanding the range of fluctuation in the interest rate change, and, as they were not related to hedging, it was logical to evaluate them at the market price, or, in other words, to exclude them from hedge accounting. As there were no accurate stipulations on this, P&G was able to use the leveraged interest rate swap for hedge accounting purposes. However, since the incident, the accounting provisions have been amended to exclude the leveraged interest rate swaps as the subject of hedge accounting.

In June 1998, the Financial Accounting Standards Board ("FASB") enacted an accounting standard for the treatment of derivatives and hedging²⁵⁴ effective as of June 15, 2000.²⁵⁵ This standard proposed consistent guidelines for accounting treatment of derivatives, hedging, and disclosure problems.²⁵⁶ First of all, as to derivatives, FASB required every company to record all of its derivatives on the financial statements as either assets or debts at their "fair values"²⁵⁷ with the

251. See *supra* note 248 and accompanying text.

252. See *Procter & Gamble*, 1995 WL 17141442, at ¶¶ 9-44.

253. The biggest problem in reporting a swap with a built-in option as a plain vanilla swap is that the market risk related to the swap cannot be accurately understood if only the face value amount and the coupon interest rate are available.

254. The Financial Accounting Standards Board noted:

This Statement establishes accounting and reporting standards for derivative instruments, including certain derivative instruments embedded in other contracts, (collectively referred to as derivatives) and for hedging activities. It requires that an entity recognize all derivatives as either assets or liabilities in the statement of financial position and measure those instruments at fair value. If certain conditions are met, a derivative may be specifically designated as (a) a hedge of the exposure to changes in the fair value of a recognized asset or liability or an unrecognized firm commitment, (b) a hedge of the exposure to variable cash flows of a forecasted transaction, or (c) a hedge of the foreign currency exposure of a net investment in a foreign operation, an unrecognized firm commitment, an available-for-sale security, or a foreign-currency-denominated forecasted transaction.

FASB, STATEMENT OF FINANCIAL ACCOUNTING NO. 133: ACCOUNTING FOR DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES 5 (1998), <http://www.fasb.org/pdf/fas133.pdf> [hereinafter FASB, STATEMENT OF FINANCIAL ACCOUNTING NO. 133].

255. WHALEY, *supra* note 7, at 206 (introducing two examples of financial statements).

256. See Susan M. Phillips, *Derivatives and Risk Management: Challenges and Opportunities*, 15 Nw. J. INT'L L. & BUS. 239, 245 (1994).

257. "Fair values" is a legal term applied to certain transactions, where it serves as the legal standard in cases where stock owners have different opinions on value. If the minority concerned parties are forced to take stocks lower than the appropriate price when the reorganizing corporation is merged or sold, they are given the right to receive instead the fair value of the stock. In other words, fair values refer to the appropriate price that serves as the legal standard.

estimated profit and loss reflected in the profit and loss for the current term.²⁵⁸

The International Accounting Standards Board ("IASB") sets the international accounting standards and enacted IAS 39 Financial Instruments: Recognition and Measurement in December of 1998, in which it required that not only derivative instruments, but also financial assets and debt be evaluated at market price.²⁵⁹ Because derivative instruments had been recognized as off-the-book transactions, they generally did not appear on the balance sheet. However, the IASB concluded it was inappropriate to treat derivative instruments as off-the-book items, because, as with other items on the balance sheet, they were either assets or debts.²⁶⁰ Moreover, when the derivatives were used for a hedging purpose, the IASB required the estimated profit and loss of the concerned derivatives be recognized during the same accounting period as the items subject to hedging; it also required the company give a clear account of the hedge.²⁶¹ Finally, concerning disclosure, the IASB required market participants should report their risk management policies concerning derivative instruments.²⁶²

The seller of derivatives should base its relationship with its transaction counterpart on honesty and reliability. Accordingly, the seller must be attentive to all forms of risks and provide information to the buyer based on the principle of good faith and fair dealing.

In December 1994, the FRB took a strong regulatory stance against the selling of an interest rate swap contract by BT and required an agreement calling for BT to document the policy and procedure of the

258. See FASB, DERIVATIVES IMPLEMENTATION GROUP: STATEMENT 133 IMPLEMENTATION ISSUE NO. B20: EMBEDDED DERIVATIVES: MUST THE TERMS OF A SEPARATED NON-OPTION EMBEDDED DERIVATIVE PRODUCE A ZERO FAIR VALUE AT INCEPTION? 1 (2000), <http://www.fasb.org/derivatives/issueb20.shtml>.

259. See IAS Plus, IAS 39 Financial Instruments: Recognition and Measurement, <http://www.iasplus.com/standard/ias39.htm> (last visited Feb. 10, 2008) (summarizing the international financial reporting standard focusing on IAS 39 financial instruments). See also Press Release, Int'l Acct. Standards Bd., International Accounting Standards Board Issues Revised Standards on Financial Instruments (Dec. 17, 2003), available at http://www2.financialexecutives.org/download/IASB_12_17_03.pdf.

260. See Richard C. Jones & Elizabeth K. Venuti, *Accounting and Reporting for Financial Instruments: International Developments*, CPA J., Feb. 5 2005, available at <http://www.nysscpa.org/printversions/cpaj/2005/205/p30.htm>.

261. *Id.*

262. The new amended Disclosure about Fair Value of Financial Instruments, FAS 107 recommends that companies disclose the market risk of derivatives financial instruments (futures, forwards, swaps, options, and others) in possession.

leveraged interest rate swap operation.²⁶³ The principal content of the agreement was BT should disclose more information to help increase the client's awareness of risk.²⁶⁴ The disclosure requirements included not only the *ex ante* disclosure, but also daily reporting of post-factum values of derivatives.²⁶⁵

In January 1995, based on the strong correction measure taken against BT, the FRB circulated a summary of voluntary ethical principles to participants of the OTC derivatives.²⁶⁶ The main focus of the summary was disclosure of risk to transaction counterparts.²⁶⁷

From the buyer's standpoint, management must be aware of why OTC derivatives are needed and with what purpose it intend to use them. In addition, management needs to hire professionals who can properly cope with any situation that could ensue from OTC derivatives transactions.

In early 1994, despite the advice of BT to terminate the contract when the potential loss was anticipated, P&G amended the terms of the contract and suffered an even bigger loss as a result.²⁶⁸ In the end, management not only has to fully understand OTC derivative instruments, but it must also ensure the company has a control system and procedures in place to monitor the transaction operation and daily

263. See Ernest T. Patrikis, First Vice President of Fed. Reserve Bank of N.Y., Remarks before the Financial Markets Conference on Transparency and Liquidity in Derivatives: Price Transparency—A Quote is a Quote is a . . . (Feb. 24, 1996), available at <http://www.newyorkfed.org/newsevents/speeches/1996/ep960224.html>.

264. *Id.*

265. In *Procter & Gamble*, one commentator has noted:

Judge Feikens rejected Procter & Gamble's argument that one of the swaps was an option on a security . . . [However], the court concluded that the instruments were not securities. Had the court concluded that the instruments were securities, Bankers Trust would have been subject to the registration and disclosure requirements imposed by the securities laws and regulations thereunder.

Madison, *supra* note 5, at 302-03.

266. According to Joseph Dial:

On August 17, 1995 a coalition of several groups representing participants in the OTC financial markets, acting under the coordination of the Federal Reserve Bank of New York, issued a voluntary code of "best practices" for OTC financial markets. The document is entitled, "Principles and Practices for Wholesale Financial Market Transactions." While the principles are voluntary, "it is expected that each trade association will recommend [this] best practices code to its members."

Joseph B. Dial, Comm'r of Commodity Futures Trading Comm'n, Speeches before the 18th Annual Commodities Law Institute and 4th Annual Financial Services Law Institute: Status Report on Regulatory and Self-Regulatory Responses to the Barings Bankruptcy (October 19, 1995), available at <http://www.cftc.gov/opa/speeches/opachic95s.htm>.

267. See FED. RESERVE BANK OF N.Y., PRINCIPLES & PRACTICES FOR WHOLESALE FINANCIAL MARKET TRANSACTIONS (1995), available at <http://www.newyorkfed.org/fxc/annualreports/ar1995/fxar9518.html>.

268. See *supra* notes 199-200 and accompanying text.

positions of the derivative instruments, as well as professionals who can manage them accordingly.

P&G insisted it had trouble estimating the market value and the risks involved due to the complex formula of the spread in the interest rate swap.²⁶⁹ However, as previously stated, it was assumed interpretation of the structure of the interest rate swap was clearly possible and estimation of the market risk was not that difficult.²⁷⁰ Although the spread presented a different formula, the result could be illustrated. Therefore, the large loss could have been avoided had monitoring on a regular basis been followed with more systematic policies and systems for risk management in place.

IV. TRADING IN THE VOLATILITY OF SECURITIES OF LONG-TERM CAPITAL MANAGEMENT

The front-runner in the hedge fund world, Long-Term Capital Management ("LTCM"), incurred a large loss in September 1998 due to failure of its investment strategies.²⁷¹ At that time, LTCM had entered into complex derivative contracts with a large number of banks on Wall Street and the situation had developed to a point where one bank's individual disposal of the collateral could lead to a panic.²⁷² In the end, with the FRB acting as the host,²⁷³ a \$4 billion aid fund was raided by the concerned creditor banks, and LTCM was able to escape the possibility of bankruptcy at the cost of bringing the truth to light.²⁷⁴ LTCM was the landmark case in which a large loss was incurred in the process of various investment strategies, including both hedge funds²⁷⁵ and OTC derivative instruments. Though the OTC derivatives were not the only instrument components in the investment strategies of LTCM, they were used as a means of high-risk return.²⁷⁶

269. See *supra* notes 202-203 and accompanying text.

270. See *supra* note 208 and accompanying text.

271. See STEINHERR, *supra* note 241, at 88.

272. See *id.* at 88-89.

273. See *id.* at 86.

274. See *id.* at 89.

275. Hedge funds are not statutorily defined, but they are privately organized pooled investment vehicles. PRESIDENT'S WORKING GROUP ON FIN. MKTS., HEDGE FUNDS, AND THE LESSONS OF LONG-TERM CAPITAL MANAGEMENT 1 (1999) [hereinafter WORKING GROUP REPORT].

276. One commentator has noted that:

Modern financial theory predicts that rational [investors] deciding where to invest their money should be influenced by only two considerations: expected return, and expected risk (meaning variation in return). The greater the return-or the lower the risk-the more attractive the investment. Because the market participants that deal in derivatives do so voluntarily, commentators generally assume that the derivatives markets serve the traders' interests either by increasing their returns, or by reducing their risks. In the

A. Background

In 1994, LTCM was founded by the celebrated bond trader John W. Meriwether from Salomon Brothers, along with Nobel Prize laureates and strategists.²⁷⁷ LTCM, a limited partnership, was founded in Delaware and was in charge of the management of the fund; the LTCM Fund (Long-Term Capital Portfolio) was registered in a British territory, the Cayman Islands, where the accounting standards were not rigid and regulation was sparse.²⁷⁸ Thanks to the reputation of its management, LTCM was able to raise a large amount of funds from Wall Street banks and emerge as the front-runner in the hedge fund industry.²⁷⁹

LTCM induced investments from wealthy individuals and corporate investors, with a minimum investment of \$10 million, no withdrawal of capital for three years, and no release of investment strategies as its principles.²⁸⁰ It collected management fees of 2% and performance-based fees of 25%.²⁸¹ In general, management fees ranged from only 1-1.25% and performance-based fees did not exceed 20%; therefore, the fees charged by LTCM were rather high.²⁸² However, LTCM partners included Nobel Prize laureates, central bank figures, and men of such talent in the financial world, making it possible for LTCM to induce investments from wealthy individual American investors, tax-exempt annuities, Japanese investors, and corporate investors of Europe, as well as banks and government agencies of many countries.²⁸³

tradition of Adam Smith's invisible hand, derivatives deals are presumed to further the welfare of those who participate in them.

Stout, *supra* note 15, at 54.

277. See ERisk, *Case Study: LTCM-Long-Term Capital Management*, ERISK.COM, <http://www.erisk.com/Learning/CaseStudies/Long-TermCapitalManagemen.asp> (last visited Feb. 10, 2008) [hereinafter ERISK CASE STUDY II].

278. See WORKING GROUP REPORT, *supra* note 275, at 10.

279. See *id.*

280. See ERISK CASE STUDY II, *supra* note 277, at *1-2; See also STEINHERR, *supra* note 241, at 87.

281. STEINHERR, *supra* note 241, at 87-88.

282. *Id.* See also PHILIPPE JORION, RISK MANAGEMENT LESSONS FROM LONG-TERM CAPITAL MANAGEMENT 2 (1999) [hereinafter JORION II].

283. Funds came from government agencies such as Hong Kong Land Corporation, Singapore Government Investment Corporation, Central Bank of Taiwan, Bangkok Bank, Kuwait State-operated Pension, and Central Bank of Italy, as well as such large banks as Sumitomo Bank of Japan, Dresdner Bank, Liechtenstein Global Trust, and Swiss Bank of Hulus Baer. In addition Phil Knight, the CEO of NIKE, partners of McKinsey, and top managers at Bear Stearns invested their personal assets.

In February 1994, the fund at management's beginning amounted to \$1.25 billion.²⁸⁴ By maintaining partnerships with investment banks competitive in each field, LTCM was able to succeed on Wall Street.²⁸⁵ LTCM dealt with Merrill Lynch for derivative instruments, Goldman Sachs for junk bonds, JP Morgan for swaps, and Lehman Brothers for real estate mortgage bonds, while Bear Stearns handled the liquidation settlement operation.²⁸⁶ Chase Manhattan offered revolving loans of \$500 million from large-scale banks.²⁸⁷

As a hedge fund, LTCM was not obligated to be registered with SEC,²⁸⁸ and without supervision, it could set the size of fund on its own.²⁸⁹ Though CFTC was the only de jure supervisory organization for LTCM, the hedge fund was also exempt from the supervision of CFTC.²⁹⁰ Therefore, as there was only minimal supervision on LTCM, it had a wide range of choices in both investment strategies and methods.²⁹¹

284. See STEINHERR, *supra* note 241, at 87; ERISK CASE STUDY II, *supra* note 277, at *2.

285. ERISK CASE STUDY II, *supra* note 277, at *2.

286. See WORKING GROUP REPORT, *supra* note 275, at 11.

287. ROGER LOWENSTEIN, *WHEN GENIUS FAILED: THE RISE AND FALL OF LONG-TERM CAPITAL MANAGEMENT* 88 (2000).

288. "To avoid the registration and reporting requirements of the federal securities laws, hedge funds generally do not raise funds via public offerings of their securities, advertise broadly, or engage in general solicitation." WORKING GROUP REPORT, *supra* note 275, at 3.

289. Under the Investment Company Act of 1940 ("1940 Act"), a hedge fund refers to a pooled investment fund that is exempt from the definition of an investment company. The pooled investment fund is divided into a private fund and a qualified purchaser fund. A private fund is a pooled investment fund that raises investors only through the means of private funds with the actual number of investors being fewer than one hundred. See 15 U.S.C. § 80a-3(c)(1) (2006). The actual investors can be natural persons, companies, trusts, and funds. 15 U.S.C. §80a-2(a)(51) (2006). In a pooled investment fund, investors are recruited through the means of private funds with all investors being qualified purchasers (an individual or a company with an investment balance of over \$5 million, or a corporate investor with an investment balance exceeding \$25 million). ROBERT H. ROSENBLUM, *INVESTMENT COMPANY DETERMINATION UNDER THE 1940 ACT-EXEMPTIONS AND EXCEPTION* 444-59 (2003). Generally hedge funds make it a rule not to disclose the breakdown of the portfolio and have a special feature that there is no restriction on their investment strategies. See Cohen, *supra* note 17, at 1999 n.27.

290. The Commodities Exchanges Act provides authority for the CFTC to monitor trading activities of all traders on U.S. futures and commodity option exchanges. Congress had several motives when it created the CFTC. CFTC is charged with the primary duty of oversight of new markets. Petzel, *supra* note 9, at 100. "Congress also believed that futures and options were so fraught with potential problems that the public could only be protected if the instruments were traded on a CFTC regulated exchange." *Id.*

291. Rosenblum commented:

Although [hedge] funds are excepted from the definition of investment company, and thus are not subject to requirements of the [Investment Company Act of] 1940, the general antifraud, civil liability, and other applicable provisions of the [Securities Act] of 1933 and [Securities Exchange Act] of 1934 still are applicable to those funds.

ROSENBLUM, *supra* note 289, at 442.

B. *Investment Strategies and Construction of a Portfolio*

Because investment strategies of hedge funds were not regulated, a special feature regarding use of various investment strategies existed.²⁹² One of the general investment strategies used in hedge funds was the “market-neutral investing strategy.”²⁹³ This strategy refers to taking both long and short positions on the concerned products, thus neutralizing the market risk. In other words, it converts market risk to the risk of the relationship between long and short positions. This strategy differs from traditional investment strategy in that the profit is generated by anticipating the relationship between assets (i.e., the difference in price) rather than the movement in price of a certain asset.²⁹⁴

As the market-neutral investing strategy has a low correlation to such traditional investment means, such as bonds and stocks, it is recognized as an investment strategy that can supplement the promotion of the rate of return and reduce the risk.²⁹⁵ In addition, market-neutral investing generates stable profit using the inefficiency of the market and, consequently, achieves the effect of reducing or eliminating the inefficiency of the market price.²⁹⁶

Because the amount of probable profit is very small in market-neutral investing, it is common to use leverage to increase the attractive rate of return.²⁹⁷ Good examples of market-neutral investing strategy

292. See WORKING GROUP REPORT, *supra* note 275, at 2-3 (“There is no single market strategy or approach pursued by hedge funds as a group. Rather, hedge funds exhibit a wide variety of investment styles, some of which use highly quantitative techniques while others employ more subjective factors.”).

293. STEINHERR, *supra* note 241, at 88.

294. For example, profit and loss occur according to the change in the stock price of the company *A* when an investor buys the stock of *A*. However, if stock of both *A* and *B* companies are offered at public sale, the profit and loss occurs when the prices between *A* and *B* companies change.

295. See Douglas W. Case, *Market Neutral Equity Investing: An Absolute Return Strategy*, ADVANCED INVESTMENT PARTNERS (Sept. 2002), at 3, <http://www.ecwmoneymanagers.com/whitepapers/marketneutral.pdf>.

296. See *generally id.*

297. PHILIPPE JORION, *VALUE AT RISK—THE NEW BENCHMARK FOR MANAGING FINANCIAL RISK* 353 (2d ed. 2001) [hereinafter JORION III].

are "fixed income arbitrage,"²⁹⁸ "merger arbitrage,"²⁹⁹ and "relative value arbitrage."³⁰⁰

Based on the investment strategies mentioned earlier, LTCM used diverse investment strategies.³⁰¹ The strongest ability of LTCM was it was able to accurately estimate the price disparity in the market based on such mathematical models financial management scholars Merton and Scholes had created.³⁰² To increase the profit from market-neutral investing, LTCM made use of the high leverage along with a public offering (a conventional investment technique of the hedge funds).³⁰³

The LTCM fund constructed a portfolio on a large scale in various markets, such as spots, futures, and currency exchanges.³⁰⁴ Invest-

298. See generally LOWENSTEIN, *supra* note 287, at 136-37. "Fixed income arbitrage" means buying a relatively low-valued bond and selling a relatively high-valued bond. In general, it takes the form of buying long and short positions on similar bonds. Though both bonds are mathematically or historically correlated, there is a chance of marginal profit in the transaction if there is a temporary change in the relationship. In the marginal profit structure of the bond transaction, the bond with the relatively lower price of the two that equally reacts to the change in the interest rate is bought, and the more expensive bond of the same size is offered for sale, avoiding the risk of change in the interest rate. As the price of a bond is determined by the yield curve, the expected cash flow, credit rating, and the bond's option-like features, an elaborate analysis model must be used to find the price disparity.

299. "Merger arbitrage" generally refers to the strategy of shorting the stocks of the company subject to merger and offering the stocks of the merged company for sale in public. The price of the company being merged is usually discounted compared to the stock price of the merged company. It is due to the possible risk of uncertainty that the stock price declines if the merger is called off after being announced when the merged stock price is set higher than the stock price of the company to be merged. See WHALEY, *supra* note 7, at 544. The price before the merger occurs reflects the uncertainty over the success or failure of the deal. In other words, the marginal profit from the merger can be realized by the amount of difference when the price of the stock invested is lower than the merged price. *Id.*

300. The "relative value arbitrage," also known as convergence trade, is spread trade strategy using where the short and long positions on either the spots and futures or the two stocks in which there is a temporary change in the relationship and a correlation. Rather than anticipating the direction of the market, the overall position is neutralized by taking both short and long positions. See JORION II, *supra* note 282, at 2. See also HULL, *supra* note 46, at 4.

One of the parties to a forward contract assumes a *long position* and agrees to buy the underlying asset on a certain specified future date for a certain specified price. The other party assumes a *short position* and agrees to sell the asset on the same date for the same price.

Id. The relative value arbitrage can be an upper concept inclusive of "MBS arbitrage," "convertible stock arbitrage," "strategic arbitrage," "pairs trading," "option and warrant trading" and "capital structure arbitrage." WORKING GROUP REPORT, *supra* note 275, at 10 n.13.

301. See WORKING GROUP REPORT, *supra* note 275, at 11 (describing LTCM fund's various financial market participation).

302. See ERISK CASE STUDY II, *supra* note 277, at 2.

303. STEINHERR, *supra* note 241, at 88. On January 1, 1998, LTCM's equity was \$125 billion and the debt was \$5 billion, making the debt-to-equity ratio 25 (debt/equity = 1,250/50 = 25). WORKING GROUP REPORT, *supra* note 275, at 12.

304. SCOTT & WELLONS, *supra* note 5, at 1153. "Hedge funds are also diverse in their use of different types of financial instruments. Many hedge funds trade equity or fixed income securi-

ments were made in bond markets, such as government bonds, MBS, corporate bonds, emerging countries' bonds, and stock markets, with the investment proportion of government bonds in G-7 countries being high in the total portfolio, reaching 80%.³⁰⁵ The invested funds were financed by many participants in the market, as well as through repos, securities depository, and borrowing.³⁰⁶

In addition, LTCM also invested in interest rate futures and stock index futures on various futures exchanges in the world.³⁰⁷ Moreover, with numerous business counterparts, it entered into OTC derivative contracts, such as options,³⁰⁸ forwards,³⁰⁹ and swaps, built on stocks and interest rates.³¹⁰ By participating in a currency exchange market, it hedged against the currency exchange risk arising from investments in various countries. In terms of regions, it diversified investment in different continents, such as North America, Europe, and Asia.³¹¹

LTCM was in possession of over 60,000 short and long positions worth \$100 billion.³¹² The total assets of LTCM only reached about \$125 billion,³¹³ which thus excluded swaps and options, as well as derivative instruments and repos transactions worth \$1,000 billion.³¹⁴ At the end of August 1998, the futures contracts reached about \$500 billion, the swap contracts about \$750 billion, and the options and other OTC derivatives about \$150 billion.³¹⁵

C. Investment Structure

By purchasing 30-year "off-the-run bonds"³¹⁶ with low liquidity among the U.S. Treasury bonds and selling the "on-the-run bonds"³¹⁷

ties, taking either long or short positions, or sometimes both simultaneously. A large number of funds also use exchange-traded futures contracts or over-the-counter ('OTC') derivatives, to hedge their portfolios, to exploit market inefficiencies, or to take outright positions." WORKING GROUP REPORT, *supra* note 275, at 3.

