Fordham Law Review

Volume 51 | Issue 5 Article 3

1983

Rule 10b-5 Damage Computation: Application of Financial Theory to Determine Net Economic Loss

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NOTES

RULE 10b-5 DAMAGE COMPUTATION: APPLICATION OF FINANCIAL THEORY TO DETERMINE NET ECONOMIC LOSS

INTRODUCTION

In Rule 10b-5[1] actions involving defrauded purchasers of actively traded stocks, courts have generally adopted one of two damage theories[2]—gross economic loss[3] or net economic loss.[4] The gross loss theory awards the plaintiff the total dollar decline in the price of the

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1. Rule 10b-5 was promulgated by the Securities and Exchange Commission pursuant to § 10(b) of the Securities Exchange Act of 1934, 15 U.S.C. § 78j(b) (1976). The rule provides:

> It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange,
>
> (a) To employ any device, scheme, or artifice to defraud,
>
> (b) To make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or
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> (c) To engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person, in connection with the purchase or sale of any security.

17 C.F.R. § 240.10b-5 (1982).

2. Few actions under Rule 10b-5 go to judgment. *See* Mullaney, *Theories of Measuring Damages in Security Cases and the Effects of Damages on Liability*, 46 Fordham L. Rev. 277, 277-78 (1977); Reder, *Measuring Buyers' Damages in 10b-5 Cases*, 31 Bus. Law. 1839, 1839 (1976). Nevertheless, damage measures are discussed in other contexts, including class certification orders, *see* Wolgin v. Magic Marker Corp., 82 F.R.D. 168, 176 (E.D. Pa. 1979), and approval of class action settlements, *see* Steinberg v. Carey, 470 F. Supp. 471, 476-78 (S.D.N.Y. 1979); Bonime v. Doyle, 416 F. Supp. 1372, 1382-87 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977). In any case, the damage award is limited to "actual damages." 15 U.S.C. § 78bb(a) (1976) (§ 28(a) of the Securities Exchange Act of 1934); *see* Affiliated Ute Citizens v. United States, 406 U.S. 128, 155 (1972).

3. *See* Clark v. John Lamula Investors, Inc., 583 F.2d 594, 603-04 (2d Cir. 1978); Garnatz v. Stifel, Nicolaus & Co., 559 F.2d 1357, 1360-62 (8th Cir. 1977), *cert. denied*, 435 U.S. 951 (1978); Chasins v. Smith, Barney & Co., 438 F.2d 1167, 1173 (2d Cir. 1970); Reeder v. Mastercraft Elec. Corp., 363 F. Supp. 574, 581-82 (S.D.N.Y. 1973); Chasins v. Smith, Barney & Co., 305 F. Supp. 489, 496-97 (S.D.N.Y. 1969), *aff'd*, 438 F.2d 1167 (2d Cir. 1970).

4. *See* Huddleston v. Herman & MacLean, 640 F.2d 534, 553-56 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Rolf v. Blyth, Eastman Dillon & Co., 570 F.2d 38, 49 & n.21 (2d Cir.), *cert. denied*, 439 U.S. 1039 (1978), *modified*, 637 F.2d 77, 84 (2d Cir. 1980); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 787-90 (E.D. Pa. 1981); Steinberg v. Carey, 470 F. Supp. 471, 476-78 (S.D.N.Y. 1979); Bonime v. Doyle, 416 F. Supp. 1372, 1384-86 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977). This Note adopts a definition of net economic loss that encompasses a number of damage measures and that differs slightly from the definitions employed by various courts. See *infra* notes 43-46 and accompanying text.

stock between the date of purchase and either the date of resale of the stock[5] or the date of disclosure of the fraud.[6] This is a rescissory measure of damages,[7] usually reserved for situations in which either privity[8] or a fiduciary relationship[9] exists between the plaintiff and defendant. By contrast, the net loss theory excludes from the recovery those losses unrelated to the substance of the fraud, such as those resulting from general market forces affecting the value of the stock.[10] This theory is usually applied in situations in which a fraud perpetrated upon the general public has had an impact on the market price of the stock.[11]