305. WORKING GROUP REPORT, *supra* note 275, at 11.

306. See JORION II, *supra* note 282, at 2-3.

307. WORKING GROUP REPORT, *supra* note 275, at 11.

308. WHALEY, *supra* note 7, at 3 ("An *option* is . . . a contract to buy or sell an underlying asset at some pre-specified future date at a price agreed upon today.").

309. *Id.* at 3-4 ("A *forward* is a contract to buy or sell an underlying asset at some prespecified future date at a price agreed upon today A *forward transaction* . . . is an agreement to an exchange that will take place in the future The terms are formalized in a contract called a *forward*.").

310. WORKING GROUP REPORT, *supra* note 275, at 11.

311. WHALEY, *supra* note 7, at 3-4.

312. WORKING GROUP REPORT, *supra* note 275, at 11.

313. JORION III, *supra* note 297, at 353.

314. ERISK CASE STUDY II, *supra* note 277, at 2.

315. WORKING GROUP REPORT, *supra* note 275, at 11-12.

316. HULL, *supra* note 46, at 735.

317. *Id.*

of an identical size at public sale, LTCM carried out arbitraging, obtaining the difference in rates of return between the two bonds.³¹⁸ The 30-year, off-the-run Treasury bonds have low liquidity and can be traded at a higher yield, but the prices of both bonds become the same within a few months.

Clearly, the price differential between the two Treasury bonds was insignificant, but it was possible to increase profit through leverage.³¹⁹ The off-the-run bonds purchased were used as secured debts of the funds borrowed through the repo transactions.³²⁰

Most investment banks, such as Merrill Lynch, Goldman Sachs, and JP Morgan, considered LTCM a new financial intermediary and loaned funds without a haircut, which applied to relatively long-term transactions.³²¹ Through this mechanism, LTCM was able to invest in spreads between the Treasury bonds.

When the foundation of the European Economic and Monetary Union ("EMU") became imminent in the mid-1990s, LTCM selected countries with low risk, taking into consideration the ratio of the national debt, the rate of increase in the prices, and the taxation systems, and made an intensive investment in those countries.³²² England, Germany, and Norway were the main subjects of investment.³²³

Although the political and financial aspects were poor, an investment was also made in Italy, as the bond market continued to grow.³²⁴ The bond market in Italy was divided into two: the floating-interest-rate bonds and the fixed-interest-rate bonds, which were paying higher interest rates than swap interest rates.³²⁵

Considering the swap interest rates were about the same as those of the private banks in the bond market, the credit rating of the Italian

318. See WORKING GROUP REPORT, *supra* note 275, at 10 n.13 (explaining the concept of arbitrage).

319. To note:

Leverage allows hedge funds to magnify their exposures and, as a direct consequence, magnify their risks. The term leverage can be defined in balance-sheet terms, in which case it refers to the ratio of assets to net worth. Alternatively, leverage can be defined in terms of risk, in which case it is a measure of economic risk relative to capital. Hedge funds obtain economic leverage in various ways, such as through the use of repurchase agreements, short positions, and derivative contracts.

WORKING GROUP REPORT, *supra* note 275, at 4-5.

320. *Id.* at 18 ("The LTCM Fund conducted repo and reverse repo transactions on U.S. and other government securities with approximately seventy-five counterparties.").

321. JORION II, *supra* note 282, at 3.

322. LOWENSTEIN, *supra* note 287, at 54-55.

323. *Id.*

324. Dian B. Henriques & Joseph Kahn, *Back From The Brink; Lesson of a Long, Hot Summer*, N.Y. TIMES, Dec. 6, 1998.

325. LOWENSTEIN, *supra* note 287, at 57.

government was considered lower than that of private banks.³²⁶ However, believing that the default risk of the Italian government was overestimated, LTCM invested in the Italian government bonds.³²⁷ LTCM purchased fixed-interest-rate government bonds and sold the fixed-interest-rate swaps. LTCM also purchased the floating-interest-rate government bonds and sold the fixed-interest-rate swaps.³²⁸ LTCM then invested in Brazil and Japan and rapidly increased its investment in Russian government bonds.³²⁹ However, it did not disclose its risky investments to the investors.³³⁰

In Europe, various stocks were frequently dually listed, and it was common they were classified as common and preferred shares and shares of parent and subsidiary companies. For several reasons, in paired shares, one stock is traded at a discounted price compared to the other stock. LTCM invested mostly in Royal Dutch/Shell, the petroleum consortium of Holland.³³¹ Royal Dutch/Shell was owned by Royal Dutch Petroleum of Holland and Shell Transport of England.³³² Although both companies obtained revenue from the profit sharing, the British company was traded at a price lower than the price of the Holland company; precisely, the British company's discount was approximately 8% more than the Holland company.³³³ After purchasing an equal ratio of British company shares, LTCM sold the shares of the Holland company, believing the difference in stock prices of the two companies would narrow.³³⁴ The amount invested in those two companies reached \$2.3 billion.³³⁵

LTCM also began to participate in merger arbitrage transactions in the early 1990s.³³⁶ In the merger arbitrage transactions taken by LTCM, a huge profit was possible if the investment was successful, as the profit was much higher than the spread on the bonds.³³⁷ LTCM participated in some 30 merger arbitrage transactions, including the purchase of CBS by Westinghouse and the purchase of MCI Commu-

326. *Id.*

327. Ezra Zask, *Will Market-Neutral Strategies Survive LTCM?*, DERIVATIVES STRATEGY, Feb. 1999, <http://www.derivativesstrategy.com/magazine/archive/1999/0299col1.asp>.

328. WORKING GROUP REPORT, *supra* note 275, at 11.

329. Henriques & Kahn, *supra* note 324.

330. *Id.*

331. LOWENSTEIN, *supra* note 287, at 99.

332. Henriques & Kahn, *supra* note 324.

333. LOWENSTEIN, *supra* note 287, at 99.

334. *Id.*

335. *Id.*

336. Henriques & Kahn, *supra* note 324.

337. *Supra* note 299 and accompanying text.

nications by the British Telecom.³³⁸ However, in most cases, LTCM did not actually purchase the stocks, but it achieved the same effect through equity swaps.³³⁹

For example, if LTCM were to invest \$100 million in CBS stocks for three years, LTCM could get the same profit by entering into an equity swap contract with a Swiss bank.³⁴⁰ LTCM paid the fixed interest rate for \$100 million and the total return on investment (dividends and capital gains) that would have been due to it if the Swiss bank in fact owned the stock of CBS.³⁴¹ Because the Swiss bank bought the stocks, the risk was hedged, and LTCM was able to get the same effect as the CBS stock investment through equity swaps. The reason LTCM was able to get a large amount of loans and make an investment in merger arbitrage transactions was LTCM used the equity swaps instead of direct investment in stocks; thus, it made avoiding Regulation T of the FRB possible by stipulating a limit in the loan amount for lending securities by a broker for securities investment.³⁴²

The equity volatility transactions (Stock Index Options) are an investment strategy based on an assumption of the Black-Scholes model that equity volatility becomes stable over time.³⁴³ In the Black-Scholes model, the expected volatility of the underlying assets is an important factor in determining the price of an option.³⁴⁴ Conversely, if the option price³⁴⁵ is known, volatility is expected in the market (i.e., implied volatility can be inferred). For example, if the volatility of the actual underlying assets is 15%, and the implied volatility inferred from the Black-Scholes model is 20%, the implied volatility will fall in convergence with the market volatility. Although the equity volatility itself is not a tangible subject of transaction, unlike stocks and bonds, the identical effect is achieved by trading the option, the primary factor of the volatility.

LTCM sold the five-year options on S&P 500 and major European stock indices in anticipation that the stock index options would fall; it believed the stock index options would fall, causing the volatility to

338. See LOWENSTEIN, *supra* note 287, at 102, 148.

339. Even though, LTCM was subject to statutory regulation, also known as Regulation T, it "entered into derivative contracts that mimicked the *behavior* of stocks." *Id.* at 102.

340. *Id.*

341. *Id.* at 102-03.

342. In Regulation T (12 CFR Part 220) of the FRB regulations, the limit on securities lending is stipulated at 50% of the amount of the securities investment by a broker. However as Regulation T only governs the securities lending amount, the funds invested in security swaps are not subject to the regulation. LOWENSTEIN, *supra* note 287, at 102.

343. HULL, *supra* note 46, at 281.

344. *Id.*

345. SCOTT & WELLONS, *supra* note 5, at 961.

gradually decline, because an excess implied volatility existed at the time.³⁴⁶ The purchasers of the stock index options were generally those investors wanting some safeguards against the decline in the stock market. In addition, investment banks, such as Morgan Stanley, JP Morgan, Salomon Brothers, and Bankers Trust, also purchased these options to sell them back to the investors.³⁴⁷

As the Asian stock markets continued to fall, investors in Europe and the United States tried to purchase options, even at a high premium, to safeguard against the collapse of the stock markets.³⁴⁸ However, even including LTCM, the number of option sellers was extremely small.³⁴⁹ Although the increase in the demand for the options and the limited supply had increased its prices, LTCM continued to sell the options, believing the prices to be overvalued.³⁵⁰ In the end, LTCM had an extremely important role as an option seller on the United States and European stock index options markets, from which it got the nickname "central bank of volatility."³⁵¹

However, forecasting volatility in the market was a very difficult task, and even if LTCM's forecast was right, it could incur losses from option trades because long-term options were not traded on the exchange, which made LTCM devise OTC option contracts.³⁵² These OTC options were sold to investment banks, such as JP Morgan and Salomon Brothers, who intended to resell them to general investors.³⁵³ From its inception, not only was this market very small, but it had an asymmetrical structure with more option buyers than option sellers. In the long run, LTCM's forecast could be right, but, short-term, it could incur a loss. In other words, LTCM did not invest in the final volatility expected in the long run, but did invest in the daily volatility determined by the price of the options investors intended to buy.³⁵⁴

346. LOWENSTEIN, *supra* note 287, at 124.

347. *Id.* at 125.

348. *Id.* at 126.

349. *Id.* at 127.

350. *Id.* at 128.

351. LOWENSTEIN, *supra* note 287, at 123-42 (discussing market volatility and LTCM's playing). See also NICHOLAS DUNBAR, *INVENTING MONEY: THE STORY OF LONG-TERM CAPITAL MANAGEMENT AND THE LEGENDS BEHIND IT* 178 (2000).

352. "Options contracts are either call or put options, either of which can be purchased by an investor at a price referred to as the premium." Gibson, *supra* note 1, at 536. "An investor who purchases a call option receives the right to buy a specified instrument during a designated time period, while the purchase of a put option gives the investor the right to sell a specified instrument during a designated time period." *Id.* at 536 n.51.

353. LOWENSTEIN, *supra* note 287, at 125.

354. JORION II, *supra* note 282, at 21.

A swap spread refers to the difference between the fixed rate of a swap and the interest rate of a government bond. In other words, as the swap rate is determined by adding the spread to the interest rate of a government bond, the swap spread is the measure of the degree of risk on the credit of the trade counterpart in the market.

LTCM simply employed the strategy of selling swap spreads in the United States and Germany and buying swap spreads in England.³⁵⁵ In anticipation of the swap spread becoming smaller in the United States, LTCM took the short position on a swap spread worth \$240 million.³⁵⁶ Selling the swap spreads as the risk increased resulted in an increase in the premium received.³⁵⁷

In addition, in anticipation of the forward swap spread between England and Germany being zero, LTCM took a long position on the forward swap spread of England and a short position on Germany.³⁵⁸ At that time, the government of England, while borrowing little, had a big spread (about 80bp), but the German government had a very small spread of about 20bp due to large borrowing.³⁵⁹ As England's anticipated participation in the EMU in the next 10 years became clear, LTCM made the investment, expecting the swap spreads in both countries to be similar.³⁶⁰

To reduce the tax burden created by the additional investment of the share of the fund by the partners, Scholes and LTCM developed the following creative structure: LTCM sells its share of the fund to a trade counterpart, such as Union Bank of Switzerland ("UBS").³⁶¹ At the same time, LTCM pays a certain amount of premium to the coun-

355. According to Lowenstein:

The swap rate is, at any given moment, the fixed rate that banks, insurers, and other investors demand to be paid in exchange for agreeing to pay the LIBOR rate, a short-term bank rate. The twist is that the LIBOR rate floats; no one knows where it will go in the future. Typically, swap rate in each country trade at a slight spread above the interest rate on the country's government debt. Thus, this swap spread is a basic barometer of credit market anxiety; it is the premium that investors demand for taking the risk of being exposed to rate fluctuations in the future.

LOWENSTEIN, *supra* note 287, at 136-37.

356. *Id.* ("[T]he size of LTCM's swap positions was unreasonably large.")

357. DAS, *supra* note 52, at 240 (applying the rationale to Index Amortizing Rate swaps).

358. The result reverses what was anticipated. "The spread in the United States widened . . . and so did the gap between the United Kingdom's and Germany's." LOWENSTEIN, *supra* note 287, at 137.

359. *Id.*

360. *Id.* ("LTCM's those swap trade were "intelligence convergence plays, though not, as history had shown, sure things.").

361. Michael Siconolfi, Anita Raghavan, Mitchell Pacelle, *All Bets are off: How Salesmanship and Brainpower Failed to Save Long-Term Capital*, WALL ST. J., Nov. 16, 1998, at A1.

terpart, and it buys a call option to purchase the share of the fund at a fixed price after a certain time.³⁶²

To review, the structure can be used to reduce tax. When the partners make a direct investment in the fund, they have a very high tax rate of 39.6% corresponding to the profit. However, if they trade call options with a bank, a low tax rate of 20% is applied, as their investment is considered a long-term capital gain because the partners are deemed to possess the options to purchase the share at a fixed price within 7 years, as opposed to owning additional shares of fund. In vain, LTCM offered such a structure to various investment banks, including Merrill Lynch, and at last entered into a contract with UBS.³⁶³

UBS purchased the share of the fund for \$1 billion and sold LTCM the call option to buy \$800 million of the purchased fund at a fixed price within 7 years.³⁶⁴ UBS received \$320 million as the call option premium.³⁶⁵ Afterward, LTCM entered into an identical contract with Credit Swiss.³⁶⁶

D. *Results of the Use of Derivative Instruments*

1. Cause and Size of Loss

In February 1994, a year after the operation of the fund, LTCM achieved a 28% profit by means of an investment strategy based on its own model.³⁶⁷ Between 1995 and 1996, LTCM's profit was close to 60%, and even with the deduction of fees, it set a rate of return of about 40%.³⁶⁸ What made the profit of near 60% in 1995 was the huge profit generated in their investment in Italian government bonds, as well as in Europe.³⁶⁹

However, the rate of return on the fund after 1997 took a nose dive to a 20% level because LTCM's expectations regarding the market did not come true.³⁷⁰ In May 1998, contrary to what LTCM anticipated, as

362. Crew described:

A call option gives the buyer the right to buy an asset (interest rates, equities, currencies, commodities, precious metals) at a predetermined price, known as the strike. . . .

The buyer of a call option, for example, will walk away if asset prices move lower than his strike price, since he can buy the asset more cheaply on the open market.

CHEW, *supra* note 65, at 10.

363. LOWENSTEIN, *supra* note 287, at 108.

364. *Id.*

365. Siconolfi et al., *supra* note 361, at *8.

366. LOWENSTEIN, *supra* note 287, at 109.

367. STEINHERR, *supra* note 241, at 88.

368. SCOTT & WELLONS, *supra* note 5, at 1153.

369. STEINHERR, *supra* note 241, at 88.

370. GEOFFREY POITRAS, RISK MANAGEMENT, SPECULATION, AND DERIVATIVE SECURITIES 65 (2002).

the demand for the government bonds increased, the interest rate of the government bonds fell, thus resulting in an increase in the bond spreads.³⁷¹ Against the government bonds, the spread of corporate bonds changed from 99bp to 105bp, junk bonds from 224bp to 266bp, and off-the-run government bonds from 6bp to 8bp.³⁷² LTCM consistently used a strategy of owning risky bonds and taking a short position on government bonds, which had relatively less risk.³⁷³ However, as the interest rate of the government bonds declined, the price difference increased, and LTCM incurred a large loss from all transactions.³⁷⁴

Unlike what was expected, swap spreads also increased to a level exceeding the spreads during the Great Depression.³⁷⁵ The origin of the increase in spreads was due to the economic crisis in Asian regions.³⁷⁶ When the value of Japanese yen, the central axis in the East Asian economy, rapidly decreased and the economy went stagnant, yields on Japanese government bonds also rapidly dropped.³⁷⁷ In addition, due to the decrease in imports from Japan, the depression carried into Indonesia and Korea.³⁷⁸ When the impact reached the American and European markets, a contrary scenario took place to that anticipated by LTCM.³⁷⁹

The increase of the yield on the government bonds in Russia was another cause of LTCM's loss.³⁸⁰ Goldman Sachs, in its plan for an IPO after 1998, sold a large quantity of Russian government bonds to generate healthy financial statements; as a result, the yield on the Russian government bonds greatly increased.³⁸¹ In particular, the yield on the one-year maturity Russian government bond due at the end of June 1998 increased to 90%, causing a great loss to LTCM who had a huge investment in these bonds.³⁸² The crash in the Russian bond market caused the volatility of the U.S. stock market to increase, and, consequently, stock index option prices rapidly increased, causing a

371. LOWENSTEIN, *supra* note 287, at 126-29.

372. *Id.* at 135.

373. *Id.* ("Treasures [government bonds] were the basic bond that the fund sold short to hedge the riskier bonds it owned.").

374. ERISK CASE STUDY II, *supra* note 277, at 4.

375. LOWENSTEIN, *supra* note 287, at 137.

376. *Id.* at 135.

377. *Id.*

378. STEINHERR, *supra* note 241, at 85, 180.

379. LOWENSTEIN, *supra* note 287, at 135.

380. ERISK CASE STUDY II, *supra* note 277, at 3.

381. LOWENSTEIN, *supra* note 287, at 135-36.

382. *Id.* at 136.

huge loss to LTCM who was selling a large quantity of stock index options.³⁸³

At last, in mid-August 1998, Russia declared a moratorium³⁸⁴ and the stock markets in the world plummeted.³⁸⁵ Investors increased their investment in U.S. Treasury bonds, which were relatively safe and increase in demand, leading to price increases in the bonds and a decline in their yields. Expecting that the spreads of all the bonds against the government bonds would narrow, LTCM, who was participating in arbitrage again, incurred a large loss, which was magnified due to the vast size of the investment and leverage.³⁸⁶ In addition, LTCM engaged in a very speculative investment, which was far from the model in the last stage of the management of the fund.³⁸⁷ The crises in both Asia and Europe were carried into the entire world, and, as the correlation with the financial market of the world got closer to one, the return on the diversified investment was not realized at all.

Between January and September 1998, LTCM suffered a loss of \$430 million from its investment in Russian bonds and other bonds from emerging countries; another \$371 million was lost from its direct investment in advanced countries.³⁸⁸ LTCM also sustained a loss amounting to \$1.6 billion in transactions involving paired shares, relative value arbitrage, equity swaps, and junk bond arbitrage.³⁸⁹ The transactions causing the most loss were OTC derivative instruments, such as swaps and securities volatility transactions, at \$1.6 billion and \$1.3 billion, respectively.³⁹⁰ This resulted from LTCM's blind acceptance of its model, which did not consider extreme scenarios, such as the moratorium by Russia or the financial crisis in Asia.³⁹¹

383. *Id.*

384. Franklin R. Edwards & Edward R. Morrison, *Derivatives and the Bankruptcy Code: Why the Special Treatment?*, 22 YALE J. ON REG. 92, 102 (2005).

385. SCOTT & WELLONS, *supra* note 5, at 1153-54.

386. See LOWENSTEIN, *supra* note 287, at 139-41.

387. Including the investment in Kanawha of Norway, purchase of the MS and Dell options, sale of the S&P 500 option, and the purchase of 15% of junk bonds issued by Starwood Hotels & Resorts for \$480 million. LOWENSTEIN, *supra* note 287, at 128-29.

388. Wikipedia, Long-Term Capital Management, http://en.wikipedia.org/wiki/Long-Term_Capital_Management (last visited Dec. 13, 2007).

389. See Siconolfi, *supra* note 361.

390. LOWENSTEIN, *supra* note 287, at 146-47 (summarizing the progress of LTCM collapse in August 1998).

391. *Id.* at 111-12, 117, 134-36, 140-41 (describing the Asian and Russian financial markets situation).

2. LTCM's Collapse

As the value of LTCM's assets was reduced by over 44% and the loss reached \$1.8 billion during August 1998, LTCM came to a point where it needed additional paid-in capital.³⁹²

The derivative instruments owned by LTCM at that time, such as swaps and stock index options, reached about \$1.25 trillion.³⁹³ In mid-September 1998, the size of the position increased excessively, and numerous trade counterparts, such as Bear Stearns, required additional collateral, but it was very difficult to secure additional liquidity at that time.³⁹⁴ LTCM had to reduce its position, but it had already become so large and the market so tight that doing so was almost impossible. Moreover, as most banks were engaged in transactions similar to those of LTCM, the banks did not have funds available for lending.³⁹⁵ Luckily for LTCM, Goldman Sachs accepted a lending request of \$1 billion in mid-September, but, as consideration, it requested a right to decide the limit of the fund investment and a 50% share of LTCM.³⁹⁶

Despite the additional financing, the losses of LTCM continued to grow rapidly on a daily basis until the company reached a point where it needed \$4 billion to settle the problem.³⁹⁷ Because all LTCM transactions were entangled with numerous trade counterparts, if LTCM intended to dispose of the collateral in its possession, which would cause the value of collateral to plummet, its trade counterparts would bear an expected \$5 billion loss.³⁹⁸

Bear Stearns persistently asked for additional collateral, and the floating margin was made up with a \$475 million revolving loan provided by Chase Manhattan.³⁹⁹ However, with financing on the private level alone, LTCM could not cope with the pressure of liquidity.⁴⁰⁰ At last LTCM became insolvent due to the pressure of liquidity and con-

392. WORKING GROUP REPORT, *supra* note 275, at 12.

393. See ERISK CASE STUDY II, *supra* note 277, at 2.

394. See JORION II, *supra* note 282, at 5-6.

395. Meriwether's "offers of new capital weren't forthcoming." David Shirreff, *Lessons From The Collapse Of Hedge Fund, Long-Term Capital Management: Case Setup*, INT'L FIN. RISK INSTITUTE, <http://riskinstitute.ch/146490.htm> (last visited Feb. 10, 2008).

396. LOWENSTEIN, *supra* note 287, at 172.

397. See ERISK CASE STUDY II, *supra* note 277, at 2; WORKING GROUP REPORT, *supra* note 275, at 12-13.

398. WORKING GROUP REPORT, *supra* note 275, at 17. See also Shirreff, *supra* note 295.

399. "Margin is the cash or eligible securities that a market participant must provide to collateralize its contingent obligations that flow from exchange-traded contracts under which it is obligated." Feder, *supra* note 134, at 733.

400. See WORKING GROUP REPORT, *supra* note 275, at 18.

tinuing reduction of capital.⁴⁰¹ As the fear of LTCM's possible collapse spread, the situation was aggravated and the possibility of bankruptcy arose.⁴⁰²

The FRB decided to step in because it believed that the systemic risk⁴⁰³ and the pressure of liquidity due to the bankruptcy of LTCM would dismantle the entire financial system.⁴⁰⁴ The estimated total amount of loss the total 14 banks had to bear was between \$3 and \$4 billion, about \$300 million per bank.⁴⁰⁵ However, what was more important was that if LTCM went bankrupt and all its creditors went for liquidation, the market would be paralyzed, causing a bad effect on the entire financial system.⁴⁰⁶ Finally on September 22, 1998, the four major trade counterparts of LTCM looked at measures to avoid bankruptcy and a planned to provide funds by means of mutual investment through the consortium created by the major trade counterparts.⁴⁰⁷

On September 28, 1998, 14 financial organizations decided to participate in the consortium called "Oversight Partners I."⁴⁰⁸ Instead of making an investment of \$3.65 billion over a period of 3 years, they were given 90% of LTCM's shares and the right of management.⁴⁰⁹ Though the management of LTCM continued to manage its fund, the breakdown of the fund use and the results had to be reported to a supervisory committee established by the banks.⁴¹⁰ Although new funds were raised, and although FRB lowered the interest rate on September 29, an additional loss of \$75 million was incurred in two weeks.⁴¹¹ It was not until the interest rate was lowered again on Octo-

401. *Id.* at 12-14.

402. *Id.* at 21, 26-28.

403. Scheerer, *supra* note 152, at 162.

404. One commentator argued that:

Some observers believe OTC derivatives usage among dealers increases systemic risk. Systemic risk is the risk that the whole financial system will collapse because of the initial failure of just one or a few [market] players. . . . Under a doomsday scenario, one of the derivatives contract parties fails, and then many other parties to many other derivatives contracts also fail, in an unavoidable chain reaction that eventually collapses the [entire] financial system. . . . For those who fear systemic risk, OTC derivatives are ironic; the purpose of the derivatives is to manage risk at a micro level, but their effect is to increase risk at a macro level.

Feder, *supra* note 134, at 729-30.

405. WORKING GROUP REPORT, *supra* note 275, at 17.

406. *Id.*

407. JORION II, *supra* note 282, at 6.

408. *Id.*

409. *Id.*

410. Shirreff, *supra* note 395.

411. *Id.* ("In the first two weeks after the bail-out, LTCM continued to lose value, particularly on its dollar/yen trades, according to press reports which put the loss at \$200 million to \$300 million.").

ber 15, 1998 that the spreads on bonds began to narrow.⁴¹² A year after relief to LTCM began, the fund achieved a 10% return, and the consortium was dissolved after paying back \$3.65 billion.⁴¹³

E. *Implications*

Because LTCM was a hedge fund, the investment strategies, as well as the breakdown of the portfolio, were not disclosed by industry practice. Therefore, neither the disclosure of the balance, nor the income statements to trade counterparts included information related to the risk of the portfolio. The trade counterparts of LTCM based their investment decisions on the size of the fund and the reputation of management rather than evaluating the credit risk of LTCM.

In addition, financial intermediaries made loans to LTCM without applying a haircut because they did not have accurate information regarding LTCM's management. Because no haircut existed as a buffer, as the value of security dropped, LTCM risked insolvency.⁴¹⁴ It is no exaggeration to say the LTCM case occurred due to the credit risk, particularly the failure in management of the counterparty risk.

As LTCM was a hedge fund, the only supervisor was the market or, in other words, its trade counterparts.⁴¹⁵ However, the trade counterparts of LTCM did not exercise proper supervision and credit risk management, as they relied solely on the past investment performance and the reputation of the LTCM management. Thus the LTCM case began to steer attention to the importance of counterparty risk.⁴¹⁶

412. More exactly, "[t]he Federal Reserve reduced interest rate on Tuesday, September 29, the very day after the bailout [of LTCM] However, the Fed's action did not bring any relief to [LTCM]." LOWENSTEIN, *supra* note 287, at 221.

413. LOWENSTEIN, *supra* note 287, at 229. *But see* Shirreff, *supra* note 395 ("On July 6, 1999, LTCM repaid \$300 million to its original investors who had a residual stake in the fund of around 9%. It also paid out \$1 billion to the 14 consortium members. It seemed Meriwether was bouncing back.").

414. JORION III, *supra* note 297, at 353.

415. "The Federal Reserve has no regulatory authority over hedge fund and no regulatory over LTCM." SCOTT & WELLONS, *supra* note 5, at 792.

416. International Monetary Market President McDonough's address including the following remark:

Based on our experience, it seems clear that the intrinsic leverage of a derivatives contract improves the efficiency with which capital is used in trading activity, thereby increasing turnover volume and market liquidity. This liquidity makes it easier for market participants to reallocate risks. . . . Because derivatives play a prominent role in trading activity and the reallocation of risk in the economy, by their very nature they are likely to be on the premises when financial crises strike. Their mere presence, however, does not make them an inherent source of risk. . . . The need for participants active in derivatives markets to continue to improve their risk management and control capabilities is especially important in the face of ongoing growth and innovation in the financial markets. All aspects of risk management are important, including senior management over-

Though LTCM had internationally diversified its funds, its investment strategies were not diversified.⁴¹⁷ That is, LTCM invested in the market anticipating the range of the liquidity spreads, credit spreads, and volatility spreads would decrease. Contrary to expectations, the spreads increased worldwide, and LTCM and its trade counterparts incurred a loss in all of their investment strategies.

As a result of both LTCM and its trade counterparties having underestimated the possibility of liquidity, credit, and volatility spreads, the world moved in a similar direction. If only a single investment strategy is used, should something unexpected happen, a loss may be suffered in every subject of investment. This situation represented a complete disregard of hedging, the basic principle of risk management;⁴¹⁸ when investing in a risky asset, such as OTC derivative instruments, a hedging strategy requires the ability to offset a loss to a certain extent, no matter how extreme or unlikely that situation may be.

LTCM was a hedge fund; therefore, no regulation in terms of the size of the fund existed, and external restraints on the amount of leverage were only realized by the intentions of the fund's providers. Therefore, the incentive (or, in other words, moral hazard) existed to increase the leverage to maximize both fees and return on investment for the hedge fund management. A leverage has a special feature in that there can be much profit when the market moves in the same way as forecasted in the model, but a large loss can occur if the market moves in the opposite direction. Therefore, the management should make an effort to create an investment strategy suitable for the purposes of the investment and for limiting excess use of leverage.

Though it is obvious that a hedge fund makes for a highly risky and high return investment, a regulatory problem exists when not even a minimum disclosure requirement was required for a large-scale hedge fund whose failure could have threatened the system.⁴¹⁹ However, given the special features and economic functions of a hedge fund, excessive regulation of the transactions may result in adverse effects.

sight, new product approval processes, due diligence for appropriateness, and effective risk measurement and aggregation in both market risk and credit risk.

William J. McDonough, President and CEO of the Fed. Reserve Bank of N.Y., Remarks before the Chicago Mercantile Exchange: Celebrating the 30th Anniversary of the International Monetary Market (May 14, 2002), <http://www.newyorkfed.org/newsevents/speeches/2002/mcd020514.html> [hereinafter McDonough Address].

417. JORION III, *supra* note 297, at 507.

418. See JORION II, *supra* note 282, at 21.

419. "[H]edge funds are exempt from SEC reporting requirements, as well as from regulatory restrictions on leverage or trading strategies." WORKING GROUP REPORT, *supra* note 275, at 3.

Therefore, a countermeasure must be devised for regulation of a position with excess exposure to risk that simultaneously secures the soundness of the transaction and fails to interfere with the transaction itself.

In fact, with an awareness of the problem, the U.S. House Banking Subcommittee on Capital Markets passed The Hedge Fund Disclosure Act⁴²⁰ in March 2000 and regulatory disclosure measures against hedge funds were prepared. The Act was adopted was due to the acknowledgment that greater supervision of the markets and an increased transparency were necessary to ease the inherent risk in the hedge fund industry.⁴²¹

The main point was disclosure requirements should be imposed on funds not subject to the regulation of the Securities Act if the fund is large. The funds subject to the Hedge Fund Disclosure Act are limited to collective investment funds with net assets over \$1 billion or gross assets over \$3 billion.⁴²² The hedge funds subject to the Hedge Fund Disclosure Act must file quarterly reports to the FRB, whose contents will then be available to the general public.⁴²³

An exception to the automatic stay provision of the U.S. Bankruptcy Code was acknowledged in cases involving certain financial contracts, such as swaps or repos.⁴²⁴ However, because LTCM was registered in a country outside the United States, it was not subject to the law. Under bankruptcy law, an acknowledgement of the exception of the automatic stay provision has the function of reducing the amount of credit exposure and preventing the domino phenomenon, whereby insolvency in one market is carried over into another market, thus contributing to the instability of the financial market.⁴²⁵

420. Hedge Fund Disclosure Act, H.R. 2924, 106th Cong. (1999), available at http://commdocs.house.gov/committees/bank/hba63382.000/hba63382_0.htm.

421. *Id.* at 2.

422. *Id.* at 10.

423. *Id.* at 5.

424. However:

[T]he automatic stay does not prevent a creditor from unilaterally terminating a contract to loan money to a debtor firm. Generally, the stay prevents any contractual [counterparty] from terminating ongoing ("executory") contracts with a firm that has filed a bankruptcy petition. The debtor firm is given the exclusive right—for a limited period—to choose whether to continue ("assume") or terminate ("reject") ongoing contracts.

Edwards & Morrison, *supra* note 384, at 111.

425. Commentators have noted:

Why are derivatives contracts treated differently? If legislative history is to be credited, Congress reasoned that special treatment of derivatives was necessary to prevent the "insolvency of one commodity firm from spreading to other brokers or clearing agencies and possibly threatening the collapse of the market." It believed that: "The prompt

In the case of LTCM, although it had entered into financial contracts in which the exception to the automatic stay provision was mostly applicable, the exception was denied because the hedge fund managed by LTCM was not registered in the United States. The United States Bankruptcy Code at that time set a limit on the subjects of exception to the provision of the “automatic stay,”⁴²⁶ so that it applied only to the hedge funds subject to U.S. law and domestic investors. Afterward, the Bankruptcy Code was amended to include both hedge funds whose operations were based in the United States, but were registered in another country, and foreign debtors with investments in hedge funds.⁴²⁷

V. DIAMOND FUND TOTAL RETURN SWAP

The Diamond Fund is an offshore fund created by three companies in Labuan, Malaysia: SK Securities, Hannam Investment Trust, and LG Steel. SK Securities, Hannam Investment Trust, and LG Steel individually invested in 20 billion KRW, 5 billion KRW, and 5 billion KRW, respectively, raising \$34 million denominated in South Korean won (“KRW”).⁴²⁸ In addition, Morgan Guaranty Trust Co. of New York, a subsidiary of JP Morgan, borrowed \$53 million denominated in KRW through a total return swap (“TRS”) transaction,⁴²⁹ a new kind of derivative instrument.⁴³⁰

The Diamond Fund invested a total of \$87 million denominated in KRW in rupiah-paired bonds of Indonesia, suffering a huge loss when the rupiah fell.⁴³¹ In the course of settlement, an illegal internal transaction in the SK Group related to the method of preserving such a loss

liquidation of an insolvent’s position is generally desirable to minimize the potentially massive losses and chain reaction of insolvencies that could occur if the market were to move sharply in the wrong direction.” Congress, then, carved derivatives out of the scope of the automatic stay in order to reduce the likelihood of systemic risk, i.e., the possibility that the insolvency of a party to a derivatives contract might expose a counterparty (such as a commercial or investment bank) and that counterparty’s counterparties (other banking institutions) to financial distress, which would destabilize financial markets.

Id. at 97-98 (internal citations omitted).

426. 11 U.S.C. § 362 (2006).

427. WORKING GROUP REPORT, *supra* note 275, at 27-28.

428. JINWOO PARK, FINANCIAL DERIVATIVES 464 (2003) (S. Korea).

429. *See generally* BOMFIM, *supra* note 25, at 83-97.

430. PARK, *supra* note 428, at 464. For convenience, the shorter form of JP Morgan will be used to represent the Morgan Guaranty Trust Co. of New York in the rest of this Article.

431. Injune Kim & Seokjun Byun & Changhyun Yoon, *Analysis of Financial Derivatives Instruments that Applied to the Offshore Fund-Diamond Fund Case*, 15(2) J. FIN. MGMT. 55, 56 (1998) (S. Korea).

became an issue.⁴³² The following looks at the historical background of OTC derivative instrument transactions and discusses their specific structure and implications.

A. Background

In the first half of 1996, the interest rate was on the decline, and the desire to invest overseas was rapidly increasing in the Korean financial market.⁴³³ The smooth sales of the fixed Korean Won currency foreign investment fund encouraged an atmosphere favoring foreign investment.⁴³⁴ Following the trend of the time, SK Securities International Sales Team created a foreign investment team to expand the operation of investing domestic funds in foreign investments by breaking away from the existing sales practice of inducing foreign capital domestically.⁴³⁵

The foreign investment team handled the intermediary operations of investing domestic funds overseas and of establishing strategies to intermediate products of prominent overseas financial institutions; the foreign investment team conducted these operations with the funds, rather than with capital from large, domestic investors.⁴³⁶

During that time, the investment trust companies were generating returns 3-4% higher than those of domestic securities companies (about 12-13%) by selling beneficiary certificates with Brady Bonds included; consequently, it was difficult to sell overseas products generating less than 16%.⁴³⁷ Brady Bonds were the only available overseas

432. See *infra* Part V.C.3.

433. Kihwan Kim, Chair of the Seoul Fin. Forum, Presentation at The High-Level Seminar on Crisis Prevention in Emerging Markets: The 1997-98 Korean Financial Crisis: Causes, Policy Response, and Lessons (July 11-12, 2006), at 3-5, <http://www.imf.org/external/np/seminars/eng/2006/cpem/pdf/kihwan.pdf>.

434. *Id.* at 6-7.

435. Robert Wade, *The Asian Debt-and-Development Crisis of 1997-?: Causes and Consequences*, 26 WORLD DEV. 1535, 1535-53 (1998), available at <http://www.wright.edu/~tdung/wade-wd-9808.htm>.

Korean banks [such as SK Securities Co. and Korea Life Insurance Co.] had borrowed low-cost foreign funds and then invested heavily in *junk* bonds, with high yields and high risks, in an essentially speculative way, always on the assumption that the exchange rate would hold.

Id. (emphasis added).

436. On February 2, 1998, SK Securities Co. sued Boram Bank in Seoul Central District Court seeking temporary injunction. In the lawsuit, SK Securities alleged that Boram Bank, as guarantor, shall not pay \$189 million to Morgan Guaranty Trust Co. of N.Y. and a subsidiary of JP Morgan because JP Morgan concealed information about the TRS transactions. For more information, see *J.P. Morgan Sues Korean Banks, Securities Firm Over Derivatives Deals*, BNA SEC. LAW DAILY, Mar. 26, 1998.

437. See *infra* text accompanying note 440.

investment product; however, various structured products to prevent the risk of insolvency were underway.⁴³⁸

Under these circumstances, a foreign investment bank proposed the idea that if funds in yen with a low interest rate were borrowed and invested in foreign products and the risks of exchange in yen(¥) and dollar(\$) were hedged with Thailand baht, a steady and high return could be realized.⁴³⁹ Sensing the desire by Korea for foreign investment, Lehman Brothers introduced a bond with a hedge structure of financing yen funds and baht currency to domestic corporate investors.⁴⁴⁰

SK Securities wanted to have trades with more diverse overseas financial intermediaries to supply yen as cheaply as possible and to make the hedge of baht currency more effective.⁴⁴¹ After contacting several market players, because JP Morgan was good at financing with an interest in such a structure, SK Securities asked JP Morgan for a product development using the structure of financing yen funds and a

438. It has been noted that:

They held large amounts of Russian bonds and Latin American "Brady" bonds. As the [Korean] won fell, the banks began to sell foreign securities in order to boost liquidity. Their sell-off helped to spread the financial contagion, as the holders of equivalent junk bonds saw their value collapse with the Korean sell-off.

Wade, *supra* note 435, at 1535-53.

439. Bennett & Marin, *supra* note 163, at 37 n.153. See also David Gillen, Yoolim Lee & Bill Austin, *How JP Morgan Got Tangled in a \$500 Million Derivatives Debacle*, BLOOMBERG NEWS, Jan. 24, 1999. With regard to the hedging effect, there is room for doubt whether it can clearly sweep away the whole risk; thus one commentator insists that:

Although the purpose of a hedge is to neutralize risk, using derivatives as a hedging tool is still risky by nature for a number of reasons: (i) the derivatives product may not cover the targeted risk precisely or operate exactly as anticipated; (ii) the derivatives contract counterparty itself may fail to perform; (iii) a party can enter into a derivatives transaction to hedge anticipated risk and then not incur the risk; and (iv) a party's hedge position might be marked-to-market, whereas the underlying [asset] may not be (such a situation might require the hedger to deliver significant amounts of collateral if the hedge position moves against the hedger and the underlying [asset] itself is not acceptable as collateral).

Feder, *supra* note 134, at 718 (internal citations omitted).

440. According to a *Bloomberg News* article:

Asia was booming, and the Korean economy was a standout performer. From 1992 to 1996, Korea's gross domestic product expanded at an average annual rate of 7.3 percent. The prime rate, the interest banks charge their best customers, stood at 9.5 percent. Korean financial firms were in a bind. Their cost of funds was rising, and their customers were defecting to the international capital markets, where money was cheaper. The Korean firms asked foreign banks for help. And Morgan, which had maintained a liaison office in Seoul since 1986, was eager to cooperate.

Gillen et al., *supra* note 439.

441. This is very similar to Yen carry trading mechanism that "is to borrow Yen at virtually zero rates, and then to purchase U.S. treasuries at about a 3% interest rate gain net." Christopher Laird, *Yen Carry Trade to Unwind - Market Crash Alert*, SAFEHAVEN, Feb. 23, 2006, <http://www.safehaven.com/article-4660.htm>.

baht currency hedge.⁴⁴² The result was the Diamond Fund, an overseas investment fund with Hannam Investment Trust and LG Steel.⁴⁴³

What distinguished JP Morgan's product from that of Lehman Brothers was that JP Morgan bought stocks of Diamond Fund and transferred the risk to the Diamond Fund through the TRS contract.⁴⁴⁴ In other words, from the Diamond Fund's standpoint, it sold the stocks, but, in fact, its act was equivalent to borrowing the funds; from JP Morgan's standpoint, it made an investment, but the effect was equivalent to a loan guaranteeing a certain amount of the principal.⁴⁴⁵

At the time the TRS contract was drafted, JP Morgan had invested in dollar-denominated bonds in Thailand by borrowing Japanese yen and investing in Indonesian rupiah bonds.⁴⁴⁶ Because the interest rate on yen was low, the interest rate on the Thai bonds was high, and the baht and dollar exchange rate was stable, JP Morgan could make a profit by borrowing yen, converting it into dollars, and investing in Thai bonds.⁴⁴⁷ However, JP Morgan held a very high position in the East Asian market at that time, and it was motivated to reduce its position.⁴⁴⁸ Although hedging was possible through conventional means, it carried out the hedge more effectively by making use of financial firms in Korea that lacked both experience and knowledge about OTC credit derivative instruments.⁴⁴⁹

442. See Gillen et al., *supra* note 439.

443. "[I]n early 1997, a number of Korean financial institutions entered into certain derivative transactions with J.P. Morgan that were supposed to provide the Korean parties what was called 'synthetic low-cost yen financing.'" John D. Lovi, *Symposium: Total Return Swaps and Swap Contract Litigation*, 5 FORDHAM J. CORP. & FIN. L. 122, 126 (2000) (describing the background of the times).

444. For a description of the TRS contract, including deal structure and function, see HULL, *supra* note 46, at 515.

445. See Kim et al., *supra* note 431, at 56-57.

446. The TRS contract, like other derivatives, is a "bilateral agreement" that specifies terms between the parties. BOMFIM, *supra* note 25, at 83.

447. Bennett & Marin, *supra* note 163, at 36-37.

448. In order to hedge the bank's credit risk, JP Morgan completed an "innovative synthetic transaction" that was effectively transferred \$9.722 billion credit risk to its corporate customers. The characteristic of this scheme "differ[s] from the classical . . . credit-linked note CLN in that it transfers the *pure* credit risk of the underlying credit exposures without providing any financing for JP Morgan and has no balance sheet impact." DAS, *supra* note 52, at 654-55 (illustrating the specific steps entailed in the transactions).

449. According to Andre Scheerer:

The first real test for credit derivatives came in late 1997 with the Asian financial crisis, when the first large-scale credit derivative-related losses occurred. . . . Between December 1997 and January 1998, credit derivatives allowed investors to recover at least \$800 million from the Korean Development Bank and the Industrial Finance Corporation of Thailand.

Scheerer, *supra* note 152, at 152.

During the course of business, Korean financial institutions suffered a huge loss. It was not easy to forecast currency exchange risk based on historical data;⁴⁵⁰ however, the lack of analytical ability and knowledge regarding the structure of derivative instruments was the principal cause of the failure. In the capital market, particularly the OTC derivative market where the masters of chivalry compete, this case served as a reminder that “only the strong can survive” and “knowledge is power.”⁴⁵¹

In the end, this case escalated into a lawsuit because the inherent risk of the derivative instruments had not been sufficiently explained in the agreement between the concerned parties.⁴⁵² However, in the course of the settlement, it again was highlighted that the SK Group was said to be related to the unjust internal transactions in connection with the ways of sharing the loss.⁴⁵³

B. Structure of Transactions

1. Total Return Swap

JP Morgan subscribed the entire shares of Diamond Fund and invested \$53 million in the fund.⁴⁵⁴ The Diamond Fund invested \$34 million of SK investment and \$53 million of JP Morgan investment in the Indonesian rupiah ELN.⁴⁵⁵

Investment performance depended on the degree of revaluation or devaluation of the rupiah.⁴⁵⁶ Though it will be discussed in detail later in this Article, the investment was structured so there would be a profit if the value of the rupiah increased and a loss if it decreased.⁴⁵⁷

The share value of Diamond Fund was contingent upon the investment performance of the rupiah ELN at maturity, at which point JP Morgan was to return the shares back to the fund, regardless of the

450. Bennett & Marin, *supra* note 163, at 39.

451. One commentator indicates that “[i]n an informal survey of bankers taken in 1992, most admitted that they did not adequately understand derivatives’ basic structure nor the possible extent of the losses they could incur through using derivatives.” John Andrew Lindholm, *Financial Innovation and Derivatives Regulation—Minimizing Swap Credit Risk Under Title V of the Futures Trading Practices Act of 1992*, 1994 COLUM. BUS. L. REV. 73, 85 (1994). However, for the last 15 years, the market situation has shown no sign of improvement. *Id.*

452. Edward S. Adams & David E. Runkle, *The Easy Case for Derivatives Use: Advocating A Corporate Fiduciary Duty to Use Derivatives*, 41 WM. & MARY L. REV. 595, 628 (2000).

453. See *infra* Part V.C.3.

454. PARK, *supra* note 428, at 464.

455. Kim et al., *supra* note 431, at 56-57.

456. See Ian Bell & Petrina Dawson, *Synthetic Securitization: Use of Derivative Technology for Credit Transfer*, 12 DUKE J. COMP. & INT’L L. 541, 555 (2002).

457. Frank Partnoy, *The Shifting Contours of Global Derivatives Regulation*, 22 U. PA. J. INT’L ECON. L. 421, 464-65 (2001) (describing in detail derivatives transactions).

value, and receive $[0.97 \times \$53 \text{ million} - \alpha - \beta]$.⁴⁵⁸ Reconsidering this without the α and β terms, this was a contract that gave $0.97 \times \$53$ million, or \$51.41 million to JP Morgan. In other words, from JP Morgan's standpoint, though it initially invested in the shares of Diamond Fund, it actually entered into a contract that guaranteed a fixed amount, regardless of the investment performance of the Diamond Fund. In the end, from JP Morgan's standpoint, it made a loan rather than an investment. However, from the Diamond Fund's standpoint, it borrowed funds and had to repay $[0.97 \times \$53 \text{ million} - \alpha - \beta]$ at maturity.