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5. Rolf v. Blyth, Eastman Dillon & Co., 570 F.2d 38, 49 n.21 (2d Cir.), *cert. denied*, 439 U.S. 1039 (1978), *modified*, 637 F.2d 77, 84 (2d Cir. 1980); *see* Clark v. John Lamula Investors, Inc., 583 F.2d 594, 603-04 (2d Cir. 1978); Marbury Mgm't, Inc. v. Kohn, 470 F. Supp. 509, 516 (S.D.N.Y. 1979), *aff'd in part, rev'd in part on other grounds*, 629 F.2d 705 (2d Cir.), *cert. denied*, 449 U.S. 1011 (1980); Steinberg v. Carey, 470 F. Supp. 471, 476 (S.D.N.Y. 1979).

6. At the time of disclosure, the plaintiff makes a "second investment decision" either to hold the shares or to sell them. The plaintiff is considered to have sold the stock on the date of disclosure or within a reasonable time thereafter in order to mitigate his damages. Nye v. Blyth Eastman Dillon & Co., 588 F.2d 1189, 1198-1200 (8th Cir. 1978); *see* Foster v. Financial Technology Inc., 517 F.2d 1068, 1072 (9th Cir. 1975). The term "date of disclosure" in this Note thus encompasses the actual date of disclosure or a reasonable time thereafter.

7. Rolf v. Blyth, Eastman Dillon & Co., 570 F.2d 38, 49 n.21 (2d Cir.), *cert. denied*, 439 U.S. 1039 (1978), *modified*, 637 F.2d 77, 84 (2d Cir. 1980); Koenig v. Smith, 88 F.R.D. 604, 608 (E.D.N.Y. 1980); *see* Clark v. John Lamula Investors, Inc., 583 F.2d 594, 604 (2d Cir. 1978).

8. Huddleston v. Herman & MacLean, 640 F.2d 534, 554 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Mullaney, *supra* note 2, at 285; Note, *The Measure of Damages in Rule 10b-5 Cases Involving Actively Traded Securities*, 26 Stan. L. Rev. 371, 376 (1974) [hereinafter cited as *Actively Traded Securities*].

9. Huddleston v. Herman & MacLean, 640 F.2d 534, 554 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); *see* Koenig v. Smith, 88 F.R.D. 604, 608 (E.D.N.Y. 1980); Steinberg v. Carey, 470 F. Supp. 471, 476 (S.D.N.Y. 1979); Mullaney, *supra* note 2, at 285; *Actively Traded Securities*, *supra* note 8, at 376-77.

10. *See* Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 81 (2d Cir. 1980) (court excluded losses stemming from market forces); Oleck v. Fischer, [1979 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 96,898, at 95,702-03 (S.D.N.Y. 1979) (total loss excluded as unrelated to fraud), *aff'd on other grounds*, 623 F.2d 791, 795 n.8 (2d Cir. 1980); Rubenstein v. Republic Nat'l Life Ins. Co., 74 F.R.D. 337, 346 (N.D. Tex. 1976) (damage award would eliminate "general market depreciation"); Entin v. Barg, 412 F. Supp. 508, 514 (E.D. Pa. 1976) (purchaser not held "harmless against losses due to general market declines"). *But see* Clark v. John Lamula Investors, Inc., 583 F.2d 594, 604 (2d Cir. 1978) (court declined to exclude losses resulting from general market forces).

11. Koenig v. Smith, 88 F.R.D. 604, 608 (E.D.N.Y. 1980); *see* Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 788 (E.D. Pa. 1981); Steinberg v.