The contract made between the Diamond Fund and JP Morgan was a type of emerging hybrid derivatives instrument, or TRS contract, in which all of the economic performance, that is, the total return generated from the underlying assets, was exchanged with a fixed cash flow.⁴⁵⁹ As opposed to a credit default swap ("CDS"),⁴⁶⁰ where the exchange is made based on the occurrence of a credit event,⁴⁶¹ the payment was made between the parties to the contract regardless of the occurrence of a credit event in the TRS.⁴⁶² In this TRS contract, JP Morgan, as the TRS payor, paid the total profit generated from the Diamond Fund to the TRS receiver, the Diamond Fund, and received a fixed amount of \$51.41 million.⁴⁶³

In the TRS contract Diamond Fund entered into, the underlying assets were the shares received for JP Morgan's lending \$53 million to

458. "Total return equals interest plus fees and appreciation in market value at maturity." Feder, *supra* note 134, at 711.

459. For further discussion on TRS, see BOMFIM, *supra* note 25, at 83-90.

460. For further discussion on CDS, see HULL, *supra* note 46. See also BOMFIM, *supra* note 25, at 67-82.

461. According to one commentator:

A credit default swap transfers potential credit loss, usually, but not necessarily, in connection with a specific reference asset. Under a typical credit default swap, the protection buyer makes a single payment or periodic payments to the protection seller as premium, and the protection seller is obligated to pay a credit event payment to the protection buyer if a credit event occurs.

Feder, *supra* note 134, at 708. Thus, the most crucial issue is what a credit event is and when it occurs. The commonly used "Master Agreement" in the financial market, which is sponsored by the International Swaps and Derivatives Association ("ISDA"), specifies what constitutes a credit event and lists eight cases: (1) Failure to pay or deliver, (2) Breach of Agreement, (3) Credit Support Default, (4) Misrepresentation, (5) Default under Specified Transaction, (6) Cross Default, (7) Bankruptcy, and (8) Merger without Assumption. John P. Emert & Emilio Jimenez, International Swaps and Derivatives Association, Inc.: Introduction to the 1992 ISDA Master Agreement (May 7, 2007), http://www.isda.org/c_and_a/ppt/E-Jimenez-JEmert.PPT.

462. See BOMFIM, *supra* note 25, at 84 (illustrating a TRS transaction). See also Karol, *supra* note 20, at 204.

463. The TRS payer is the risk avoider and the TRS receiver is the risk taker. BOMFIM, *supra* note 25, at 85.

the Diamond Fund in February 1997, with the total profit to be exchanged for the loan repayment amount at its maturity in February 1998.⁴⁶⁴ In fact, JP Morgan and the Diamond Fund did not directly enter into the TRS contract.⁴⁶⁵ Instead, JP Morgan and the Korean bank directly entered into the TRS contract, and the domestic banks and the Diamond Fund entered into the reverse TRS contract with Korean banks giving the security.⁴⁶⁶ To be exact, $[0.97 \times \$53 \text{ million} - \alpha - \beta]$ was what the Diamond Fund received, with α as a multiple of 5 of the currency future on the Thai baht⁴⁶⁷ and β as the option on the yen.⁴⁶⁸

Above, α and β were omitted for the convenience of explanation, but the following discusses α and β in detail:

$$\alpha = \text{principal} \times 5[(Bs - Bm)/(Bm)]$$

$$\beta = \text{principal} \times \text{Max}[0, (Ym - Ys)/(Ym)]$$

Bs: the spots exchange rate (25.88) of the baht at the time of contract

Bm: the spots exchange rate of the baht at maturity

Ys: the spots exchange rate (122.00) of the yen at the time of contract

Ym: the spots exchange rate of the yen at maturity

2. Rupiah ELN

The Diamond Fund invested \$87 million in the rupiah ELN of Indonesia, which was issued by NatWest and Rovert Fleming as a type of currency-linked note.⁴⁶⁹ The note was structured to pay semi-annual coupons⁴⁷⁰ according to the formula below, with the principal to be paid at maturity.⁴⁷¹ The coupon rate was 20.15%, which was quite high considering the interest rate in Indonesia was only 12% at that time.⁴⁷² Here, *Rs* was the rupiah/dollar exchange rate as of late July 1997 (the first interest payday), and *Rm* was the rupiah/dollar exchange rate at maturity in January 1998.

$$Cs = 20.15\% \times (2,371)/(Rs),$$

464. Kim et al., *supra* note 431, at 56.

465. *Id.* at 56-57.

466. *Id.*

467. See Bennett & Marin, *supra* note 163, at 37.

468. "[A TRS] can be considered a synthetic asset transferring the total economic performance of an asset for the term of the transaction." Scheerer, *supra* note 152, at 158 (citation omitted).

469. Kim et al., *supra* note 431, at 58.

470. All the coupon rates were expressed as a yearly rate of return.

471. See Kim et al., *supra* note 431, at 58.

472. *Id.*

$$Cm = 20.15\% \times (2,371)/(Rm),$$

$$P = \text{Max}[0, \{1 + (2,371-Rs)/(2,371) + (2,371-Rm)/(2,371)\} \times (2,371)/(Rm)]^{473}$$

To analyze this formula, first look at the coupon part. At the time of the note purchase, the exchange rate between the rupiah and dollar was 2,371 (i.e., 1 dollar was equal to 2,371 rupiahs).⁴⁷⁴ If the value of the rupiah doubled after 6 months (1 dollar = 1,186 rupiahs), the coupon C_s would increase from 20.15% to 40.3%.⁴⁷⁵ However, if the value of the rupiah decreased by half (1 dollar = 4,742 rupiahs), the coupon C_s would be reduced to 50% of 20.15%, or 10.08%.⁴⁷⁶ In other words, the structure was heavily leveraged according to the change in value of the rupiah.

Second, as to the principal part, assume the exchange rate of the rupiah was fixed for the first 6 months and became variable later ($R_s=RM$). In this case, the principal becomes $P = \text{Max}[0, 3 \times \{(2,371)/R - (2)/(3)\}]$.⁴⁷⁷ In other words, if the value of the rupiah fell over 50% (1 dollar \geq 3,556 rupiahs) and was fixed until maturity, the principal the Diamond Fund could receive would become zero. Of course if the value of rupiah fell less than 50% or increased (1 dollar \leq 3,556 rupiahs), four times the principal could be received through the three-times leverage multiplier effect.

In summary, investment in such a structured rupiah ELN was closer to speculation than investment.⁴⁷⁸ Due to the sharp fall of the rupiah, the Diamond Fund suffered a loss of about \$77 million, 88% of the total investment amount of \$87 million.⁴⁷⁹ After investing \$53 million, because it was holding 60% of the Diamond Fund share, JP Morgan also suffered a loss of \$46 million.⁴⁸⁰ However, through the TRS contract, JP Morgan transferred shares worth \$7 million back to the Diamond Fund and received \$51.41 million.⁴⁸¹ If JP Morgan had owned a position on the rupiah, it could have transferred all of the exchange risk⁴⁸² regarding the Diamond Fund transactions to the Diamond Fund, while at the same time preserving its investment principal.⁴⁸³

473. PARK, *supra* note 428, at 465. See also Kim et al., *supra* note 431, at 58.

474. Kim et al., *supra* note 431, at 58.

475. *Id.*

476. *Id.*

477. *Id.*

478. See PARK, *supra* note 428, at 466.

479. Kim et al., *supra* note 431, at 59.

480. *Id.*

481. *Id.*

482. "A total return swap [] transfers both credit and market risk." Feder, *supra* note 134, at 712.

483. Kim et al., *supra* note 431, at 59.

3. Currency Futures of the Thai Baht (α)

To review the TRS contract structure between the Diamond Fund and JP Morgan, the TRS payor, JP Morgan, transferred the investment performance of the Indonesian rupiah ELN to the Diamond Fund and received $[0.97 \times \$53 \text{ million} - \alpha - \beta]$.⁴⁸⁴ Here, α is the five-multiple of the currency futures on the Thai baht and β refers to the yen option. An analysis of the five-multiple of the currency futures on the Thai baht follows:

The structure of the forward exchange transaction takes the form of $\alpha = \text{principal} \times 5[(Bs - Bm)/(Bm)]$.⁴⁸⁵ Here, Bs is the spots exchange rate of the baht at the time of contract, and Bm is the spots exchange rate of the baht at maturity. From the Diamond Fund's standpoint, it bought the futures exchange rate of baht worth 5 times the principal. In other words, it was a contract in which \$53 million would have to be given to JP Morgan a year later, while the Diamond Fund would receive the equivalent of 5 times the principal in corresponding baht.

The forward exchange rate and the spot exchange rate of the baht were set at 25.88 baht per dollar.⁴⁸⁶ Here, from the Diamond Fund's standpoint, because α was included as a deduction item in the amount JP Morgan was to take, if α was positive there would be a profit, and if negative, there would be a loss.

The sign of α was determined by the devaluation and revaluation of the baht. If the baht were revaluated, the exchange rate becomes less than 25.88 baht/dollar at maturity and α would become positive, representing a profit to the Diamond Fund. In contrast, if the baht were devalued, the Diamond Fund would suffer a loss.⁴⁸⁷ In particular due to the leverage coefficient of 5, the range of profit or loss would be increased by a multiple of five.⁴⁸⁸

The forward exchange inclusion in the structure of the TRS can be interpreted as a hedge strategy by JP Morgan to reduce its position in East Asia, as the weight of transactions in both bahts and rupiahs was high.⁴⁸⁹ Thus, JP Morgan made use of OTC derivative instruments to reduce its East Asia position, including bahts.⁴⁹⁰ At that time, the Diamond Fund was pursuing high profits, rather than hedging risks, and lacked the professional knowledge and skill for designing the most

484. *Id.* at 63. Strictly speaking, this is my own deal structure analysis.

485. *See id.* at 64.

486. *Id.* at 71-72.

487. *See PARK, supra* note 428, at 465.

488. Kim et al., *supra* note 431, at 71.

489. *Id.* at 64.

490. *Id.* at 64 n.4.

optimal structure of the OTC derivative instruments for the trade subject.⁴⁹¹ By entering into a TRS contract with the Diamond Fund and including the forward exchange structure, JP Morgan was able to hedge their position on East Asia more efficiently.⁴⁹²

From the standpoint of securities structural planning, the biggest problem with the structure of the forward exchange lied in its asymmetry. In this structure, if the baht was revaluated, the Diamond Fund had a profit and JP Morgan a loss, and vice versa for a devaluation; however, there was a cap in the amount of the Diamond Fund's profits, but not in its losses.⁴⁹³ In other words, \$53 million was the limit of the loss of JP Morgan and the maximum profit of Diamond Fund. Financial institutions offer this kind of cap as a popular interest rate option in OTC financial markets.⁴⁹⁴

The exchange rate when the profit of the Diamond Fund reached \$53 million was 21.56 baht per dollar.⁴⁹⁵ This was about 20% of the revaluated level compared to the spots exchange rate of 25.88 baht per dollar.⁴⁹⁶ Even if the revaluation exceeded this level, the profit of the Diamond Fund or the loss of JP Morgan was fixed.⁴⁹⁷ On the other hand, there was no limit in the size of loss to the Diamond Fund when the value of the baht dropped.⁴⁹⁸

From a securities planning standpoint, this was equal to the Diamond Fund selling a call option at the strike price of 21.56 baht per dollar.⁴⁹⁹ As the exchange rate at the time of contract was 25.88 baht per dollar, it was an out-of-money option.⁵⁰⁰ That being the case, did the Diamond Fund sell the call option at a reasonable price? In fact, the Diamond Fund did not receive any special consideration, but, con-

491. "Hedgers typically use derivatives [vehicles] to reduce financial risks associated with their existing asset/liability portfolios. A hedger in the derivatives market protects itself by purchasing a derivative instrument that is expected to change in value in the opposite direction of the hedger's asset or liability." Gibson, *supra* note 1, at 540. "Market participants use derivatives to hedge against adverse changes in the value of assets or liabilities that result from fluctuations in an interest rate, or exchange rate, or the price of stock, commodity or index." *Id.* at 540 n.79.

492. This hedging program became a factor in the exchange currency crisis as many Korean financial institutions participated in the program and lost astronomical amounts of cash. SCOTT & WELLONS, *supra* note 5, at 1309-15.

493. Kim et al., *supra* note 431, at 65. For a discussion of cap structure, see CHEW, *supra* note 65 at 11-12. See also Feder, *supra* note 134, at 697.

494. Gibson, *supra* note 1, at 537 n.55.

495. Kim et al., *supra* note 431, at 65.

496. *Id.*

497. *Id.*

498. *Id.*

499. *Id.*

500. Kim et al., *supra* note 431, at 65.

sidering the time the contract was entered into, the volatility of the exchange rate in the past five years was only 0.0284.⁵⁰¹ Therefore, because the strike price was about 20% below the spot price (an out-of-the-money option), the value was close to zero; selling such an option without special consideration was acceptable.⁵⁰²

The problem was that a provision should have been added that limited the loss of the Diamond Fund and, in short, the profit of JP Morgan. In other words, the Diamond Fund should have purchased a put option.⁵⁰³ Selling a call option and buying a put option takes the structure of a collar.⁵⁰⁴ To balance the call option that JP Morgan purchased, purchase of a put option would limit the loss if the baht was devaluated over 20%. In this case, a put option with strike price of 32.35 bahts per dollar was needed.⁵⁰⁵ From the "put-call parity"⁵⁰⁶ standpoint, the value of the option was also close to zero.⁵⁰⁷ In other words, as mentioned earlier, given the historical volatility of the baht at that time, the value was close to zero, as it was an out-of-the-money option exceeding 20% compared to the price of spots.⁵⁰⁸ Therefore, there would have been almost no cost for the put option. If such a put option had been included in the transaction structure, the maximum loss would have been limited to \$53 million.⁵⁰⁹

Although the size of the risk could have been reduced without much cost by means of a collar structure,⁵¹⁰ this was not reflected in the planning. If the Diamond Fund had asked for the purchase of a put option, JP Morgan would have had to accept its proposal because the structure was very abnormal according to OTC derivative instruments transactional practice. In fact, an asymmetrical structure in the transactions of OTC derivative instruments can cause an enormous loss to the other party.

501. *See id.*

502. *Id.*

503. "A put option gives the buyer the right to sell the asset at the strike." CHEW, *supra* note 65, at 10.

504. Kim et al., *supra* note 431, at 65. Also, "[a] collar is the contemporaneous purchase of a cap and the sell of a floor used with interest rates . . . Collars can be used as a means of holding interest rates at a desired level." Gibson, *supra* note 1, at 537 n.56, 57.

505. Kim et al., *supra* note 431, at 65-66.

506. HULL, *supra* note 46, at 621.

507. Kim et al., *supra* note 431, at 66. *See also* SCOTT & WELLONS, *supra* note 5, at 944 ("Put-call parity says that the current value of a call on a stock equals the current value of an associated put plus the current market price of the stock less the present value of the strike price.").

508. Kim et al., *supra* note 431, at 66.

509. *See id.*

510. For discussion of the collar structure, see CHEW, *supra* note 65, at 11-12.

4. Yen Option (β)

Other than the baht forward exchange explained earlier, the Diamond Fund also had an option for yen, which was structured in the form of $\beta = \text{principal} \times \text{Max } [0, (Y_m - Y_s)/(Y_m)]$.⁵¹¹ Here, Y_s is the spots exchange rate of the yen against the dollar at the time the contract was entered, and Y_m is the spots exchange rate of the yen against the dollar at maturity.⁵¹² This can be understood as a call and put option on the dollar, with a strike price of 122 yen.⁵¹³ When the yen is devalued, the profit paid in yen is exchanged into dollars using the spots exchange rate at maturity.

A yen put option refers to the purchase of a right to sell yen at the basis exchange rate of $Y_s = 122.00$ at maturity.⁵¹⁴ At maturity, if the yen exchange rate becomes bigger than the basis exchange rate of $Y_s = 122.00$ (i.e., if the yen is devalued), the put option will be exercised and a profit equal to the difference in exchange rates will be taken. At maturity, if the yen exchange rate is lower than the basis exchange rate of $Y_s = 122.00$ (i.e., if the yen is revalued), the put option is not exercised as there is no actual profit. In short, when the yen is devalued, β will be greater than zero, and, in the case of the TRS contract, the payment JP Morgan receives will be lessened by the amount of β . In this case, it was advantageous for the Diamond Fund, as the amount of payment was reduced. In contrast, if the yen is revalued, β will be less than zero and the amount JP Morgan receives will increase by the size of β .⁵¹⁵

Why was this option on the yen added? Rather than being important as an option on the yen itself, this option can be interpreted to function as a sweetener to include the option on forward exchange explained earlier in the structure of the TRS.⁵¹⁶ The Diamond Fund, in fact, borrowed the capital in dollars. However, pursuant to the terms of the put-call parity, when the borrowing of dollars is integrated with a put option on yen, it becomes identical to the borrowing of yen integrated, with a call option on yen. Therefore, such a struc-

511. See PARK, *supra* note 428, at 464. See also Kim et al., *supra* note 431, at 66.

512. Kim et al., *supra* note 431, at 66-68.

513. A call option (put option) on the dollar is equivalent to the put option (call option) on the yen. This is because due to its nature, in the case of buying a certain currency (e.g., dollars), the currency option pays another currency (e.g., yen); in contrast, when selling a certain currency (e.g., dollars), the payment is made in another currency (e.g., yen). Therefore, a currency call option that indicates the right to buy a certain currency is equal to the put option (e.g., yen put option) on another currency of the payee.

514. Kim et al., *supra* note 431, at 66.

515. See PARK, *supra* note 428, at 465.

516. See Kim et al., *supra* note 431, at 67.

ture may have been devised to obtain the same effect as financing in yen at a low interest rate.⁵¹⁷

An option premium must be paid to buy an option. However, because the Diamond Fund entered into an exchange rate forward contract without a premium by the spots exchange rate regarding the baht, it suffered a loss by the amount of the forward exchange premium.⁵¹⁸ JP Morgan may have claimed the Diamond Fund made it possible to purchase the yen option without the option premium, thus, maintaining the loss concerning the baht forward exchange contract.

The baht forward exchange used a forward exchange rate 4% higher than the reasonable price.⁵¹⁹ Because the baht forward exchange targeted five times the principal amount, it entered into a forward exchange contract from which a 20% loss was generated by the principal standard.⁵²⁰ Of this 20%, some may have been used in planning the negative funding structure and writing off the principal at 3%, and another part may have been used for the option premium.⁵²¹

As the yen exchange rate was 123.17 yen per dollar at maturity, the Diamond Fund exercised the put option as the yen was devalued as compared to the time of contract. From the put option on the yen, about \$500,000 in profit was realized. The profit from negative funding, which was equal to 3% of \$53 million, was about \$1.59 million. However, it suffered a loss of over \$130 million from the baht forward exchange.⁵²²

Considering the baht forward exchange and the put option on the yen together, it can be interpreted that borrowing \$53 million to buy the put option on yen and, at the same time, purchasing the baht forward exchange, which was five times \$53 million, minimized the risk of volatility of the baht.⁵²³ Based on historical data regarding the relationship between baht and yen, JP Morgan may have persuaded the

517. *See id.* at 66-67.

518. According to Lillian Chew:

[A] *forward* contract enables its buyer to lock in today the future price of an asset, be it a currency, an interest rate, an equity or a commodity. The buyer has to pay this pre-agreed price on the settlement date whether or not the asset has moved in his favour; equally, the seller has to deliver the asset on the settlement date irregardless of the price in the spot market.

CHEW, *supra* note 65, at 6 (emphasis in original).

519. Kim et al., *supra* note 431, at 65-67.

520. *Id.*

521. *Id.* at 57, 68.

522. *Id.* at 67.

523. *Id.* at 71.

Diamond Fund the baht risk could be offset through the put option on yen due to the high correlation between the two currencies.⁵²⁴

This has become a very subjective issue when focusing on the problem of forecasting the volatility of exchange rates. In this case, JP Morgan's sole concern was whether it complied with the principle of fiduciary duty.⁵²⁵ If JP Morgan stuck to the issue of the volatility of the exchange rate differing from the past, the issue could become blurred. However, even when the situation is looked at from the doctrine of a seller's fiduciary duty, if the historical relationship between yen and baht was not maintained, the risk inherent in the structure of a TRS should have been sufficiently explained to the Diamond Fund.⁵²⁶

In summary, it may be logical to conclude that a put option on yen was used as a means of marketing to include the forward exchange structure in the TRS structure. By adding yen-put options, dollar-call options, and the baht forward exchange to the TRS structure, JP Morgan was able to sell the baht forward exchange on a large scale—not on the exchange, but through OTC trading. In the previously explained structure of forward exchange, the asymmetrical structure was a problem, but in the yen option structure, whether the yen option was appropriate as a means of hedging the risk of the baht (i.e., whether the possibility of an appropriate hedge unrealized was sufficiently manifested) became the main issue.⁵²⁷

524. Bennett & Marin, *supra* note 163, at 39 ("Since the Thai baht had never previously depreciated at such a rapid rate against the U.S. dollar, it is unlikely that any scenario analysis based on historical volatility prepared as disclosure for those transactions would have taken into account such a dramatic a level of Thai baht depreciation.").

525. However, one practicing expert advised that:

Under a fiduciary duty theory, the customer asserts that, as a fiduciary, the seller had the responsibility to determine that the [derivatives] product sold was inappropriate and unsuitable for the customer. This can be the result of the size, risk, and leverage of the product, a lack of relationship to the customer's core business or the customer's legitimate business needs, or simply because the product did not accomplish what the customer was trying to accomplish. The better equipped the customer is to make that determination for itself, the less likely it is that a fiduciary relationship will be created. Such a relationship is often the result of an imbalance of knowledge, ability, sophistication, and the like. The greater the imbalance, the greater the chance that a fiduciary relationship exists.

Rubinstein, *supra* note 120, at 743-44.

526. Of course, the seller's "responsibility for determining suitability should continue to depend on the nature of the relationship between the parties to a derivative transaction. . . . This is especially true when the transaction is arms-length, and not the product of a preexisting advisor-client relationship." Sienko, *supra* note 121, at 128.

527. See Lovi, *supra* note 443, at 127 (describing the key issue of the deal).

C. *Result of Use of Derivative Instruments*

1. Devaluing of the Baht and Catastrophic Loss

Due to the economic crisis in East Asia, the Diamond Fund found itself in the worst situation. As the government of Thailand adopted the basket exchange rate method, in the case of baht devaluation due to the deficit in trade balance, the foreign exchange reserves could have been used to buy dollars, artificially linking the baht exchange rate to that of the yen.⁵²⁸ However, in May 1997, as it became difficult to maintain the basket currency method due to the rapid revaluation of the yen and the deficit in the foreign exchange reserves, Thailand converted to the managed currency system.⁵²⁹

Even though the Diamond Fund obtained a little profit as the yen was devalued, the range of baht devaluation was far greater, causing an approximate \$130 million loss to the Diamond Fund.⁵³⁰ In addition, due to the rapid devaluation of the rupiah during its investment period in the rupiah ELN in Indonesia, the Diamond Fund also suffered a loss of about \$75.9 million.⁵³¹ Because of the derivative instruments included in the formula for the redemption at maturity, which resulted in the leverage, a loss more than twice the investment in the general bonds of Indonesia occurred.