Computation of damages under the gross loss theory is relatively easy—it is simply the difference between the market price on the date of purchase and the market price on the date of disclosure[12] or resale.[13] Under the net loss theory, however, the computation is somewhat complex. The difficulty arises because estimates of the value of the stock had the fraud not occurred are required to determine the damage award. These estimates are not readily available from the market place; they are hypothetical values which must be derived specifically for the litigation.[14] These estimated values should take into account the general market forces that may affect the price of stocks independently of the fraud.[15]

Many courts have rejected the gross loss theory in cases involving frauds on the market[16] because the theory does not accurately indicate

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Carey, 470 F. Supp. 471, 476 (S.D.N.Y. 1979). *But see* Reeder v. Mastercraft Elec. Corp., 363 F. Supp. 574, 581-82 (S.D.N.Y. 1973) (gross loss used for fraud on market).

12. *See* Nye v. Blyth Eastman Dillon & Co., 588 F.2d 1189, 1198 (8th Cir. 1978); Foster v. Financial Technology Inc., 517 F.2d 1068, 1072 (9th Cir. 1975). See *supra* note 6.

13. Rolf v. Blyth, Eastman Dillon & Co., 570 F.2d 38, 49 n.21 (2d Cir.), *cert. denied*, 439 U.S. 1039 (1978), *modified*, 637 F.2d 77, 84 (2d Cir. 1980); *see* Clark v. John Lamula Investors, Inc., 583 F.2d 594, 603-04 (2d Cir. 1978); Steinberg v. Carey, 470 F. Supp. 471, 476 (S.D.N.Y. 1979). See *supra* note 5.

14. *See* Elkind v. Liggett & Myers, Inc., 635 F.2d 156, 170 (2d Cir. 1980); Bonime v. Doyle, 416 F. Supp. 1372, 1384 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977). *But see* Blackie v. Barrack, 524 F.2d 891 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976). Despite the presence of a fairly complicated class action fraud, the *Blackie* court was confident that the jury would be able to "trace a graph delineating the actual value of the stock throughout the class period." *Id.* at 909 n.25. Nevertheless, the court provided no guidance for derivation of that graph. *Id.*

15. *See, e.g.*, Huddleston v. Herman & MacLean, 640 F.2d 534, 555 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Miley v. Oppenheimer & Co., 637 F.2d 318, 327-28 (5th Cir. 1981); Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 84 (2d Cir. 1980); Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1345 (9th Cir. 1976) (Sneed, J., concurring); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 788 (E.D. Pa. 1981); Bonime v. Doyle, 416 F. Supp. 1372, 1386 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977); Polin v. Conductron Corp., 411 F. Supp. 698, 702-03 (E.D. Mo. 1976), *aff'd*, 552 F.2d 797 (8th Cir.), *cert. denied*, 434 U.S. 857 (1977); Federman v. Empire Fire & Marine Ins. Co., [1975-1976 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 95,418, at 99,114 (S.D.N.Y. 1976); Black v. Riker-Maxson Corp., 401 F. Supp. 693, 700 (S.D.N.Y. 1975); Cutner v. Fried, 373 F. Supp. 4, 12 n.22 (S.D.N.Y. 1974).

16. Cases concerning fraud on an individual, such as those involving a broker and his customer, have been held to be an exception to the application of the net loss measure. See *supra* notes 8-9 and accompanying text. Nevertheless, that measure has been advocated for these situations as well. Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 716-23 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); *see*

the loss caused specifically by the fraud. Instead they have attempted to formulate methods for measuring damages which will yield awards consistent with the underlying theory of net loss—compensating the plaintiff for all losses stemming from the fraud while not making the defendant an insurer against market-related risks.[17]

Part I of this Note analyzes the net economic loss theory of damages. Two general categories of net loss awards are analyzed—those based on an out-of-pocket measure and those based on a proximate cause measure. The differences between these two categories are discussed in the context of two hypothetical frauds, one of which has its full impact on the value of the stock immediately, the other of which has a long-term impact on value because events relating to the fraud occur prior to disclosure.

Part II of this Note then analyzes various procedures presently used to measure a plaintiff's net loss and concludes that they do not accurately determine the plaintiff's net economic loss. Part III proposes alternative methods for computing damages, based upon financial theories, that will eliminate the difficulties inherent in existing methods. This Note contends that adoption of these proposed methods will yield an award that is more consistent with the goals of the net loss theory. Additionally, their adoption will allow the computation of the damage award to be made by a special master or expert,[18] leaving the issue of liability to be resolved by the trier of fact.

Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 84 (2d Cir. 1980). These cases are similar to actions against brokers for the sale of unsuitable securities in that the stocks purchased do not possess the investment characteristics desired by the plaintiff. A type of net loss award has been utilized by courts in these situations. The award to the plaintiff is the difference between the actual value of the plaintiff's holdings and the value of the plaintiff's holdings had the proper stocks been selected. Both values are measured at the date of the discovery of the fraud. *See, e.g.*, Miley v. Oppenheimer & Co., 637 F.2d 318, 328 (5th Cir. 1981); Sullivan v. Chase Inv. Servs., 79 F.R.D. 246, 262-63 (N.D. Cal. 1978). For a discussion of proposed measurement techniques applicable to these situations, see *infra* note 122.

17. *See* Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 718 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); Bonime v. Doyle, 416 F. Supp. 1372, 1383-84 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977).

As stated by Dean Prosser, the net loss measure is the "hornbook law" for fraud actions: "[I]f false statements are made in connection with the sale of corporate stock, losses due to a subsequent decline of the market, or insolvency of the corporation, brought about by business conditions or other factors in no way related to the representations, will not afford any basis for recovery." W. Prosser, Law of Torts § 110, at 732 (4th ed. 1971).

18. *See* Huddleston v. Herman & MacLean, 640 F.2d 540, 533 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Tucker v. Arthur Andersen & Co., 67 F.R.D. 468, 481 (S.D.N.Y. 1975).

I. The Net Economic Loss Theory

A. *The Rationale of Net Economic Loss*

Upon entering the securities market, an investor assumes the risks inherent in that market and must bear the losses stemming therefrom.[19] These risks exist because of unpredictable forces that affect the market in general, such as interest rates, domestic and international crises and unemployment. The net loss measure attempts to exclude from any damage award those declines in market price that are caused by general market forces and which are not related to the fraud.[20] This is based upon the belief that

> one should be held liable only for the foreseeable consequences of one's actions. Where the purchase of stock is induced through a misrepresentation, one [should be] chargeable only for consequences flowing from that statement; [and should] not thereby become an insurer of the investment, responsible for an indefinite period of time for any and all manner of unforeseen difficulties which may eventually beset the stock.[21]

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19. Huddleston v. Herman & MacLean, 640 F.2d 534, 555 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1343 (9th Cir. 1976) (Sneed, J., concurring); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 788 (E.D. Pa. 1981); *see* Bonime v. Doyle, 416 F. Supp. 1372, 1384 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977). *Contra* Garnatz v. Stifel, Nicolaus & Co., 559 F.2d 1357, 1361 (8th Cir. 1977) (fraud on individual, gross loss measure used), *cert. denied*, 435 U.S. 951 (1978); Gottreich v. San Francisco Inv. Corp., 552 F.2d 866, 867 (9th Cir. 1977) (same).

20. See *infra* notes 43-46 and accompanying text.

21. Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 718 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); *see* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1343, 1344 (9th Cir. 1976) (Sneed, J., concurring); Bonime v. Doyle, 416 F. Supp. 1372, 1384 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977).