In the end, the Diamond Fund suffered a total loss of \$186.14 million from both borrowing and investing due to the currency exchange risk in Asia.⁵³² Compared to the initial capital amount of \$34.4 million, the size of the loss reached 541%.⁵³³ In addition, from the OTC derivative instruments in the Korean offshore funds entered into with JP Morgan, the Diamond Fund suffered a loss reaching about \$800 million.⁵³⁴

In case of the offshore funds, since payment guarantees were made by the Korean banks even if the parties in the trade went bankrupt, the loss in the offshore funds functioned as a cause of increase in the

528. See Partnoy, *supra* note 457, at 464-65.

529. PARK, *supra* note 428, at 465.

530. As John D. Lovi stated:

[I]t is obvious from the transaction formula that if the baht ceased to be a managed currency, the baht forward leg of the transaction would not operate as a hedge. In fact, the baht leg of the transaction would start generating huge losses for the Korean parties, the exact opposite of a hedge.

Lovi, *supra* note 443, at 126-27.

531. Kim et al., *supra* note 431, at 59.

532. PARK, *supra* note 428, at 465-66.

533. *Id.*

534. Bennett & Marin, *supra* note 163, at 37 n.151.

bad loans.⁵³⁵ In other words, because the offshore funds made inappropriate use of derivative instruments, the insolvency of Korean financial institutions deepened.

2. Litigation

Of the financial institutions in which the Diamond Fund invested, SK Securities filed a suit against JP Morgan⁵³⁶ claiming unfairness, violation of the duty to disclose material facts,⁵³⁷ violation of the principle of fiduciary duty, and violation of prohibition of the abuse of power.⁵³⁸ The unfairness in transactions was based on the asymmetrical aspect of the baht forward exchange contract included in the TRS contract and the imbalance of information and bargaining power as a trade counterpart.

The disclosure of material facts requirement was also an issue in the litigation of *Procter & Gamble v. Bankers Trust Co.*⁵³⁹ and *Gibson Greetings*,⁵⁴⁰ as analyzed in Part Three. The court ruled tables showing both the sensitivity of variables influencing the value of the concerned swaps and the volatility of such variables should have been made available.⁵⁴¹ In addition, according to New York case law, the court held if one party to a contract had far superior information and knowledge, was aware that the other party could not easily access that information, and the other party was basing its decision on erroneous information and knowledge, the party had an implied duty to inform the other party of important information.⁵⁴²

However, the lawsuit between SK and JP Morgan was settled before going to trial.⁵⁴³ The settlement called for JP Morgan to participate in SK's new shares issued, but unfair inside trading of SK sub-

535. Kim et al., *supra* note 431, at 57.

536. See David Gillen, *How J.P. Morgan Got Tangled in a \$500 Million Derivatives Debacle*, BLOOMBERG NEWS, Jan. 24, 1999. See also Partnoy, *supra* note 457, at 466.

537. The P&G court held that under New York law, a bank and its broker-dealer subsidiary, by virtue of their superior knowledge of interest rate swap transactions, "had a duty to disclose material information to plaintiff both before the parties entered into the [interest rate] swap transactions and in their performance, and also a duty to deal fairly and in good faith during the performance of the swap transactions." *Procter & Gamble Co. v. Bankers Trust Co.*, 925 F. Supp. 1270, 1275 (S.D. Ohio 1996).

538. See Kim et al., *supra* note 431, at 73.

539. See *supra* note 201 and accompanying text.

540. See *supra* note 231 and accompanying text.

541. *Procter & Gamble*, 925 F. Supp. at 1290.

542. *Id.* (citing *Banque Arabe et Internationale D'Investissement v. Md. Nat'l Bank*, 57 F.3d 146 (2d Cir. 1995)).

543. Bennett & Marin, *supra* note 163, at 38 n.160.

sidiary companies became a problem.⁵⁴⁴ This is reviewed in detail below.

3. Settlement

In October 1999, while SK Securities was preparing for a lawsuit against JP Morgan, JP Morgan participated in the issuance of new shares for the third parties held by SK Securities.⁵⁴⁵ Along with participating in the new shares issuance, JP Morgan also entered into a put option contract to sell shares of SK Securities at a fixed price to two foreign local subsidiaries of SK Global.⁵⁴⁶ In addition, SK Securities entered into a new derivative instrument contract by buying an \$85 million note from a subsidiary of JP Morgan with the guarantee of performance attached to secure the fulfillment of the debt of 123.8 billion KRW SK Global Pacific owed JP Morgan.⁵⁴⁷ However, in October 2002, as the maturity of the option transaction with JP Morgan arrived and concerns arose regarding the disclosure of the secret option contract, SK Group began negotiations with JP Morgan, suggesting an agreement in which the foreign local subsidiary was to keep the difference between the strike price on the option and the purchase price of the entire shares on the exchange by SK Securities in cash.⁵⁴⁸ The 24.05 million shares of SK Securities owned by Morgan Guaranty, a subsidiary of JP Morgan, were taken over by SK Capital and Sheraton Grande Walkerhill through block trading in after-hours trading.⁵⁴⁹

D. Implications

The biggest problem in the structure of the baht forward exchange (α) was its asymmetry. If the baht was revalued, the Diamond Fund would make a profit, and JP Morgan would take a loss; if the baht was devalued, vice versa. The cap, interest-rate product⁵⁵⁰ and call options in the portfolio,⁵⁵¹ would only play a role if the Diamond Fund made a profit. In other words, even when the baht were revalued, the Diamond Fund's profit (i.e., the loss of JP Morgan) was fixed. On the

544. *Id.*

545. Bloomberg News, *J.P. Morgan To Take Korean Brokerage Stake*, N.Y. TIMES, Oct. 1, 1999, at C4.

546. See generally Don Kirk, *Korea Indicts 10 Executives of SK Group In Stock Case*, N.Y. TIMES, Mar. 12, 2003, at W1.

547. See generally *id.*

548. Kim Yon-Se, *SK Securities Fined W1.1 Bil. for Illegal Trading*, KOREA TIMES, Dec. 13, 2002.

549. Kim Yon-se, *Chaebol Abuse Unlisted Units for Insider Trading*, KOREA TIMES, Feb. 19, 2003.

550. See Cohen, *supra* note 17, at 2001 n.41.

551. See Gibson, *supra* note 1, at 537 n.55.

other hand, if the baht were devalued, there was no limit to the size of loss to the Diamond Fund.

In the general transaction practice of OTC derivative instruments, limiting one party's risk to a certain extent and leaving the other party's size of loss unlimited is extremely abnormal because such an asymmetrical structure in the transactions of OTC derivative instruments can cause a large loss to one party. It is believed the Diamond Fund did not fully understand the inherent derivative instruments at the time it entered into the contract with JP Morgan.⁵⁵² The part played by the baht forward exchange among the terms of financing of the funds through the TRS contract was very disadvantageous to the Diamond Fund, but the intention of the JP Morgan proposal was not understood. In other words, the Diamond Fund's lack of analytical ability and knowledge regarding the structure of derivative instruments was the cause of the failure.⁵⁵³

OTC derivative instruments used without a hedge are, in fact, very dangerous transactions. After 2002, the time securities companies became allowed to use OTC derivative instruments in dealing in Korea, the use of OTC derivative instruments has been on the rise because foreign financial institutions with superior capabilities are expanding their market share. However, this should go hand-in-hand with promotion of analytical ability and understanding on the derivative instruments by the main end-users.

Similar to the case of BT, the general trade practice of the sellers of derivative instruments was also an issue of suitability in the case of Diamond Fund.⁵⁵⁴ The sellers of derivatives should have constructed a relationship with the other parties based on good faith and fair dealing. In other words, if one party had far superior knowledge, that party had the implied duty to give the other party that material information.⁵⁵⁵ As a market player, the securities companies and investment banks should be aware of this point when they engage in

552. However, in *Korea Life Ins. Co. v. Morgan Guar. Trust Co. of N.Y.*, a New York federal court found that Korea Life Insurance fully understood the nature of the TRS transaction. *Korea Life Ins. Co. v. Morgan Guar. Trust Co. of N.Y.*, 269 F. Supp. 2d 424, 436 (S.D.N.Y. 2003). Plaintiff Korean Life Insurance was one of JP Morgan's counterparts in the TRS transaction in 1997. *Id.*

553. See Kim et al., *supra* note 431, at 73.

554. Bennett & Marin, *supra* note 163, at 36.

555. If the protection seller violates this obligation, the protection buyer can bring suit alleging negligent misrepresentation. In the lawsuit, plaintiff-protection buyer:

[M]ust show that (1) the defendant had a duty, as a result of a special relationship, to give correct information; (2) the defendant made a false representation that it should have known was incorrect; (3) the information supplied in the representation was known by the defendant to be desired by the plaintiffs for a serious purpose; (4) the

derivative instrument transactions with unsophisticated counterparties lacking knowledge and information.⁵⁵⁶

VI. COMMODITY FUTURES STACK HEDGE OF MGRM

Metallgesellschaft Refining and Marketing (“MGRM”), an American subsidiary in the energy field of the international chemical manufacturing group Metallgesellschaft AG (“MG”), suffered a loss amounting to \$1.5 billion from a derivative transaction in December of 1993.⁵⁵⁷ MGRM’s huge financial losses are attributable to the failure of its hedging program, which ignited debate on the issue of what the firm’s proper hedging strategies should be.⁵⁵⁸ “The *MGRM* case illustrates such charges can be enormous and can constitute a serious complication when designing certain hedging programs.”⁵⁵⁹

A. Background

As a company supplying oil to gas stations and suppliers of oil for hearing, MGRM set up an aggressive marketing strategy to secure its competitiveness in the U.S. market in 1992.⁵⁶⁰ MGRM entered into a long-term commitment to supply diesel, heating oil, and gasoline in the amount of 180 million barrels for the next 10 years.⁵⁶¹

There were many types of long-term commitment derivatives contracts,⁵⁶² but the following two were the most typical: the firm-fixed contract, in which a certain amount was supplied at a fixed price, and the firm-flexible contract, in which the price of supply and the total

plaintiffs intended to rely and act upon that representation; and (5) the plaintiffs reasonably relied on it to their detriment.

Korea Life Ins., 269 F. Supp. 2d at 436 (internal citations omitted).

556. According to Bennett & Marin:

[T]he issue that is central to most suitability claims related to financial derivatives is how broad a duty a seller of a derivative instrument owes to a buyer to explain the operation, terms, and effect of the instrument. In a typical derivatives dispute involving questions of suitability, the buyer will argue that the seller has a fiduciary duty to ensure that the derivative is appropriate for, and fully understood by, the buyer.

Bennett & Marin, *supra* note 163, at 38 (internal citations omitted).

557. See John Digenan et al., *Metallgesellschaft AG: A Case Study*, PRIMA.ORG, Sept. 2, 2004, at 1, available at http://www.primia.org/pdf/Case_Studies/MG_IIT.pdf [hereinafter Digenan et al. Case Study].

558. See *id.* at 2.

559. POITRAS, *supra* note 370, at 302.

560. See JORION III, *supra* note 297, at 38.

561. *Id.* at 39.

562. “Derivatives contracts are bilateral agreements that derive their value from some underlying asset, such as stocks, commodities, or currency holdings, or from the value of some underlying reference or index rate, such as interest rates, exchange rates, or indices.” Gibson, *supra* note 1, at 532.

amount of quantity were limited, but the right to decide the supply schedule was given to the consumers.⁵⁶³ MGRM entered into contracts to supply 160 million barrels of petroleum products at a fixed price until September 1993 with the maturities of most contracts being 10 years.⁵⁶⁴

Most of MGRM's supply contracts were made in summer of 1993 when the supply price was \$3 to \$5 higher than the price of crude oil, which, at that time, was relatively low compared to past prices and was still declining.⁵⁶⁵ Unless the price of crude oil plummeted, MGRM could profit from this contract.⁵⁶⁶ However, if the price of crude oil increased greatly, it would suffer a large loss.⁵⁶⁷

The risk of crude oil going up could have been avoided by purchasing a futures contract on crude oil with a maturity date that corresponded to the long-term commitment.⁵⁶⁸ In other words, if the price of crude oil increased, there would be a loss on the spot position, but because there would be a gain on the futures, the risk of increasing price would be hedged. However, because MGRM had no long-term commitment on crude oil, it chose to hedge continuously in the short-term futures market.⁵⁶⁹ At the end of 1993, as the price of crude oil dropped greatly, there was a risk of liquidity due to a large number of margin calls worth \$1 billion in the transactions of futures for the hedge.⁵⁷⁰ The holding company, MG, did not have sufficient cash and faced bankruptcy.⁵⁷¹

B. *Structure of Derivative Transactions*

MGRM proposed a new way to either eliminate or transfer the risk to its customers of crude oil price changes. The plan was a contracted supply of 180 million barrels of petroleum products at a fixed price for

563. See Anatoli Kuprianov, *Derivatives Debacles, Case Study of Large Losses in Derivatives Markets*, 81(4) FED. RES. BANK OF RICH. ECON. Q. 5 (1995).

564. POITRAS, *supra* note 370, at 59.

565. STEINHERR, *supra* note 241, at 63. See also POITRAS, *supra* note 370, at 59; Kuprianov, *supra* note 563, at 6.

566. See ERisk, *Case Study: Metallgesellschaft*, ERISK.COM, <http://www.erisk.com/Learning/CaseStudies/MG.asp> (last visited Feb. 10, 2008).

567. As seen in this example, futures contracts sometimes seemed more like a method of gambling than just normal business trading to avoid uncertain risk. See Karol, *supra* note 20, at 202 n.14.

568. See POITRAS, *supra* note 370, at 59.

569. See *id.*

570. Kuprianov, *supra* note 563, at 4-5.

571. *Id.* at 5.

10 years beginning in 1993.⁵⁷² However, 180 million barrels were equal to 85 days of crude oil production in Kuwait, which exceeded the amount MGRM had in long-term reserves;⁵⁷³ therefore, MGRM tried to secure the shortage through the crude oil spots market.⁵⁷⁴ Unique to MGRM's contract was an option for early termination.⁵⁷⁵ The consumers had the right to settle the remaining portion of the contract if the futures price in the past month was higher than the contract price. If the option was exercised, MGRM was to pay in cash $[1/2 \text{ (the futures price - the supply price)} \times \text{the amount remaining}]$ on the contract. This option was attractive to buyers who were in financial trouble or who were no longer in need of petroleum products.⁵⁷⁶

MGRM could have reaped a large profit if the price of crude oil dropped, but it could have suffered a large loss if the price increased.⁵⁷⁷ Therefore, it had to devise a plan to hedge the risk resulting from the increase in the price of crude oil. From MGRM's standpoint, it could have purchased petroleum products with delivery by a certain time and kept them in reserve until the date of delivery.⁵⁷⁸ However, for physical storage, there are costs of financing, carrying, and preserving the purchase.⁵⁷⁹ To avoid these costs, futures or forwards contracts could be used.⁵⁸⁰ However, the crude oil futures market is generally matures in less than 3 years, and the liquidity tends to decrease after 18 months.⁵⁸¹ Therefore, no futures market was in existence that corresponded to the maturity of the long-term commitment of MGRM. Consequently, MGRM chose the strategy of the stack hedge method.⁵⁸²

A stack hedge refers to a method in which a large-scale, long position on the short-term futures contracts is taken, sold, and then the deferred-month futures contract is purchased again, rolling over the

572. *Id.* ("MGRM had committed to sell forward the equivalent of over 150 million barrels of oil for delivery at fixed prices, with most contracts for terms of ten years."). *See also* Digenan et al. Case Study, *supra* note 557, at 3.

573. JORION III, *supra* note 297, at 39.

574. CHEW, *supra* note 65, at 119.

575. *See* Digenan et al. Case Study, *supra* note 557, at 1.

576. *Id.*

577. STEINHERR, *supra* note 241, at 63.

578. Kuprianov, *supra* note 563, at 9.

579. *Id.*

580. Privately negotiated and customized forwards contracts are usually between two or more institutional parties, one of which assumes a "long position" by agreeing to buy some underlying asset at some future date for a specified price. The other party to the contract assumes a "short position" by agreeing to sell the underlying asset at the time and price agreed upon by the two parties. HULL, *supra* note 46, at 4.

581. Kuprianov, *supra* note 563, at 8.

582. *Id.* at 6. *See also* Digenan et al. Case Study, *supra* note 557, at 2.

maturity.⁵⁸³ Since the short-term crude oil futures market was showing historical backwardation, the stack hedge method could have been a plan to reduce the cost of carry.⁵⁸⁴

Specifically, backwardation refers to a phenomenon where the price of near-month futures is higher than that of the deferred-month futures due to a temporary imbalance in demand and supply.⁵⁸⁵ In other words, because the deferred-month future was traded at a cheaper price, an effective strategy in terms of cost was selling the near-month futures before maturity and buying deferred-month futures.⁵⁸⁶ The profit from the stack hedge for 10 years was reflected in the profit from buying a 10-year-to-maturity forward contract and holding it to maturity.⁵⁸⁷

The futures MGRM used in the hedge were unleaded gasoline and No. 2 heating oil.⁵⁸⁸ At the same time it bought the futures contracts, MGRM entered into a swap contract for short-term energy whereby MGRM paid a fixed price for the energy and received the variable price for the energy.⁵⁸⁹ According to the New York Mercantile Exchange ("NYMEX"), MGRM was in possession of futures on 55 million barrels of gasoline and heating oil.⁵⁹⁰ However, the size of energy swap position needed to completely hedge the future contract was estimated to be 111 million barrels.⁵⁹¹

C. *Result of the Use of Derivative Instruments*

There was a risk of liquidity due to the decline in the price of crude oil.⁵⁹² As some of the member countries of the Organization of Petroleum Exporting Countries ("OPEC") were producing oil in excess of the daily petroleum quota until mid-1993, the price of crude oil dropped from \$20 to \$15 per barrel, the lowest level in 5 years.⁵⁹³ The rapid decline in the price of crude oil combined with the rollover losses caused a risk of liquidity to MGRM.⁵⁹⁴ As futures contracts were settled daily, MGRM had to take a loss from the futures immedi-

583. Kuprianov, *supra* note 563, at 11.

584. *Id.*

585. CHEW, *supra* note 65, at 120.

586. STEINHERR, *supra* note 241, at 64.

587. JORION III, *supra* note 297, at 39.

588. Kuprianov, *supra* note 563, at 5. *See also* Digenan et al. Case Study, *supra* note 557, at 2.

589. "A swap is [a binding] agreement between two parties to exchange cashflows throughout the life of the contract—in effect, a series of forwards." CHEW, *supra* note 65, at 7.

590. Digenan et al. Case Study, *supra* note 557, at 2.

591. *Id.*

592. *Id.*

593. STEINHERR, *supra* note 241, at 64.

594. POITRAS, *supra* note 370, at 60.

ately, which led to a large margin call reaching approximately \$1 billion.⁵⁹⁵ Although the profit from the long-term commitment due to the decline in the price of crude oil was realized over an extended time, the loss realized in connection with the hedge position in the short term increased almost to the point of exceeding the profit from the long-term commitment of MGRM.⁵⁹⁶

In other words, MGRM overlooked the fact that when the price of crude oil declined, the profit from the crude oil supply contract would be realized over a long time at each delivery of the month, but the loss from the crude oil futures would be realized immediately due to the margin call.⁵⁹⁷ As MGRM's situation became a matter of public debate, the NYMEX tightened the conditions on the deposit of money by MGRM and worsened the risk of liquidity for MGRM.⁵⁹⁸

Also, an increase in the cost of rollover existed due to the contango phenomenon in the market.⁵⁹⁹ In the process of using a stack hedge, MGRM was exposed to the risk of its large-scale position on the short-term crude oil futures deviating from its long-term forward commitment, which was the basis risk.⁶⁰⁰ Historically different from the short-term crude oil futures market showing backwardation, the spots and the prices of short-term futures dropped much more than the prices of the long-term forward commitment in 1993, and, as a result, the deferred-month market had more premiums than the near-month market, showing the contango phenomenon.⁶⁰¹ As the short-term energy futures market showed contango, MGRM fell into a situation where it had to pay premiums to roll over the short-term futures contracts.⁶⁰² However, the marketing and hedging programs of MGRM were made based on the presumption that backwardation in the energy futures market would persist.⁶⁰³ In the case of the market remaining in the state of contango, MGRM was bound to suffer

595. Kuprianov, *supra* note 563, at 5. See also Digenan et al. Case Study, *supra* note 557, at 3.

596. CHEW, *supra* note 65, at 123.

597. STEINHERR, *supra* note 241, at 64.

598. Kuprianov, *supra* note 563, at 7.

599. STEINHERR, *supra* note 241, at 64.

600. HULL, *supra* note 46, at 53; CHEW, *supra* note 65, at 118-26.

601. WHALEY, *supra* note 7, at 750; HULL, *supra* note 46, at 121; STEINHERR, *supra* note 241, at 64. "Backwardation and contango [phenomenon] tend to be associated with commodities rather than financial assets." CHEW, *supra* note 65, at 122.

602. Rollover arises from a "mispricing of a futures contract" at the time an old position is closed and a new one open. See generally WHALEY, *supra* note 7, at 750-51; CHEW, *supra* note 65, at 121.

603. Kuprianov, *supra* note 563, at 9-13. The backwardation phenomenon defined as follows:

The convenience yield for an item can be measured by computing the difference between the benchmark forward price (the sum of the current spot price and the cost of carry) and the prevailing market-determined forward price. (Convenience Yield = Spot

continuous losses from the rollover. The contango phenomenon added to the loss by requiring payment of the premium to purchase the deferred-month futures, in addition to the margin call loss.⁶⁰⁴

Losses resulted from the hedge position and liquidation of the long-term supply contract.⁶⁰⁵ The supervisory committee of MG, the holding company of MGRM, and retired MGRM's management dispatched a new management team from Europe.⁶⁰⁶ Judging that the holding company MG had no ability to pay back the deposit and the cost of rollover, after immediately liquidating MGRM's hedge position, the new management began negotiations to reduce the long-term supply contract.⁶⁰⁷

The standard of accounting treatment in Germany also added to MG's problems.⁶⁰⁸ As the lower of cost or market was adopted in Germany, the holding company MG was subject to the lower of cost or market, while the U.S. subsidiary MGRM was subject to hedge accounting.⁶⁰⁹ If the futures contract was considered a hedge, the profit and loss would be deferred and MGRM would report only the profit from the long-term supply contract on its income statement.⁶¹⁰ However, applying the lower of cost or market, MG did not recognize the profit from the long-term supply contract until it was actually realized and only the current loss was added.⁶¹¹

Because netting of the position was not permitted under Germany's standard of accounting, MG reported an enormous loss on its income statement.⁶¹² Consequently, the credit rating of MG dropped and the swap trading counterparties began to terminate the contracts.⁶¹³ Trading counterparties whose contracts were not terminated asked for the security to be locked up on the fulfillment of the contracts.⁶¹⁴ NYMEX also increased the terms of deposits for MGRM.⁶¹⁵ Had the hedge accounting treatment been adopted in Germany, the position of

Price + Cost of Carry – Actual Forward Price). Sometimes the convenience yield is high enough to offset the cost of carry, causing forward prices to be lower than spot prices.

Id.

604. *Id.*

605. *Id.* at 6, 13.