The gross economic loss measure, by contrast, "is based upon the proposition that damages for securities fraud are determined in accordance with the extent to which false and misleading information actually harmed the complaining party." Shapiro v. Midwest Rubber Reclaiming Co., 626 F.2d 63, 69 (8th Cir. 1980), *cert. denied*, 449 U.S. 1079 (1981). Another rationale used in support of gross loss is that because the defendant's act was a precondition of the transaction, he should be accountable for the entire loss. *See* Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 710 n.3 (2d Cir.), *cert. denied*, 449 U.S. 1011 (1980). The standard for finding this precondition varies. Gross loss has been awarded when the plaintiff would not have purchased at any price, *see* Steinberg v. Carey, 470 F. Supp. 471, 476 n.19 (S.D.N.Y. 1979), or upon a more liberal standard, requiring only that the plaintiff might never have invested, *see* Barthe v. Rizzo, 384 F. Supp. 1063, 1070 (S.D.N.Y. 1974). Finally, the gross loss measure is based on the theory that "the original fraud continues to be operative until such time as it is discovered by the plaintiff and he has an opportunity to dispose of his securities." 1 F. Harper & F. James, Law of Torts § 7.15, at 600 (1956).

Collateral reasons also require the use of the net loss measure as opposed to the gross loss measure. One danger of using the gross loss measure is that the damage award may have no relationship to the wrong committed, so that a relatively minor offense can result in large damage awards.[22] This danger does not exist when the net loss measure is used.

In addition, the net loss measure is preferable because it makes the remedy for the implied cause of action under Rule 10b-5 comparable to the statutory remedy provided by section 11 of the Securities Act of 1933[23] for similar offenses.[24] Section 11 contains a causation defense that specifically excludes from the damage award all losses that the defendant can demonstrate were not caused by his wrongful conduct.[25] Application of the gross loss measure to a Rule 10b-5 action can result in a large damage award that would have been unavailable had the same action been brought under section 11. Because the same conduct may give rise to liability under both section 11 and Rule 10b-5,[26] the remedies provided under each should be similar. A more liberal rule of damages in Rule 10b-5 actions, however, would encour-

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22. Mullaney, *supra* note 2, at 278; *see* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1342 (9th Cir. 1976) (Sneed, J., concurring). It would be possible for a relatively minor offense to result in a large damage award simply because the fraud occurred during a declining market and for a major fraud to result in little or no liability because it occurred during a rising market. In the latter situation, companies would be able to reduce liability simply by delaying disclosure until they felt that the market had peaked. *See* Madigan, Inc. v. Goodman, 357 F. Supp. 1331, 1334 n.7 (N.D. Ill. 1973), *aff'd in part, rev'd in part on other grounds*, 498 F.2d 233 (7th Cir. 1974).

23. 15 U.S.C. § 77k (1976).

24. *See* 5B A. Jacobs, The Impact of Rule 10b-5, § 260.03[f][iii], at 11–118 (1980). *Compare* Rule 10b-5, 17 C.F.R. § 240.10b-5 (1982) (relates to any fraud in connection with a security) *with* the Securities Act of 1933, § 11, 15 U.S.C. § 77k(e) (1976) (fraud in a registration statement).

25. 15 U.S.C. § 77k(e) (1976). Section 11 provides in pertinent part:

> [I]f the defendant proves that any portion or all of such damages represents other than the depreciation in value of such security resulting from such part of the registration statement, with repect to which his liability is asserted, not being true or omitting to state a material fact required to be stated therein or necessary to make the statements therein not misleading, such portion of or all such damages shall not be recoverable.

Id. At least one court has specifically used the § 11 definition of causation in a Rule 10b-5 action. Entin v. Barg, 412 F. Supp. 508, 514 (E.D. Pa. 1976). The ALI Federal Securities Code takes this same approach to a causation defense for misrepresentations or omissions presently actionable under Rule 10b-5. *See* Federal Securities Code § 202(19) comment 6(a) (1981).

26. Herman & MacLean v. Huddleston, 103 S. Ct. 683 (1983); *see* Federman v. Empire Fire & Marine Ins. Co., [1975-1976 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 95,418, at 99,113 (S.D.N.Y. 1976); Reder, *supra* note 2, at 1839-40.

age the use of the implied remedy to circumvent the express limitations set forth by Congress.[27]

Finally, the net loss award is preferred because it allows the plaintiff to recover his losses due to the fraud regardless of subsequent changes in market price. A plaintiff may thus sell his stock at a profit and still be entitled to recovery, a result not possible under the gross loss measure.[28] Just as a plaintiff may not recover losses not caused by the fraud, a defendant should not be afforded a reduction in his liability simply because his fraud occurred during a rising market.[29]

B. *Net Loss Measures*

Net loss may be measured in one of two ways—either by an out-of-pocket measure[30] or by a proximate cause measure.[31] For plaintiffs

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27. Reder, *supra* note 2, at 1839-40.

28. *See* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1346 (9th Cir. 1976) (Sneed, J., concurring); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 789-90 (E.D. Pa. 1981); Comment, *Remedies for Private Parties Under Rule 10b-5*, 10 B.C. Indus. & Com. L. Rev. 337, 349-50 (1969) [hereinafter cited as *Remedies for Private Parties*].

29. Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1346 n.10 (9th Cir. 1976) (Sneed, J., concurring).

30. *See, e.g.*, Huddleston v. Herman & MacLean, 640 F.2d 534, 555 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 788 (E.D. Pa. 1981).

The out-of-pocket measure is best applied using the "value-line" framework developed by Judge Sneed in Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1341-46 (9th Cir. 1976) (Sneed, J., concurring). The "value-line" method requires the establishment, for the period between the date of the fraud and the date of disclosure, of a "price line" and a "value line" reflecting the market price and true value of the stock for each day. The damage award under this method is the difference between the price-value spread on the date of purchase and the spread on the date of resale or disclosure. This method resolves several of the problems arising from the use of the rescissory measure. First, it provides a proper computation of damages for those plaintiffs who have sold prior to disclosure. Additionally, because this method does not use only price differentials, it resolves another problem that exists with the rescissory measure—preclusion of recovery when the resale price or the price on the date of disclosure exceeds the purchase price. *Id.* at 1345-46 (Sneed, J., concurring). This method has been adopted by a number of courts in class actions. *See, e.g.*, Huddleston v. Herman & MacLean, 640 F.2d 534, 555-56 & n.36 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 788-89 (E.D. Pa. 1981); *In re* LTV Sec. Litig., 88 F.R.D. 134, 148-49 (N.D. Tex. 1980); Wolgin v. Magic Marker Corp., 82 F.R.D. 168, 176 (E.D. Pa. 1979).

31. *See, e.g.*, Piper v. Chris-Craft Indus., 430 U.S. 1, 51 (1977) (Blackmun, J., concurring); Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 719-20 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 787 (E.D. Pa. 1981); Miller v. Schweickart, 413 F. Supp. 1062, 1068 (S.D.N.Y. 1976).

While Rule 10b-5 "does not explicitly require a showing of causation," Project, *Recent Developments in Securities Law: Causes of Action Under Rule 10b-5*, 26

Buffalo L. Rev. 503, 531 (1977), the courts have implied such an element, *id.; see* Schlick v. Penn-Dixie Cement Corp., 507 F.2d 374, 380-81 (2d Cir. 1974), *cert. denied*, 421 U.S. 976 (1975); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 787 (E.D. Pa. 1981). Causation arises in two different contexts—proving a cause of action and obtaining damages. Reder, *supra* note 2, at 1847. This has been translated into two distinct elements: reliance and causation of damages. Huddleston v. Herman & MacLean, 640 F.2d 534, 549 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Frankel v. Wyllie & Thornhill, Inc., 537 F. Supp. 730, 738 (W.D. Va. 1982). The causal relationship between the defendant's acts and the plaintiff's loss that must be demonstrated to prove reliance is different from the causal relationship that must be shown to obtain damages. *See* 5B A. Jacobs, *supra* note 24, § 260.03[f][ii], at 11-111 to 11-112; 5A A. Jacobs, Litigation and Practice Under Rule 10b-5, § 64.02, at 3-328 (2d ed. 1982).