606. Digenan et al. Case Study, *supra* note 557, at 5.

607. Kuprianov, *supra* note 563, at 15.

608. STEINHERR, *supra* note 241, at 67.

609. Digenan et al. Case Study, *supra* note 557, at 4.

610. *Id.*

611. *Id.*

612. *Id.*

613. *Id.*

614. Digenan et al. Case Study, *supra* note 557, at 4.

615. Kuprianov, *supra* note 563, at 7.

MGRM would have been reduced in OTC without stirring up the market.⁶¹⁶

The creditors of MGRM and Deutsche Bank, the leading party, supported funds reaching \$1.9 billion and converted most of the debts into equity warranties.⁶¹⁷ In the end, the share price of MG dropped from 64 marks to 24 marks, while the total market value of MG declined more than 50%.⁶¹⁸

The auditor committee of MG did not understand the features of derivative instruments and the loss from the decline in the price of crude oil over time, but it was blamed for causing the loss.⁶¹⁹ In addition, there was doubt whether MGRM had actually hedged or participated in speculative transactions.⁶²⁰ If it had hedged, one opinion was a loss reaching \$1.5 billion would not have been incurred.⁶²¹ Some also argued there was a fatal defect in the hedging program of MGRM itself.⁶²² Others believed there was no problem with the hedging program, but criticized the management of MG as deepening the loss by terminating the contracts early.⁶²³

In July 1995, CFTC imposed a penalty on MGRM and MG Futures Inc. ("MGFI"), the operation division for futures at MG, for the defects in the internal control system in connection with the activities of MGRM in the energy futures market.⁶²⁴ In addition, CFTC imposed a penalty on MGFI for not reporting the significant defect found in the internal control system.⁶²⁵ MGRM was fined for selling an illegal, off-exchange futures contract.⁶²⁶ MGRM and MGFI paid penalties amounting to \$2.5 million and accepted recommendations to modify the internal control system, including the risk management procedure, and to comply with CFTC regulations.⁶²⁷ In an administrative pro-

616. Digenan et al. Case Study, *supra* note 557, at 4.

617. Kuprianov, *supra* note 563, at 5, 16.

618. JORION III, *supra* note 297, at 40.

619. Digenan et al. Case Study, *supra* note 557, at 5.

620. See Kuprianov, *supra* note 563, at 14 (explaining that some commentators argue that MGRM's hedging strategy was "speculative in its design and intent").

621. Digenan et al. Case Study, *supra* note 557, at 5.

622. See Kuprianov, *supra* note 563, at 15 (showing there are counter arguments that "most of MG's reported losses were attributable to the manner in which its new management chose to terminate its subsidiary's marketing program, not to defects in its hedging strategy").

623. Digenan et al. Case Study, *supra* note 557, at 1, 5.

624. Kuprianov, *supra* note 563, at 18.

625. *Id.*

626. "All products developed by a registered exchange receive full coverage of CFTC regulations. Off-exchange, virtually identical products take root outside the CFTC's view, and when they reach critical mass there is tremendous pressure to preserve their unregulated status" Petzel, *supra* note 9, at 104.

627. Kuprianov, *supra* note 563, at 18.

ceeding, CFTC ruled that the firm-fixed derivatives contract of MGRM was illegal and nullified it, thus putting the remaining contracts at legal risk.⁶²⁸

D. Implications

The most important cause of MGRM's loss was the size of its position.⁶²⁹ While the daily average trading amount of futures contracts for heating oil and unleaded gasoline was 15,000 to 30,000 barrels, MGRM was taking a long position of 55,000 barrels.⁶³⁰ When a position becomes large, the company may be subject to temporary risk of liquidity, particularly the funding risk.⁶³¹ However, the supervisory committee of MG was not even aware of the size of the hedge position, nor the forward position of MGRM.⁶³² In addition, management did not understand the features of basis risk⁶³³ and the possibility of temporarily risking liquidity. At last, the supervisory committee of MG terminated the contract; it could not grasp the features of the hedging program of MGRM's subsidiary, which resulted in a loss that could have been offset over time.⁶³⁴

Thus MGRM's loss is ascribed to the lack of management ability. In other words, the causes of the loss were the operational risk of an inappropriate system, the failure of control, and the failure of management; the market risk was not a cause.⁶³⁵ Therefore, the executive of a company dealing in derivative instruments should build a proper internal control system and have a thorough knowledge of the characteristics of risk of the position on derivative instruments and the consequences of any change in the market.

In short, MGRM failed to properly hedge the related risks. When the price of crude oil dropped, there was a loss in the hedge position, but a profit was realized in the long-term supply contract. During this course, MGRM was exposed to the risk of liquidity, particularly the funding risk. In other words, MGRM did not accurately understand

628. *Id.*

629. Digenan et al. Case Study, *supra* note 557, at 5.

630. *Id.*

631. *Id.*

632. *Id.*

633. The simplest meaning of "basis risk" is the price difference between the forward and spot price. CHEW, *supra* note 65, at 118.

634. Digenan et al. Case Study, *supra* note 557, at 5.

635. See Scheerer, *supra* note 152, at 170-71 (defining operational risk and market risk). "Operational risk is the possibility that a derivatives consumer's internal systems will fail to measure adequately, monitor effectively, or control intelligently the risks to which the consumer is exposed." Feder, *supra* note 134, at 727.

the correlation between market risk, liquidity risk,⁶³⁶ and basis risk from a financial risk perspective. It did not have specialists for derivative instruments. Because an enormous loss can result if the derivative instruments are not properly used, building a risk control system, along with securing specialists for derivative instruments, should be basic premises.

The accounting treatment in Germany was a factor aggravating the problem of holding company MG.⁶³⁷ While MG, the holding company in Germany, was subject to the lower of cost or market, the United States subsidiary company, MGRM, was subject to hedge accounting.⁶³⁸ In other words, MGRM reported only the profit from the long-term supply contract, as the futures contract was recognized as a hedge in which the loss was deferred; however, because MG was subject to the lower of cost or market, it only added to the current loss. In addition, because netting was not permitted under the German accounting standard, MG had to report an enormous loss.⁶³⁹ If hedge accounting treatment and netting⁶⁴⁰ had been permitted in Germany, MG could have settled the loss of MGRM more rationally. This case exemplifies the importance of maintaining systematic infra, such as netting and standard of accounting treatment for the development of the derivatives market.⁶⁴¹

636. Including market liquidity and funding liquidity risk, "Liquidity risk is 'the risk to earnings or capital arising from a [firm's] inability to meet its obligations when they come due.'" Scheerer, *supra* note 152, at 167 (quoting the guidelines for national banks).

637. POITRAS, *supra* note 370, at 60 ("German accounting principles, which were applicable to the parent corporation, required the classification of these variation margin payments as losses.").

638. Digenan et al. Case Study, *supra* note 557, at 4.

639. *Id.*

640. According to Oliver Ireland, Associate General Counsel for the Board of Governors of the Federal Reserve System:

Netting refers to the right to set off, or net, claims between two or more parties to arrive at a single obligation between the parties. In financial market transactions, netting can serve to reduce the credit exposure of counterparties to a failed debtor and thereby to limit "domino failures" and systemic risks. As an incident to limiting credit exposure, the ability to net contributes to market liquidity by permitting more activity between counterparties within prudent credit limits. This liquidity can be important in minimizing market disruptions due to the failure of a market participant.

Proposed Bankruptcy Reform Act of 1999: Hearing Before the Subcomm. on Commercial and Admin. Law of the H. Comm. on the Judiciary, 106th Cong. 123 (1999) (statement of Oliver Ireland, Assoc. Gen. Counsel, Bd. of Governors of the Fed. Reserve Sys.), available at <http://www.federalreserve.gov/Boarddocs/testimony/1999/19990318.htm>.

641. "[N]etting is generally not allowed under the Bankruptcy Code. [It] is possible in limited cases subject to the judge-made doctrine of 'recoupment,' which permits a creditor to net two contracts if they arise from the same transaction or occurrence." Edwards & Morrison, *supra* note 384 at 117, n.101 (internal citations omitted).

VII. BARINGS BANK STRADDLES AND ARBITRAGE OF STOCK INDEX FUTURES TRANSACTIONS

In 1995, an incident occurred involving a British commercial bank, Barings, that went bankrupt due to a huge loss from a derivative instrument transaction.⁶⁴² Barings is representative of a situation where the loss from derivative instruments was caused by a rogue trader.⁶⁴³ The following examines the strategy of derivative instruments suggested by Nicholas Leeson and the process of concealing a loss, with a focus on bureaucratic and organizational issues.

A. Background

Barings, which had earned a reputation for its conservative management strategy and for being a trading bank of the British Royalty, founded a subsidiary, Barings Futures Singapore ("BFS"), to branch out into the futures market in Asia.⁶⁴⁴ In March of 1992, Nicholas Leeson of the London branch was sent to BFS in Singapore as the senior trader for the futures trading department.⁶⁴⁵

Leeson was in charge of arbitrage using the price differences in Nikkei225 futures, dual listed on the Osaka Securities Exchange ("OSE") and the Singapore International Monetary Exchange ("SIMEX").⁶⁴⁶ Generally, it was understood that the profit was low in the case of arbitrage between exchanges due to the low risk, but Leeson was reporting a very high profit, which represented a very large proportion of the total profit of Barings.⁶⁴⁷ Thanks to the profit generated by Leeson, the management of Barings enjoyed very high bonuses.⁶⁴⁸

As his reputation rose within the company, Leeson sold the large scale Nikkei225 futures option by taking advantage of a blind point in the internal control system.⁶⁴⁹ However, differing from Leeson's expectation, an earthquake hit Kobe, Japan in January of 1995 causing the price index of stocks fell.⁶⁵⁰ As a result, a huge loss was expected, with the position being increased to make up for the loss.⁶⁵¹ At last,

642. Kuprianov, *supra* note 563, at 20.

643. See WHALEY, *supra* note 7, at 509.

644. STEPHEN FAY, THE COLLAPSE OF BARINGS 80 (1996).

645. Kuprianov, *supra* note 563, at 21.

646. WHALEY, *supra* note 7, at 507.

647. Kuprianov, *supra* note 563, at 22.

648. *Id.* at 25.

649. *Id.* at 22.

650. *Id.* at 24.

651. JORION III, *supra* note 297, at 37.

Leeson's trade loss completely ate away the entire equity capital of the Barings Group, leading to bankruptcy.⁶⁵²

B. *Arbitrage Transactions in Stock Index Futures and Sale of Straddles*

Leeson was in charge of the accounts settlement division of Barings, where, after he was sent to BFS, he achieved a high profit by engaging in arbitrage transactions⁶⁵³ on the Nikkei225 futures dual-listed on OSE and SIMEX.⁶⁵⁴

[BFS], where . . . Leeson conducted his unauthorized trading activity, had significantly contributed to Barings' overall profitability in the years prior to its collapse. . . . [He] enhanced these traders' performance through his 'switching activities'[,] . . . [which] involved inter-exchange arbitrage to improve the futures hedging positions of Barings' Japanese traders.⁶⁵⁵

Here, the term switching "refers to Barings's specialized arbitrage activity that 'involved the simultaneous purchase and sale of the same futures contracts on different futures exchanges.'"⁶⁵⁶

In arbitrage transactions, it is usual to expand the position to create profits, as the profit per unit is very low.⁶⁵⁷ Leeson's futures position on both OSE and SIMEX was almost \$7 billion.⁶⁵⁸ "Variations in the trading systems enabled Leeson to perceive arbitrage opportunities and to exploit their profitability, as well as to employ creative financing schemes, and evade regulatory agencies."⁶⁵⁹

In July of 1992, due to a request by a trader in the London branch, an 88888 account was opened to record all the trading errors.⁶⁶⁰ The errors added up in the account in late 1992 covered 30 contracts in total, with this loss being concealed by taking deductions from the

652. *Id.*

653. FAY, *supra* note 644, at 122 ("[I]t was known at Barings as the switching business."). See also Vincent Presti, *Barings Bar None: The Financial Service Agreement of the GATS and Its Potential Impact on Derivatives Trading*, 21 MD. J. INT'L L. & TRADE 145, 168 (1997) ("Usually, an exchange member uses a cross trade to match buy and sell orders for the same contract at the same price for two different customer accounts.").

654. In this transaction, "[a] trader follows prices on the two exchanges, seeking to purchase a lower priced contract on one exchange while 'simultaneously' selling an otherwise identical higher priced contract on the other exchange." POITRAS, *supra* note 370, at 61.

655. Presti, *supra* note 653, at 164-66.

656. *Id.* at 166 n.145.

657. See SCOTT & WELLONS, *supra* note 5, at 960.

658. *Id.* at 960.

659. Presti, *supra* note 653, at 166.

660. CHEW, *supra* note 65, at 232; The 88888 is a dummy account specially designed for client support or for a financial company to settle trading errors. See WHALEY, *supra* note 7, at 506.

fees.⁶⁶¹ However, as the number of trading errors increased beginning in 1993 and became 420 contracts by mid-March, the loss amounted to 150,000 pounds.⁶⁶² Both incompetent trading and raiding of his 88888 account made it possible for Leeson create this loss.⁶⁶³

From 1994 on, Leeson continually asked for funds from headquarters to settle the dummy account and finance the deposit on the futures position.⁶⁶⁴ In addition, he began to sell "straddles"⁶⁶⁵ against the Nikkei225 futures.

A major part of Leeson's trading strategy involved the sale of options on Nikkei-225 futures contracts The seller of an option earns a premium in return for accepting the obligation to buy or sell the underlying item at a stipulated strike price. If the option expires "out-of-the-money," the option premium becomes the seller's profit. If prices turn out to be more volatile than expected, however, an option seller's potential losses are virtually unlimited.⁶⁶⁶

A short straddle is a strategy of writing both call options and put options whose strike prices are the same; it is used when the price of the underlying assets is expected to be stable.⁶⁶⁷ As the price of an option reflects the expectations of the market on the price volatility of

661. "The Bank of England calculated that the cumulative loss on the secret 88888 account from July 1992 to 6 February, 1995 amounted to £253 million." FAY, *supra* note 644, at 183.

662. "By the end of August [1992], the loss had built up to £320,000." FAY, *supra* note 644, at 92.

663. To note:

The unauthorised trading was concealed by a number of devices. These included the suppression of account '88888' from Barings in London (which account was mentioned only in the margin files and did not attract the attention of Barings in London); the submission of falsified reports to London; the misrepresentation of the profitability of BFS's trading; and a number of false trading transactions and accounting entries.

Bank of England, REPORT INTO THE CIRCUMSTANCES OF THE COLLAPSE OF BARINGS: HOW WERE THE MASSIVE LOSSES INCURRED? 2 (1995), <http://www.numa.com/ref/barings/bar02.htm>. See also FAY, *supra* note 644, at 122-23; POITRAS, *supra* note 370, at 61.

664. FAY, *supra* note 644, at 98-99.

665. "A straddle is constructed by selling a call option and a put option with the same strike price." STEINHERR, *supra* note 241, at 70; HULL, *supra* note 46, at 234.

666. Kuprianov, *supra* note 563, at 22.

667. One advisor warned:

If a [derivatives] trader writes a straddle with a strike price of \$25 and the price of the stock jumps up to \$50, the trader would be obligated to sell the stock for \$25. If the investor did not hold the underlying stock, he or she would be forced to buy it on the market for \$50 and sell it for \$25 [under the agreement]. The short straddle is a very risky strategy an investor uses when he or she believes that a stock's price will not move up or down significantly. Because of its riskiness, the short straddle should be employed only by advanced traders due to the unlimited amount of risk associated with a very large move up or down.

Investopedia, Short Straddle, <http://www.investopedia.com/terms/s/shortstraddle.asp> (last visited Feb. 10, 2008).

the underlying assets,⁶⁶⁸ the buyers of straddles can earn a profit only when the actual volatility of the market is less than the estimated figure in the option price.⁶⁶⁹

When there is not much change in the price of underlying assets, the straddle sellers take the premiums of both the put- and call-option at the same time. In other words, Leeson attempted to make up for the trade loss with the premiums by selling straddles. While the profit in Leeson's strategy was limited to the sum of premiums of call- and put-options if the stock market in Japan was stable, there was no loss in case the volatility in the stock market increased greatly. By the end of 1994, Leeson had sold about 30,000 straddles,⁶⁷⁰ but as a seller of short straddles, for some reason, he had the wrong direction in the market.⁶⁷¹

C. *Results of Use of Derivative Instruments*

The stock market in Japan declined deeply when the earthquake occurred in Kobe, Japan on January 17, 1995.⁶⁷² For the next five days, the Nikkei225 index dropped 1,500 points, and Leeson's option position incurred a loss of 68 million pounds.⁶⁷³ To make up for the loss, Leeson purchased a large quantity of Nikkei225 futures while simultaneously selling a large number of futures on the Japanese government bonds in anticipation of a rise in the interest rate in Japan.⁶⁷⁴ This strategy was effective for the short term. The Japanese stock market recovered over 1,000 points by February 6, and Leeson thereafter seemed to benefit.⁶⁷⁵ As of February 6, Leeson's loss amounted to 253 million pounds, which, compared to the early loss in 1995, represented a 20% increase.⁶⁷⁶ However, the stock market began to decline again and Leeson's loss also diminished.⁶⁷⁷

Despite the decline in the stock market, Leeson continued to increase the size of his positions to make up for the loss.⁶⁷⁸ As of February 23, he was in possession of approximately 61,000 Nikkei225 futures long positions⁶⁷⁹ and 26,000 short positions on Japanese gov-

668. See Kuprianov, *supra* note 563, at 24.

669. *Id.*

670. *Id.* See also PORRAS, *supra* note 370, at 62.

671. FAY, *supra* note 644, at 143.

672. *Id.* at 153-154.

673. Kuprianov, *supra* note 563, at 24. See also FAY, *supra* note 644, at 154.

674. Kuprianov, *supra* note 563, at 24.

675. *Id.*

676. *Id.*

677. *Id.*

678. *Id.*

679. Kuprianov, *supra* note 563, at 24.

ernment bonds.⁶⁸⁰ In 1995, Leeson's futures positions were 49% of the incomplete Nikkei225 futures contracts for March, 24% of the incomplete contracts for June, and as much as 88% of the incomplete futures contracts on the government bonds.⁶⁸¹

The decline of the stock index was linked to the high degree of liquidity risk that required further funding to transact.⁶⁸² To settle the margin call on the large scale futures positions, Leeson kept asking for funds from the Barings's headquarters in London.⁶⁸³ As the sizes of the requests became abnormally large, the headquarters began to look into the accounts of BFS.⁶⁸⁴ During the month of February, Barings supplied a total of 742 million pounds at Leeson's request, but it did not even get a report on the use of the funds—just an automatically remitted sum.⁶⁸⁵

The investigation revealed that the funds were being used to make up for the variation margin of Leeson's fraudulent transactions.⁶⁸⁶ Aware of Barings's inability to satisfy the margin call, OSE and SIMEX began to control all the incomplete contracts of BFS.⁶⁸⁷ Participants in the market began to sense the exchanges would liquidate a large-scale position, which would further decrease the stock index. Barings's loss had already consumed its equity capital and the bank went bankrupt.⁶⁸⁸

The Bank of England's Board of Banking Supervision stepped forward to investigate Barings's unanticipated loss.⁶⁸⁹ The total loss resulting from Leeson's transactions was 927 million pounds (approximately \$1.4 billion), which was more than twice the equity capital of Barings (440 million pounds).⁶⁹⁰ Barings had experienced such a risk before from its millions of loans in Argentina in the 1890s, but it had gotten out of trouble thanks to a consortium led by the Bank of England.⁶⁹¹ However, as there was no investor showing an

680. *Id.*

681. *Id.*

682. Feder, *supra* note 134, at 725 ("Liquidity risk is the risk that a party will be unable to transact without extraordinary cost or loss due to a lack of immediately available resources or prospects.").

683. FAY, *supra* note 644, at 184.

684. See McKown & Purcell, *supra* note 11, at 123.

685. CHEW, *supra* note 65, at 239.

686. FAY, *supra* note 644, at 184.

687. *Id.* at 156-58.

688. Kuprianov, *supra* note 563, at 25.

689. *Id.* at 25.

690. *Id.*

691. *Id.* at 20.

intention to purchase Barings immediately, the Bank of England decided not to provide financial support.⁶⁹²

At last on February 26, 1995, Barings entered into a liquidation procedure similar to Chapter 11 of the U.S. Bankruptcy Code.⁶⁹³ The creditors of Barings received 5 cents on the dollar and the shareholders ended up bearing all the loss.⁶⁹⁴ Part of the additional loss was borne by ING of Netherlands who assumed it in buying Barings for one pound.⁶⁹⁵ For offering false information that could be injurious to the reputation of inspectors of Barings and continuously deceiving the SIMEX, Leeson was sentenced to 6 years and 6 months in prison.⁶⁹⁶

D. *Implications*

The first reason for this failure was the management issue. Not only did the Barings's management have very superficial knowledge regarding derivative instruments, it did not even show an interest in the details of transactions.⁶⁹⁷ It was totally unaware of how Leeson had made such a huge profit,⁶⁹⁸ how the astronomical funds were being used, or how the risk was related to Barings.⁶⁹⁹ Instead, the management wanted only to share in the profit Leeson made. In other words, in the case of Barings, the primary cause of failure can be traced to the moral hazard of management.⁷⁰⁰

In 1994, the profit from Leeson's investment was 20% of the total profit of Barings,⁷⁰¹ which made it possible for the management and Leeson to enjoy high bonuses. The management continued to expect high bonuses and put no restraints on Leeson's investment activities.⁷⁰² In addition, in supplying the requested funds, management at headquarters did not ask for details regarding the use of the funds despite the fact that no specific information was provided except for

692. *Id.*

693. Kuprianov, *supra* note 563, at 20-21.

694. Of course, these amounts are notional upon the accounting result. Subsequently, "ING Bank acquired Barings for a nominal sum, thus ensuring that all depositors and trade creditors were fully protected." TONY LATTER, *THE CAUSES AND MANAGEMENT OF BANKING CRISES* 38 (1997).

695. JORION III, *supra* note 297, at 38.

696. Kuprianov, *supra* note 563, at 26. *See also* JORION III, *supra* note 297, at 38 ("[He] spent 43 months in a Singapore jail and was released in 1999.").

697. McKown & Purcell, *supra* note 11, at 122.

698. WHALEY, *supra* note 7, at 509.

699. *See* ERisk, *Case Study: Barings*, ERISK.COM, <http://www.erisk.com/Learning/CaseStudies.asp> (last visited Feb. 10, 2008).

700. JORION III, *supra* note 297, at 38.

701. FAY, *supra* note 644, at 123. "In the first six months of 1994, [BFS] swelled the profits of Baring Securities in London by £6.7 million." *Id.*

702. McKown & Purcell, *supra* note 11, at 122.

the reports showing funds related to clients' accounts.⁷⁰³ However, in February of 1995, on the internal and external audit report, the account of BFS reported an abnormal position amounting to 50 million pounds.⁷⁰⁴ Even at that time, management took no measures.⁷⁰⁵ In other words, the management personnel of Barings pursued only their own interests, failing to supervise.⁷⁰⁶

In addition, *Barings* made people aware of the importance of an internal control system.⁷⁰⁷ In 1992, Barings had a new internal control system, and, by 1995, the system was completely established and in full force.⁷⁰⁸ Nonetheless, while engaged in transactional duties, Leeson also took part in back office work.⁷⁰⁹ Generally, transaction work and settlement work are separated, and the settlement department undertakes an independent review of the records of transactions.⁷¹⁰ However, due to Barings's inappropriate internal control system, Leeson not only was able to seize an opportunity beyond his vested power, but he also was able to continue to increase his position.⁷¹¹ The problem with the internal control system was reported once on the internal audit report of BFS in 1994.⁷¹² In January of 1995, rumor spread in the OSE that the BFS position was excessive, which BFS confirmed, but, again, management failed to take any appropriate measures.⁷¹³

To avoid a claim for breach of duty, management should have grasped the details of transactions for the derivative instruments the company managed, established an effective internal control system, and constantly monitored it.⁷¹⁴ Such an internal control system should have clearly stipulated both the scope of work and to whom responsibility belonged. If there were vulnerable points in the internal control system or problems in the transactions of derivative instruments, top

703. FAY, *supra* note 644, at 184.

704. Kuprianov, *supra* note 563, at 32.

705. WHALEY, *supra* note 7, at 510.

706. CHEW, *supra* note 65, at 234-35, 244.

707. JORION III, *supra* note 297, at 37; STEINHERR, *supra* note 241, at 73.

708. FAY, *supra* note 644, at 123-24.

709. *Id.* at 131.

710. CHEW, *supra* note 65, at 232.

711. McKOWN & Purcell, *supra* note 11, at 123.

712. SCOTT & WELLONS, *supra* note 5, at 993; CHEW, *supra* note 65 at 233 ("[Leeson's] dual responsibility for both the front and back offices was 'an excessive concentration of powers'[, t]he report warned that there was a significant general risk that the controls could be overridden by [him].").

713. CHEW, *supra* note 65, at 235.

714. See *id.* at 234 ("Barings' [sic] senior management had a very superficial knowledge of derivatives and did not want to probe too deeply into an area that was bringing in the profits.").

management and the supervisory committee should have stepped in quickly to cope with the situation.

A second issue was the problems of exchanges. Generally speaking, on the exchange for derivative instruments, strict restrictions are in place regarding the size of the positions to prevent a large-scale loss.⁷¹⁵ However, the SIMEX eased the position limit for Barings in consideration of Barings's international reputation.⁷¹⁶ Although it was very unusual for an exchange to offer such a preferential treatment, there was a reason the SIMEX did so.⁷¹⁷ As the SIMEX listed both Nikkei225 futures and the Japanese government bonds after they were listed on the OSE, the SIMEX was in direct competition with the OSE.⁷¹⁸ In the 1990s, as Barings was expanding its regions in the capital market of East Asia, from the standpoint of the SIMEX, Barings was an attractive investment to encourage, even with the cost of easing the risk control regulations.⁷¹⁹ However, after Barings's bankruptcy, the SIMEX was criticized for its lack of compliance with the standard of risk control on the exchange.⁷²⁰

In addition, the disclosure system on the exchanges and communication between exchanges were also problematic.⁷²¹ While the OSE disclosed the details of transactions by the major traders, the SIMEX did not make such a disclosure.⁷²² The OSE had a rule that investors maintaining a large position must disclose the details of other transactions that could offset the risk.⁷²³ Though Leeson claimed he was engaged in transactions that could offset the exposure of positions on the SIMEX, because the SIMEX did not disclose the details of the transactions, there was no way anyone could have known. By having taken advantage of this blind point in the disclosure system on the exchange, Leeson was able to maintain large positions on both exchanges.

715. See JORION III, *supra* note 297, at 37.

716. See, e.g., FAY, *supra* note 644, at 180.

717. *Id.* at 133-34.

718. *Id.*

719. *Id.* at 80. Fay continues:

Baring Securities had been operating in Singapore since 1987, with its activities centered on the stock exchange, . . . [but] it did not conduct business on SIMEX. By 1992, the volume of futures-and-options business was growing fast, and it seemed profligate to pay commission to a competitor. Baring therefore applied in February for clearing membership of SIMEX.

Id.

720. *Id.* at 275 ("SIMEX turned a blind eye to Leeson's cross-trades until February 1995, and even then intervened only after other traders had complained that Leeson was breaking the rules.").

721. See STEINHERR, *supra* note 241, at 74.

722. See, e.g., FAY, *supra* note 644, at 92 (introducing a rule application).

723. Kuprianov, *supra* note 563, at 28.

Recently, the major stock exchanges in the world have faced large changes, thus intensifying competition.⁷²⁴ Such a phenomenon has become a sufficient motive for every exchange to ease risk control standards such as increasing its position and relaxing its disclosure requirements to secure the upper hand.⁷²⁵ However, exchanges should strictly comply with the risk control standards to prevent obstruction of a transparent stock market; at the same time, exchanges should maintain competitiveness. In the case of stock index futures or options of an emerging market traded on an exchange-base in other countries or overseas exchanges products listed and being traded on the domestic exchange, it is necessary to systematically establish the channel of communication between exchanges to share information and cope with speculative transactions.

The third implication is the problem of supervision. In the British banking supervision system, banks engaged in risky transactions with a possibility of loss corresponding to over 25% of the bank's capital are required to make a report to the Bank of England in advance.⁷²⁶ However, in the Barings's situation, some administrators at the Bank of England did not report to the superior office and unofficially gave Barings the power to expand the transactions exceeding the limit on both the OSE and SIMEX.⁷²⁷ While 25% of Barings's capital was about 100 million pounds, the size of the error account of Leeson already exceeded 127 million pounds.⁷²⁸ The exemption granted by the Bank of England allowed Leeson to continue making unlawful transactions. Because of Barings, a restructuring of the banking supervision system by the Bank of England was proposed.⁷²⁹

In addition, *Barings* became the start of the recognition of the need for a revolution in the transactions of derivative instruments, particularly futures transactions, by the regulatory authorities and participants in the market. In May 1995, the representatives of regulatory authorities from 16 countries attended a meeting for revising the law concerning futures transactions and announced the Windsor Declara-

724. Randy Grossman, *The Inevitable Exchange Consolidation*, FINANCE TECH, at *1-2 (JUN. 16, 2006), <http://www.financetech.com/featured/showArticle.jhtml?articleID=189401900>.

725. See Rosenthal, *supra* note 5, at 1263-64.

726. Kuprianov, *supra* note 563, at 33. See also Bank of England, *Supervision by the Bank*, INT'L FIN. RISK INSTITUTE ¶ 13.62, available at <http://riskinstitute.ch/135290.htm> (last visited Feb. 10, 2008).

727. FAY, *supra* note 644, at 109-113.

728. This error account cannot be reconciled immediately if it has only just been set up. CHEW, *supra* note 65, at 232, 238.

729. Betty M. Ho, *Rethinking the System of Sanctions in the Corporate and Securities Law of Hong Kong*, 42 MCGILL L.J. 603, 630 (1997).

tion.⁷³⁰ This Declaration called for getting the regulations ready to allow for quick liquidation of positions by the regulatory authorities and promotion of communication plans between each country's regulatory authorities.⁷³¹

The Futures Industry Association had a discussion on the risk control practices by the exchanges for derivative instruments and the problems of protecting customers,⁷³² insisting the bankruptcy law in each country be reviewed and the areas of conflicts be adjusted.⁷³³ Moreover, to facilitate communication between exchanges, the importance of regular monitoring of the "clearinghouse" members and the need of accumulation of integrated transactions data were also pointed out.⁷³⁴

VIII. INTEREST RATE OPTIONS AND SWAPTIONS OF NATWEST

NatWest Capital Markets ("NatWest") was a subsidiary of the National Westminster Bank, one of the top four banks in England for corporate financing and investment banking.⁷³⁵ It was disclosed that NatWest lost 90 million pounds from the transactions of interest rate swaps and swaptions⁷³⁶ in February 1997.⁷³⁷ NatWest's scandal began with a "systematic mispricing of various options and swaptions by traders in its risk management department."⁷³⁸ This case, which occurred while supervision on derivative instruments was being tightened after *Barings*, further emphasized the importance of supervision of derivative instruments.

730. See AUTHORITIES, WINDSOR DECLARATION, available at http://www.cftc.gov/international/currentinternationalinitiatives/oia_windsordeclaration.html (last visited Feb. 10, 2008).

731. CHEW, *supra* note 65, at 232, 238.

732. FIA GLOBAL TASK FORCE ON FINANCIAL INTEGRITY, RECOMMENDATIONS FOR CUSTOMERS 1-3 (2005), available at http://www.futuresindustry.org/downloads/globtff_rec4cust.pdf.

733. FIA GLOBAL TASK FORCE ON FINANCIAL INTEGRITY, RECOMMENDATIONS FOR REGULATORS, EXCHANGES AND CLEARINGHOUSES 4, available at http://www.futuresindustry.org/downloads/globtff_rec4reg.pdf (last visited Feb. 10, 2008).

734. "The role of a clearinghouse is to stand between the buyer and the seller and guarantee the transaction of each party." WHALEY, *supra* note 7, at 21.

735. Eric Wolfe, *Case Study: NatWest Markets*, ERISK.COM, Oct. 2001, <http://www.erisk.com/Learning/CaseStudies/NatWestCaseStudy.pdf>.

736. See Gibson, *supra* note 1, at 537 ("[S]waptions are options on swaps that give a buyer the right, but not the obligation, to purchase a swap contract at a specified date."); HULL, *supra* note 41, at 625 (describing the use of swaptions).

737. Wolfe, *supra* note 735, at 2.

738. *Id.* at 1.

A. Background

In the 1990s, NatWest, like other banks, was looking to find growth in the derivatives market, particularly in the interest rate options market to transform itself into an investment bank.⁷³⁹ The root problem of the failure of NatWest was ascribed to its mismarking of exchange-traded options price and swaptions by the risk control department.⁷⁴⁰

Kyriacos Papouis, the trader in the risk control department, was in charge of options and swaptions transactions regarding Dutch marks ("DEM") and British sterling ("GBP").⁷⁴¹ To conceal the loss from these transactions, he added overvalued prices of option positions on the bank account.⁷⁴² Papouis's supervisor, Neil Dodgson, who was in charge of sterling interest rate options and swaptions, also erroneously recorded the value of option positions.⁷⁴³ The loss due to these two wrong additions of option prices reached 90 million pounds.⁷⁴⁴

B. Structure of Derivative Instruments

Implied volatility curves and determination of the option prices were the first issues in this case.⁷⁴⁵ One of the major parameters for determining option prices was the implied volatility of the underlying assets. Implied volatility reflects the expectation of the market participants as to the volatility of the underlying assets during the option period. Unlike other determinants used for valuing an option, such as strike price, risk-free interest rate, maturity, or the price of the underlying assets, the underlying assets need to be estimated because the implied volatility cannot be observed; thus, it bears an inherent risk of manipulation or erroneous calculation.

The Black-Scholes model, which is a classical option pricing model, assumes implied volatility is the same for various options with identical underlying assets.⁷⁴⁶ In other words, the prices of options with different maturities and strike prices will be determined under the same

739. *Id.*

740. Securities and Futures Authority, *Board Notice 545*, FAS.GOV.UK, May 18, 2000, at 3, available at <http://www.fsa.gov.uk/pubs/additional/545.pdf> [hereinafter SFA Board Notice].

741. *Id.* at 1. See also Cohen, *supra* note 17, at 2001 n.40 ("The swaption[,], an option on a swap, combines the characteristics of a swap and an option, giving a party the right to enter into a swap if it chooses to, without forcing an immediate design.").

742. JORION III, *supra* note 297, at 494.

743. SFA Board Notice, *supra* note 740, at 1.

744. *Id.* at 2.

745. See David Shirreff, *Lessons from NatWest*, EUROMONEY, May, 1997, at 42 (reporting NatWest's announcement).

746. Saikat Nandi & Daniel F. Waggoner, *Issues in Hedging Options Positions*, ECONOMIC REVIEW, Jan. 1, 2000, at *1-3, available at <http://www.encyclopedia.com/printable.aspx?id=1G1:63503197>.

implied volatility if the underlying assets are the same. However, on the actual markets, the implied volatility changes according to the strike prices of the options.⁷⁴⁷ Depending on the level of at-the-money ("ATM"), in-the-money ("ITM"), and out-of-the-money ("OTM"), option investors apply different implied volatilities⁷⁴⁸ due to the different expectations of investors participating in the option markets.⁷⁴⁹ For example, if the stock market is likely to decline rapidly, the implied volatility of the OTM put-option will be higher than those of ATM or ITM.⁷⁵⁰ Therefore, option traders and risk managers must clearly grasp the implied volatility curves and reflect them in evaluating the options.

If a price corresponding to the implied volatility curve in the market is not offered, the option price may be erroneously fixed.⁷⁵¹ For example, consider a case where the average implied volatility is applied to all the strike prices without taking the implied volatility curve into consideration. There is a positive correlation between the price of an option and the implied volatility. Therefore, if the actual volatility of OTM is higher than that of ATM, the value of OTM determined based on the average implied volatility would be too low and the value of ATM would be too high.⁷⁵²

The manipulation of volatility and exchange of accounts for concealing the loss in option transactions were the next issues. Securities and Futures Authority ("SFA")⁷⁵³ stipulated that the trading positions of derivative instruments should be evaluated every day.⁷⁵⁴ Accord-

747. "This is the tendency, empirically observed in the market, for options that move in or out of the money to go through more violent price fluctuations at the extremes than the theoretical Black-Scholes models predict." Shirreff, *supra* note 395, at 42.

748. See HULL, *supra* note 46, at 188; CHEW, *supra* note 65, at 16.

749. "To allow the investor to shift that loss is akin to compensating a gambler who loses a bet after the gambler has had full opportunity to negotiate the terms of the wager consistent with his or her goals." Gibson, *supra* note 1, at 531. "Just as a gambler must assume his or her losses as part of the wager, an investor who trades derivatives must assume responsibility for the transaction he or she chooses to enter." *Id.*

750. See Gurdip Bakshi, Charles Cao, Zhiwu Chen, *Do Call Prices and the Underlying Stock Always Move in the Same Direction?* 13 THE REV. OF FIN. STUD. 549, 565 (2000).

751. Wolfe, *supra* note 735, at 2.

752. *Id.*

753. Note:

SFA is the regulatory organization established under the Financial Services Act of 1986 with responsibility for regulating members of the organized City investment markets, i.e. the stock market, eurobond, financial futures, commodity futures markets and also corporate finance specialists and off-market traders. Around 1,350 firms are regulated by the SFA.

Securities and Futures Authority, *SFA Disciplines Natwest and 2 Individuals*, FAS.GOV.UK, May 18, 2000, <http://www.fsa.gov.uk/pubs/additional/sfa008-00.pdf>.

754. SFA Board Notice, *supra* note 740, at 2.

ingly, at NatWest, the option traders, including Papouis and Dodgson, were providing the information on the price evaluations to the back office at 11 a.m. each day.⁷⁵⁵ "It was the responsibility of the operating department to input the data provided by the trader[s]"⁷⁵⁶ and to reconcile the values by making a comparison to those of exchanges; it was the finance department's responsibility to supervise whether the trading positions were being independently evaluated and the positions properly evaluated.⁷⁵⁷ However, beginning in October 1996, the finance department took charge of reconciling the values.⁷⁵⁸ Under these circumstances, the potential existed for the finance department to fail to detect the option pricing by traders on their own due to the lack of price reconciliation ability, and, consequently, the traders spotted a chance to manipulate the information on option prices.⁷⁵⁹

Between March 1995 and December 1996, Papouis concealed the loss due to the overvaluing of the option position on the deutschmark.⁷⁶⁰ By March 1995, the concealed loss amounted to 1.1 million pounds, reaching 22.4 million pounds at the end of December.⁷⁶¹

In February 1996, Papouis heard from the staff at the back office of NatWest that the option price on the mark on the exchange at the back office had a higher estimate than the market price.⁷⁶² Papouis reduced the value of the option accordingly with the resulting loss amounting to 24.16 million pounds.⁷⁶³ In addition, to conceal the loss, he exchanged the books (accounts) for options on the deutschmark and swaptions.⁷⁶⁴

The reason he used such methods was they were easy to conceal the loss in case of deutschmark swaptions, a derivative instrument whose price calculation was relatively more complex than deutschmark options.⁷⁶⁵ As a result, on the options book there was a profit, but on the swaptions book there was a loss made by manipulating the volatility and increasing the value of the swaptions position.⁷⁶⁶ Before retiring from NatWest, Papouis consistently manipulated the volatility of

755. *Id.*

756. *Id.*

757. *Id.*

758. *Id.*

759. See SFA Board Notice, *supra* note 740, at 2.

760. *Id.*

761. *Id.*

762. *Id.*

763. *Id.*

764. See SFA Board Notice, *supra* note 740, at 2.

765. Wolfe, *supra* note 735, at 3.

766. One industrial reporter states:

swaptions and options on the deutschmark to increase the value of the positions until December 1996.⁷⁶⁷ NatWest, in turn, suffered a loss:

The magnitude of the loss may have been a reflection of the length of time it took the bank to pick up the inappropriate calibration. Observers suggest that the incorrect volatility may have been used on the book since late 1994, or about when the bank entered this particular business.⁷⁶⁸

In February 1997, after the mispricing was disclosed, the book value of swaptions and deutschmark options fell by 55.6 million pounds.⁷⁶⁹ In addition, between December 1995 and February 1996, Dodgson continued to record the options on pounds higher than the market prices.⁷⁷⁰ In most cases, the price differences were considerable. In February 1996, Dodgson began to manipulate the volatility of options to adjust the option prices on the book similar to the market prices.⁷⁷¹ After such price manipulation was disclosed, the value of the options book for pounds dropped by 24.6 million pounds.⁷⁷²

In February 1997, through an internal audit, NatWest discovered the discrepancy in the deutschmark swaptions book.⁷⁷³ The investigation revealed that options on the deutschmark and pound, as well as the prices of swaptions had been overestimated.⁷⁷⁴ About 90 million pounds of loss had been concealed with the deutschmark options book loss at 55.6 million pounds while the loss on the pound options book reached 24.6 million pounds.⁷⁷⁵ As a result, around February 1997 when the person in charge of the back office of NatWest discov-

NatWest won't detail the portfolio, but a market consensus believes NatWest's sterling and Deutschmark options dealers were creating the illusion of profit by matching options they had sold, either at strike prices which had since gone out of the money, or which were initially out of the money, against options of other maturities and perhaps at other strike prices. . . . The illusion of profit can also be created by matching options against swaptions. Swaptions have a lower volatility since they are a series of interest rate options. Buying swaptions and selling options can bring a net gain in premium and show a superficially matched position. If a bank in this position is indifferent to the volatility mismatch it is also indifferent to pricing out of line with the market. In the rarefied world of out-of-the-money options there often is no liquid market.

Shirreff, *supra* note 395, at 46.

767. Wolfe, *supra* note 735, at 3.

768. Margaret Elliott, *Controlling Model Risk*, DERIVATIVES STRATEGY, June 1997, at *4, available at <http://www.derivativesstrategy.com/magazine/archive/1997/0697fea1.asp>.

769. SFA Board Notice, *supra* note 740, at 2.

770. *Id.*

771. *Id.*

772. *Id.*

773. *Id.*

774. SFA Board Notice, *supra* note 740, at 2.

775. *Id.*

ered the price difference between the market price on the exchange and the price on the system, the situation was already out of hand.⁷⁷⁶

C. *Results of Use of Derivative Instruments*

The manipulation of option price evaluations and exchange of books for derivative instruments to cover the loss by Papouis was discovered at the end of February 1997 after he had transferred to Bear Stearns.⁷⁷⁷ Dodgson also resigned after it was revealed he consistently record mismarked option prices.⁷⁷⁸ The loss resulting from the manipulation of option prices by these two traders amounted to about 90 million pounds.⁷⁷⁹ Luckily, it appeared no personal gains had been made through collusion with a third party, nor had anything occurred that caused any damage to the customers' interests.⁷⁸⁰ However, after these facts were disclosed, the business reputation of NatWest management as to its investors and shareholders suffered a blow.⁷⁸¹

In May 2000, after a long investigation of SFA, the risk control system of banks as well as the internal control system was subject to criticism.⁷⁸² Between January 1994 and February 1997, the internal and external investigators discovered that problems with the internal control system relating to the transaction details of Papouis had already been reported to the management.⁷⁸³

The report noted a difference between the market price and the estimated prices of NatWest; additionally, an independent estimation of the transaction positions had not been properly made.⁷⁸⁴ Furthermore, no internal control system existed because the division of operations between the trading department and the back office was unclear.⁷⁸⁵

SFA imposed penalties of 420,000 pounds on the company for its negligence.⁷⁸⁶ SFA penalized Papouis and Dodgson by fining them 50,000 pounds and 5,000 pounds, respectively, for violations of fair trading and breach of their fiduciary duties as supervisors, it also sub-

776. *Id.*

777. Wolfe, *supra* note 735, at 1.

778. *Id.*

779. See SFA Board Notice, *supra* note 740, at 2.

780. *Id.* at 4.

781. Wolfe, *supra* note 735, at 1.

782. *Id.*

783. *Id.* at 4.

784. *Id.*

785. *Id.* at 1.

786. SFA Board Notice, *supra* note 740, at 1.

jected them to disciplinary action.⁷⁸⁷ However, what was more damaging was not the financial loss, but the loss of National Westminster's reputation. In the end, NatWest was sold to BT without restoration of its lost reputation; the holding company National Westminster also was taken over by the Royal Bank of Scotland in February 2000.⁷⁸⁸

D. *Implications*

The NatWest failure occurred during tightened supervision of derivative instruments due to the *Barings* case, again calling for recognition of its importance. The cause of NatWest's failure in the internal risk control is due to the lack of a clear division of work between the trading department and the back office.⁷⁸⁹ "The other factor that shines out of the NatWest affair is the seeming lack of consistency in the inputs used by the bank."⁷⁹⁰ Because Papouis provided the back office with the implied volatility required for evaluation of the market prices of daily options and swaptions, he was able to manipulate the option prices.

To prevent such price manipulation, these parameters should have been checked by an independent department.⁷⁹¹ Particularly, as compared to other financial assets, in the valuation of the option, its implied volatility is an important factor, but one impossible to observe. Its unique characteristics, including price evaluation mode, data, and values from the model, must be confirmed individually. In other words, for risk control over the derivative instruments to work, the functions and responsibility must be clearly identified between the

787. *Id.*

788. Wolfe, *supra* note 735, at 4.

789. See Lindholm, *supra* note 451, at 103. Earlier the benefit of the internal risk control system was pointed out in that it:

[C]an dramatically reduce banks' credit losses by [] swaps to reflect the amount of default risk assumed. . . . Moreover, internal risk control systems that set maximum losses on any single transaction help to prevent losses from derivatives traders or bankers trying to hide failed deals. Thus, by following the self-discipline imposed by internal risk control systems, market participants effectively control counterparty default risk.

Id.

790. Elliott, *supra* note 768, at *4 (referring to Gotham Derivatives' Ullah, Elliott noted that [i]f flat volatility was used in the sterling/Deutschemmark book, why was not it used in the sterling/dollar book or Deutschemmark/dollar book?").

791. See Scheerer, *supra* note 152, at 164. "It is generally recommended that counterparty credit risk be controlled through a formal and independent credit process. . . . U.S. and international banking regulators have identified credit risk as the most significant risk associated with the financial derivatives activities of banks." *Id.* However, it should be emphasized that the internal supervision of the financial institution is the first order of business.

trading department and back office, and an independent evaluation procedure for positions must be established.⁷⁹²

In addition, the case of NatWest again made people aware of the importance of cultivating and ensuring specialists regarding derivative instruments. Although the global derivatives market is consistently growing, there is a lack of professionals who can completely grasp the special features of derivative instruments and use them appropriately. This suggests the importance of establishing a specialized risk control system and ensuring it is staffed by professionals who can efficiently maintain the system.⁷⁹³

Most of NatWest's loss resulted from not properly carrying out the valuation of the options on the exchange.⁷⁹⁴ As for OTC options, estimation of their values was not easy because they were complex derivative instruments; however, for options on the exchange whose prices were disclosed on the concerned exchanges, estimation was not as difficult.

Therefore, there should be recognition that OTC derivative instruments are likely to cause big losses, but, historically, many occasions exist where enormous losses also resulted from simple derivative instruments on the exchanges.⁷⁹⁵ Therefore, as to risk control, special attention must be also given to the derivative instruments on the exchanges.⁷⁹⁶

In conclusion, NatWest began to make people understand the importance of loss of corporate reliance and reputation instead of focusing on the size of the loss. The loss itself did not doom NatWest, but the loss of NatWest's trustworthiness due to the manipulation of op-

792. See Shirreff, *supra* note 745, at 44 (diagnosing the problem and suggesting different causation).

793. "[A]ny good risk controller should be able to generate and calibrate from the market, a price matrix which within a few basis points of actual market volatilities. The fact that NatWest's hole was so big means that it wasn't due to poor calibration of its trading or risk management models . . ." *Id.* at 1-2.