The reliance element may be judged in general terms by whether the plaintiff would have been influenced to act differently had he known the undisclosed or misrepresented information. *See* List v. Fashion Park, Inc., 340 F.2d 457, 462-64 (2d Cir.), *cert. denied*, 382 U.S. 811 (1965). This has been labeled "transaction causation." Schlick v. Penn-Dixie Cement Corp., 507 F.2d 374, 380 & n.11 (2d Cir. 1974), *cert. denied*, 421 U.S. 976 (1975); Crane, *An Analysis of Causation Under Rule 10b-5*, 9 Sec. Reg. L.J. 99, 101 (1981). Proof of reliance determines if the fraud was the "cause in fact" of the transaction. *See* Harnett v. Ryan Homes, Inc., 496 F.2d 832, 836 n.12 (3d Cir. 1974); Werfel v. Kramarsky, 61 F.R.D. 674, 681 (S.D.N.Y. 1974). Reliance may be presumed in certain situations, such as in omission cases, if the omission involved a material fact. *See* Affiliated Ute Citizens v. United States, 406 U.S. 128, 153-54 (1972). Under the "fraud on the market" theory accepted in some circuits, plaintiffs are presumed to have relied on the assumption that the market price has been validly set. *See* Chris-Craft Indus. v. Piper Aircraft Corp., 480 F.2d 341, 373 (2d Cir.), *cert. denied*, 414 U.S. 910 (1973); Note, *The Reliance Requirement in Private Actions Under SEC Rule 10b-5*, 88 Harv. L. Rev. 584, 592-96 (1975). Once the reliance element is satisfied, the plaintiff must then prove that his loss was caused by the fraud. Huddleston v. Herman & MacLean, 640 F.2d 534, 549 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983). This type of causation has been labeled "loss causation." Schlick v. Penn-Dixie Cement Corp., 507 F.2d 374, 380 (2d Cir. 1974), *cert. denied*, 421 U.S. 976 (1975); Crane, *supra*, at 120.

There are two lines of authority regarding causation of damages. *See* Federal Securities Code § 202(19) comment 3(c) (1981). One equates "causation in fact" and "loss causation," *see* Garnatz v. Stifel, Nicolaus & Co., 559 F.2d 1357, 1360-61 (8th Cir. 1977), *cert. denied*, 435 U.S. 951 (1978); Weitzman v. Stein, 436 F. Supp. 895, 904 (S.D.N.Y. 1977), and another employs a proximate cause test for the damage award, *see* Herpich v. Wallace, 430 F.2d 792, 810 (5th Cir. 1970); Miller v. Schweickart, 413 F. Supp. 1062, 1067 (S.D.N.Y. 1976). Courts that accept "causation in fact" as proof of loss causation are in effect combining the reliance and damage elements of the cause of action and awarding gross loss. All that must be shown to recover under this theory is proof of transaction causation and a change in the price of the stock following the transaction; the loss and the fraud need not be related. *See* Garnatz v. Stifel, Nicolaus & Co., 559 F.2d 1357, 1360-61 (8th Cir. 1974), *cert. denied*, 435 U.S. 951 (1975); Chasins v. Smith, Barney & Co., 438 F.2d 1167, 1172-73 (2d Cir. 1970); Weitzman v. Stein, 436 F. Supp. 895, 904 (S.D.N.Y. 1977). This measure of damages has been criticized by judges and commentators. *See, e.g.*, Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 719-20 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1342 (9th Cir. 1976) (Sneed, J., concurring); Mullaney, *supra* note 2, at 287-88; Painter, *Inside Information: Growing Pains for the Development of Federal Corporation Law Under Rule 10b-5*, 65 Colum. L. Rev. 1361, 1370 (1965).

who hold their stock until disclosure of the fraud, the out-of-pocket award is the difference between the price paid and the true value on the date of purchase.[32] Plaintiffs who sell prior to disclosure receive the same award less the difference between price received and actual value upon resale—the portion of the loss recovered from the market.[33] A proximate cause award attempts to compensate the plaintiff