794. See Elliott, *supra* note 768, at *4. One derivatives industry expert argues that "[i]f the bank had used different volatilities for each strike, a so-called volatility smile, the book would have been priced more closely with the market and NatWest wouldn't have incurred the mispricing loss." *Id.*

795. Industry case studies are available at <http://www.erisk.com/Learning/CaseStudies.asp>.

796. International Monetary Market President McDonough made the following remarks:

The public needs to know generally about the role that derivatives play in today's economy and specifically about how derivatives affect the financial condition of the firms in whose securities they invest. . . . Thus, all participants in derivatives activities have a shared interest in providing the public with a better understanding of these instruments, regardless of the specific markets in which the instruments trade.

McDonough Address, *supra* note 416, at *5-6.

tion prices led to the sale, not only of NatWest, but of its holding company as well.

IX. IMPLICATIONS OF THESE FAILURES IN THE ANALYSIS OF OTC & EXCHANGE-BASED DERIVATIVE INSTRUMENTS

A. *The Systematic Infra of OTC Derivative Instruments*

From the analysis of the series of derivatives-market-failure cases discussed earlier, it can be inferred systematic improvement to the concerned securities and banking industries, discussed *infra*, is necessary to minimize the possibility of failure in the use of derivative instruments. The accounting treatment of OTC derivative instruments and regulations concerning netting is representative of the discussion *infra* related to OTC derivatives.⁷⁹⁷

As seen in the cases of *P&G*, *Gibson Greetings*,⁷⁹⁸ and *MGRM*,⁷⁹⁹ to induce sound use of OTC derivative instruments, it is necessary to maintain the standards of accounting treatment for derivative instruments. In the United States, the FASB established the standard for accounting for certain derivative instruments and hedging activities, No. 133, which became effective on June 15, 2000.⁸⁰⁰ This standard sets a consistent guideline for the accounting treatment of derivative instruments, the treatment of hedge accounting, and the problems of disclosure.⁸⁰¹ First, as to derivative instruments, all the companies are required to record all the derivative instruments as assets or debts on

797. Derivatives "can help manage market and price risks for investors as well as for issuers of securities." *Id.* at *3. However, unless accompanied by accounting integrity and disclosure, this is nothing but a visionary project that will soon collapse. In his address McDonough emphasized that:

One of the most important efforts that the financial industry should undertake is to improve accounting and disclosure practices. . . . Accounting and disclosure practices should ensure that an institution's derivatives positions are meaningfully integrated into an overall view of the firm's financial condition and exposure to financial risks. . . . A common feature of recent financial crises, including those involving derivatives, is how financial innovation has made traditional accounting measures of leverage almost meaningless. Financial derivatives by their very nature can make a firm's true leverage be far higher than it appears in traditional accounting statements or management reports. . . . A critical challenge facing the financial industry today is how to describe leverage in meaningful ways in accounting and disclosure statements.

Id. at *6-7

798. See *supra* Part III.C.

799. See *supra* Part VI.D.

800. See FASB, STATEMENT OF FINANCIAL ACCOUNTING NO. 133, *supra* note 254, at 6.

801. See *supra* note 256 and accompanying text.

the financial statements at fair value,⁸⁰² and companies' estimated profits and losses should be reflected in the current term.⁸⁰³

The International Accounting Standards Board ("IASB") that sets international accounting standards created the IAS 39 Financial Instruments: Recognition and Measurement in December of 1998, under which derivative instruments,⁸⁰⁴ all financial assets⁸⁰⁵ and debts⁸⁰⁶ are to be estimated at fair market price.⁸⁰⁷

In the countries of all global financial market participants, either the Financial Supervisory Service or Accounting Institute should pro-

802. See FASB, STATEMENT OF FINANCIAL ACCOUNTING NO. 133, *supra* note 254, at 15-16 ¶ 20.

803. See FASB, STATEMENT OF FINANCIAL ACCOUNTING NO. 133, *supra* note 254, at 18 ¶ 22.a.

804. It is noted that:

Common Examples of Financial Instruments within the Scope of IAS 39 are: (i) cash, (ii) demand and time deposits, (iii) commercial paper, (iv) accounts, notes, and loans receivable and payable, (v) debt and equity securities. These are financial instruments from the perspectives of both the holder and the issuer. This category includes investments in subsidiaries, associates, and joint ventures, (vi) asset backed securities such as collateralized mortgage obligations, repurchase agreements, and securitized packages of receivables, and (vii) derivatives, including options, rights, warrants, futures contracts, forward contracts, and swaps.

IAS Plus, IAS 39 Financial Instruments: Recognition and Measurement, <http://www.iasplus.com/standard/ias39.htm> (last visited Feb. 10, 2008) (summarizing International Accounting Standard 39). Under the ISA 39:

A derivative is a financial instrument: whose value changes in response to the change in an underlying variable such as an interest rate, commodity or security price, or index; that requires no initial investment, or one that is smaller than would be required for a contract with similar response to changes in market factors; and that is settled at a future date.

Id.

805. "IAS 39 requires financial assets to be classified in one of the following categories: (i) financial assets at fair value through profit or loss, (ii) available-for-sale financial assets, (iii) loans and receivables, and (iv) held-to-maturity investments." *Id.*

806. It is noted that:

IAS 39 recognizes two classes of financial liabilities: [IAS 39.47] (i) financial liabilities at fair value through profit or loss. (ii) other financial liabilities measured at amortized cost using the effective interest method. The category of financial liability at fair value through profit or loss has two subcategories: (i) Designated. A financial liability that is designated by the entity as a liability at fair value through profit or loss upon initial recognition. (ii) Held for trading. A financial liability classified as held for trading, such as an obligation for securities borrowed in a short sale, which have to be returned in the future.

Id.

807. "Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. IAS 39 provides a hierarchy to be used in determining the fair value for a financial instrument: [IAS 39 Appendix A, paragraphs AG69-82]." *Id.* "Initially, financial assets and liabilities should be measured at fair value (including transaction costs, for assets and liabilities not measured at fair value through profit or loss)." *Id.*

vide for systematic accounting regulations of OTC derivative instruments and of structured bonds with characteristics similar to OTC derivative instruments. In particular, the definition of hedge accounting and its acknowledged range are expected to have a direct influence on the promotion of OTC derivatives markets.

As seen in *LTCM*,⁸⁰⁸ to prevent failure in the use of OTC derivative instruments on the individual corporate level and its spread into the financial system, clear regulations must be made in the bankruptcy law regarding netting.⁸⁰⁹ In U.S. bankruptcy law, for safety considerations in the transactions of OTC derivative instruments, financial contracts with the right to exercise the offsetting power are separately listed and approved due to the exemption from the application of the automatic stay.⁸¹⁰ In emerging market countries, in case of default on

808. See *supra* Part IV.E.

809. In the United States, the systemic risk in the financial market may be somewhat avoided by amendment of the Bankruptcy Code.

Prior to the enactment of the [Bankruptcy Abuse Prevention and Consumer Protection Act of] 2005 act ("2005 Act"), those safe harbor transactions were already granted special protections under the bankruptcy code. For example, a party deemed to be a "forward contract merchant" was entitled to enforce its contractual rights of setoff with respect to forward contracts, notwithstanding the bankruptcy filing by counterparty. Likewise, a party deemed to be a "swap participant" was entitled to enforce its contractual rights of setoff with respect to swap agreements, notwithstanding the bankruptcy filing by counterparty. Absent these safe harbor provisions, bankruptcy [code] sections 362 and 365 would generally preclude a forward contract merchant or swap participant from liquidating its forward contract or swap agreement positions with a bankrupt counterparty, or from realizing against any property posted as collateral, without first obtaining relief from the automatic stay from the bankruptcy court. However, the protections for safe harbor transactions were further broadened and, in some cases, clarified under the 2005 Act. Among other things, the 2005 Act expands the category of contracts that qualify for the special protections under the bankruptcy code and provide express authorization for cross-product netting among protected transactions (i.e., swap agreements, forward contracts, commodity contracts, repurchase agreements and securities contracts) under a "master netting agreement." As a result, the changes impact both how safe harbor transactions are structured, as well as how those contracts are drafted.

McDermott, Will & Emery, *The Effect of the New Bankruptcy Code on Safe Harbor Transaction*, MWE.COM, Nov. 9, 2005, http://www.mwe.com/index.cfm/fuseaction/publications.nldetail/object_id/2546b8ca-c8ea-414b-b23c-e1936175ca82.cfm.

810. 11 U.S.C. §362(b)(6) provides:

The filing of a [bankruptcy] petition . . . does not operate as a stay . . . of the setoff by a commodity broker, forward contract merchant, stockbroker, financial institutions, or securities clearing agency of any mutual debt and claim under or in connection with commodity contracts, . . . forward contracts, or securities contracts, . . . that constitutes the setoff of a claim against the debtor for a margin payment, . . . or settlement payment, . . . arising out of commodity contracts, forward contracts, or securities contracts against cash, securities, or other property held by or due from such commodity broker, forward contract merchant, stockbroker, financial institutions, or securities clearing agency to margin, guarantee, secure, or settle commodity contracts, forward contracts, or securities contracts.

an obligation by one concerned party to the OTC derivative instrument contract, it is necessary to clearly stipulate as to the legal validity of netting by the OTC derivative instrument contract in bankruptcy law.⁸¹¹

B. *Financial Institutions*

As indicated by the cases of *Procter & Gamble Co. v. Bankers Trust Co.*,⁸¹² *In re Gibson Greetings, Inc.*,⁸¹³ and *Diamond Fund v. JP Morgan*,⁸¹⁴ compliance by the trading securities firms and investment banks with their duty of loyalty is very important in the operation of OTC derivative instruments. Note that the basic rationale behind the theory is a securities dealer is "under a special duty, in view of its expert knowledge and proffered advice, not to take advantage of its customers' ignorance."⁸¹⁵ Particularly, in dealing with ordinary companies as customers who lack knowledge, skill, and analytical ability in dealing with OTC derivative instruments, it is important the securities dealer's plan includes instruments based on good faith and accompanied by an appropriate explanation of the instruments that will inform the customer about the degree of risk they contain.⁸¹⁶

11 U.S.C. §362(b)(6) (2006). Additionally, 11 U.S.C. §362(b)(7) provides:

The filing of a [bankruptcy] petition . . . does not operate as a stay . . . of the setoff by a repo participant, of any mutual debt and claim under or in connection with repurchase agreements that constitutes the setoff of a claim against the debtor for a margin payment, . . . or settlement payment, . . . arising out of repurchase agreements against cash, securities, or other property held by or due from such repo participant to margin, guarantee, secure or settle repurchase agreements.

11 U.S.C. §362(b)(7) (2006).

811. There is however an argument that the exemptions cover too wide a scope of transactions so there will be a need to set limits. See Edwards & Morrison, *supra* note 384, at 98. Edwards & Morrison state:

[T]he language of the Code encompasses far too many transactions. Fear of systemic risk is warranted only in cases involving the insolvency of a major financial market participant, with whom other firms have entered derivatives contracts of massive value and volume. Yet the Code offers special treatment to derivatives no matter how large or small the counterparty. Thus, Congress' stated justification for the special treatment is incomplete, as it applies only to a fraction of all firms that enter into derivatives contracts.

Id.

812. See *supra* Part III.A.

813. See *supra* Part III.B.

814. See *supra* Part V.D.

815. Madison, *supra* note 5, at 280.

816. However, some industry experts argue that the firm's duty and defense should be based on the "sound principles and practices" which limit a "conscious and disciplined approach to risk management." Rosenthal, *supra* note 5, at 1268.

As indicated in the cases of *Orange County*,⁸¹⁷ *Barings*,⁸¹⁸ and *NatWest*,⁸¹⁹ an efficient risk control system (independent evaluation and supervision of positions and independent reporting) should be constructed to create clear division of work between the trading department and back office and to minimize the possibility of failure with OTC derivative instruments. In particular, reports to the CEO and board of directors should be made independently by both the trading department and back office. In addition, as in *NatWest*, when the back office is evaluating the value of OTC derivative instruments, to say an independent pricing is being made is difficult when the back offices uses the data exactly as it was provided by the trading department (e.g., data on the volatility of an option).

Evaluation of performance by the traders of derivative instruments should be based not only on the rate of return itself, but also on the rate of return reflecting the risk. As can be understood in the analysis of *Barings* and *Orange County*, when a high return was earned through the use of derivative instruments, an enormous amount of risk was generally assumed. In other words, in many cases the results were mostly ascribed not to the outstanding ability of the users of derivative instruments, but to the fact they had taken a higher risk than others. Therefore, when the securities firm evaluates the trader's performance, the simple rate of return should not be used as the measure; instead, the rate of return reflecting the risk should be used. When there is a loss from the derivative instrument transaction in particular, use of the doubling-up strategy,⁸²⁰ where additional risk is assumed in an attempt to limit the loss incurred by the traders, should be prevented.

As analyzed in *Orange County*,⁸²¹ *LTCM*,⁸²² and *Barings*,⁸²³ when use of OTC derivative instruments fails, the traders and management are involved, which opens up the issues of moral hazard stemming from incentives problems. For example, in the case of *Barings*, supervisors of Leeson received much personal benefit from his performance. Independent and objective supervision under the circumstances could hardly have been expected where the incentives of the management, the supervisor, and Leeson all corresponded to each other. This is why an independent department's supervision and audit are neces-

817. See *supra* Part II.E.

818. See *supra* Part VII.D.

819. See *supra* Part VIII.D.

820. See *supra* note 61 and accompanying text.

821. See *supra* Part II.E.

822. See *supra* Part IV.E.

823. See *supra* Part VII.D.

sary, rather than mere supervision by the immediate superiors of the traders of OTC derivative instruments.

C. *Investors and the Trade Counterparties*

“One of the big advantages of OTC derivatives products is the ability to customize the contract to provide solutions to the financial risks confronted by the contracting parties.”⁸²⁴ Clear purposes of investment must be established that reflect the characteristics of the users of OTC derivative instruments.⁸²⁵ As the *Orange County* case demonstrated, financing through repos is not an appropriate strategy, nor are investments in inverse FRNs, for municipalities; guaranteeing the principal should be the most important investment goal.⁸²⁶ In another words, the problem lies neither with the repos, nor with inverse FRNs, but with the users, who should always set an investment goal that reflects their own characteristics and make use of only those instruments suitable for it.

As indicated in the cases of *P&G*,⁸²⁷ *Gibson Greetings*,⁸²⁸ and *Diamond Fund*,⁸²⁹ to minimize the possibility of failure in the course of using OTC derivative instruments, end users must make use of derivatives corresponding to their abilities. In particular it is advisable to avoid instruments difficult to hedge or evaluate. Particularly if the investment purposes of the users are clearly set forth at the early stage and the users employ instruments whose structure can be analyzed and value estimated, the potential for failure can be minimized. As the experience and knowledge of derivatives gradually increases, the range of instruments can also expand.

The cases of *Orange County*,⁸³⁰ *P&G*,⁸³¹ *Gibson Greetings*,⁸³² and *LTCM*⁸³³ show attention must be given to either investments or the use of instruments with highly leveraged inverse structures that move inversely to the benchmark index. As in the leveraged interest rate

824. See Gibson, *supra* note 1, at 538 (comparing exchange-listed vs. OTC derivatives products).

825. As one commentator has noted, in a free market economy, “if investors find that derivatives enhance the quality of their investment portfolio, despite losses, it will behoove them to implement internal systems that monitor the suitability of their own investments.” Sienko, *supra* note 121, at 130-31.

826. See *supra* Part II.E.

827. See *supra* Part III.A.

828. See *supra* Part III.B.

829. See *supra* Part V.A, D.

830. See *supra* Part II.B, C.

831. See *supra* Part III.A.

832. See *supra* Part III.B.

833. See *supra* Part IV.B, C.

swaps in *P&G* and *Gibson Greetings*, a high return may be expected from certain investment amounts if the structure of the OTC derivative instrument is leveraged; but, if the expectation proves wrong, a risk at least that high should be assumed. In addition to leverage in the structure of the instruments, the use of leverage in financing should be given attention.

As with hedge funds, use of leverage to a certain extent is necessary in raising funds if the financing company is professional in OTC derivative transactions. However, transactions where the leverage reached 25-fold,⁸³⁴ such as in the case of *LTCM*, need to be regulated from the level of the hedge fund itself and from the level of stability in the financial market through the regulatory authority.⁸³⁵ In addition, as in inverse FRNs, if an instrument moves inversely to the direction of the standard index, a lot of attention must be given when the return moves opposite of the entire market and, therefore, has low liquidity.

Particularly, the cases of *Orange County*,⁸³⁶ *P&G*,⁸³⁷ *Gibson Greetings*,⁸³⁸ *Diamond Fund*,⁸³⁹ and *Baring*⁸⁴⁰ were indicative of structures where the loss would be unlimited if things did not turn out as expected and should be avoided. However, in many cases, the higher the possibility a structure may lead to a loss, the more difficult it is to find the risk factors. In other words, because the risk factors are built into the overall structure of OTC derivative instruments in a complex way, it is necessary to understand the structure of the products. Outside professionals can be an alternative if a company lacks analytical and evaluative abilities itself in this area.

D. Supervision and Regulatory Authorities

One commentator argues that “many past and current U.S. regulatory debates about derivatives only pay lip service to hedging risks efficiently and instead revolve around political or jurisdictional turf

834. See *supra* note 303 and accompanying text.

835. One commentator argues that:

[T]he LTCM episode suggests that the most important risk to financial stability may come from the possibility that derivatives counterparties, exempt from the automatic stay provisions of the Bankruptcy Code, may “run” on a financially distressed firm (or firms), causing a liquidity shortage that has the potential to spill over to other firms and markets and cause widespread instability in financial markets.

Edwards & Morrison, *supra* note 384, at 105-06.

836. See *supra* Part II.C.

837. See *supra* Part III.A.

838. See *supra* Part III.B.

839. See *supra* Part V.B.

840. See *supra* Part VII.B.

battles.”⁸⁴¹ One of the important implications that can be derived from the case analysis of failures in use of OTC derivative instruments is the countermeasures taken by the regulatory authorities.⁸⁴² Notably in dealing with Orange County, the SEC did not make the mistake of burning down the structure to get rid of an infestation.⁸⁴³ In other words, based on the awareness that the structured bonds and derivatives vehicle are basically effective securities, the SEC adhered to their standpoint of settling the problems resulting from the improper use rather than condemning their use in general, recognizing that it is often difficult to determine the price of the derivatives or of a structured bond that has been specially devised to be suitable for a particular purpose.

In addition, structured bonds have diverse built-in derivative instruments, but, as they are sold as bonds, unsophisticated investors are likely to mistakenly consider them to be safe instruments. Therefore, the SEC did not regulate the structured bond itself, but went in a different direction of requiring companies to tighten their explanations regarding the inherent risk in the structured bonds when selling to unsophisticated investors.⁸⁴⁴ In other words, the SEC concluded that the best practice for regulating derivative instruments was to require investment institutions to clearly state the purposes of investment and establish a risk control system while inducing securities firms to be faithful to their duty of due care in the course of dealing instruments and to tighten their disclosure to investors.⁸⁴⁵

As noted by one commentator, “[m]ost derivatives transactions fall into [a] category that is either devoid of regulation or subject to ill-defined regulation.”⁸⁴⁶ From the supervisory and regulatory authorities’ standpoint, as well as in global market participant countries, the effort to settle emerging problems due to the misapplication of instru-

841. Huang, *supra* note 1, at 487.

842. According to one commentator, the “Derivative investments implicate four basic regulatory requirements relating to: (i) disclosure of investment policies and objectives; (ii) restrictions on leverage; (iii) custody of portfolio assets; and (iv) asset diversification.” Roiter, *supra* note 13, at 276.

843. See SEC ORANGE COUNTY REPORT, *supra* note 103, at *1-11. See also JORION I, *supra* note 31, at 90.

844. See *supra* note 154 and accompanying text. It should be noted that “[m]uch of the current U.S. federal securities regulatory philosophy is based on a model of consumer sovereignty.” Huang, *supra* note 1, at 489.

845. The best approach to mitigating possible risk from a derivatives transaction failure is to employ appropriate risk management procedures, but in the event of a market failure, the regulatory authority’s intervention may be the only recourse. Edwards & Morrison, *supra* note 384, at 106.

846. Madison, *supra* note 5, at 276.

ments should precede the regulation of the instrument itself. A kitchen knife could injure people when held by a robber, but in the hands of a cook it can be used to make good dishes.⁸⁴⁷ Even though derivatives regulation includes a complicated regulatory goal, prohibiting its use in general just because it may be misused would be a mistake.⁸⁴⁸

X. CONCLUSION

Modern OTC derivatives vehicles existed before exchange-traded products.⁸⁴⁹ However, since the Chicago Mercantile Exchange began trading derivatives instruments in 1972, when properly used, these instruments can still be construed as essential tools for escaping financial risk despite recent disasters.⁸⁵⁰ Currently, a “Renaissance Era” exists, in which, by the help of highly developed financial engineering, “markets have been transformed by forces of securitization and globalization,”⁸⁵¹ still leaving numerous unsolved legal and theoretical issues to be identified and analyzed before practical implications can be drawn.

However, risks still exist in the financial market because the everyday, real world is changing its shape and increasing its volatility due to both internal and external factors. In order for the risk to be swept away, it is extremely important to learn from analyzing past failures. General practice attorneys may be reluctant to try to understand the various derivatives products because of their complexity, preferring instead to leave this area to professional financial engineers. However, as more and more refined financial devices appear in the capital market, lawyers engaged in that market must become familiar with them and know whether they meet their clients’ needs.

Notwithstanding this need for an awareness regarding the whole derivatives instrument mechanism, discussion and analysis of derivatives vehicles based on high dimensional mathematics is well beyond the

847. “[D]erivatives remain an important business tool used to effectively manage even greater risks Because of their risk-hedging benefits when used properly” Rosenthal, *supra* note 5, at 1256, 1269. See also McKown & Purcell, *supra* note 11, at 119.

848. See Huang, *supra* note 1, at 487-88 (stating the characteristics of derivatives regulation).

849. See *supra* note 276 and accompanying text. Derivatives are not a concern of only small sophisticated group of experts but well-known investment vehicles for people in today’s financial marketplace. *Id.* Even though financial engineers resort to complex mathematical formula to analyze and design derivatives vehicles, as to derivatives, “we are all modern.” *Id.* Because the “sum of human knowledge grew to exceed the human capacity to understand it.” Cohen, *supra* note 17, at 2003.

850. *Id.* at 2004.

851. Phillips, *supra* note 256, at 241.

scope of this Article, so description of those approaches were minimized as much as possible. Instead, four areas of concerns were investigated: (i) industry infrastructure, including accounting issues as a regulatory tool; (ii) role of intermediary financial institutions such as securities firms or investment banks; (iii) investors and transaction counterparts, and (iv) selected regulatory issues.

The nightmare in the financial derivative market is, at any time, another storm may be on the way without notice. The pattern and results of such disaster are known from history; however, many people may feel at ease when, in a particular year, nothing is brewing in the derivatives industry.⁸⁵² This Article may have contributed to reinstilling a sense of alarm that so long as the market exists, there are risks; but a disaster can be avoided when lessons from the past are heeded, especially the lesson of not waiting to lock the stable door until after the horse is stolen.

852. Professor Cohen said, "Yet there are snakes in Eden." Cohen, *supra* note 17, at 2006.