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Courts adopting the traditional proximate cause test for proving damages in fraud actions set a different standard of proof for reliance, and award damages only for losses caused by the fraud—the plaintiff's net loss. *See* Huddleston v. Herman & MacLean, 640 F.2d 534, 549 (5th Cir. 1981) (out-of-pocket measure awarded), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Oleck v. Fischer, [1979 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 96,898, at 95,702-03 (S.D.N.Y. 1979) (no damages awarded), *aff'd on other grounds*, 623 F.2d 791, 795 n.8 (2d Cir. 1980); Chelsea Assocs. v. Rapanos, 376 F. Supp. 929, 941-42 (E.D. Mich. 1974) (same), *aff'd*, 527 F.2d 1266 (6th Cir. 1975). This net loss award has been criticized. *See* Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 710 n.3 (2d Cir.), *cert. denied*, 449 U.S. 1011 (1980).

32. Estate Counseling Serv. v. Merrill Lynch, Pierce, Fenner & Smith, Inc., 303 F.2d 527, 533 (10th Cir. 1962); *Actively Traded Securities*, *supra* note 8, at 383; *see* Affiliated Ute Citizens v. United States, 406 U.S. 128, 155 (1972). The actual computation is the price-value spread on the date of purchase less that spread on the date of disclosure. This latter spread, however, is assumed to be zero. See *infra* note 49.

The market price and the true value of a stock are distinguishable. *See* Beecher v. Able, 435 F. Supp. 397, 404-05 (S.D.N.Y. 1977). Price will equal value when all relevant information relating to a stock is known by the public. *See* Klapmeier v. Telecheck Int'l, Inc., 482 F.2d 247, 252 (8th Cir. 1973). When this is not the case, the price of the stock will diverge from the value of the stock. This assumes an efficient market: "In a market that prices securities efficiently, prices at any point in time are said to 'fully reflect' all available information that is relevant to the determination of values." S. Tinic & R. West, Investing in Securities: An Efficient Markets Approach § 5.2, at 94 (1979).

The three forms of market efficiency—weak, semistrong and strong—each represents a different definition of what comprises the set of information that is fully reflected in the price. The weak form includes all information about past market behavior. The semistrong form includes information about past market behavior as well as all public information about the economy, industries and information released by the company itself. The strong form includes all of this information plus information that may not be publicly available. *Id.* § 5.5, at 98-99; *see* Barry, *The Economics of Outside Information and Rule 10b-5*, 129 U. Pa. L. Rev. 1307, 1330-54 (1981). The damage measurement procedures proposed herein incorporate the semistrong form of efficiency, which has been supported by financial research. *See* S. Tinic & R. West, *supra*, § 18.2, at 498-508; Verecchia, *On the Theory of Market Information Efficiency*, 1 J. Acct. & Econ. 77, 77 (1979). See *infra* note 76. *Contra* Barry, *supra*, at 1342 (semistrong form criticized). The existence of the strong form has been questioned in financial research. *See* S. Tinic & R. West, *supra*, § 18.2, at 509-12. Additionally, acceptance of the strong form would preclude any recovery because, by definition, the market price would reflect the true information even though it was not disclosed or had been misrepresented by the company.

33. Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1344-46 (9th Cir. 1976) (Sneed, J., concurring). See *supra* note 30.

for losses sustained to the extent that the substance of the misrepresentation or omission "touches upon the reasons for the investment's decline in value."[34] This may require that damages be computed using price and value amounts on dates subsequent to the purchase date, when events relating to the fraud have caused a decline in value.[35]

Courts fail to distinguish, however, between these two measures of net loss, stating that the out-of-pocket measure determines those losses that are proximately caused by the fraud.[36] This will not always be an accurate characterization of the effect of the measures because they may sometimes produce different damage estimates. Differences may occur when fraud-related events have an impact on the value of the stock prior to disclosure. While the effect of one type of fraud is fully reflected in the value of the stock on the initial date of the fraud,[37] that of another type of fraud is not totally reflected in the value of the stock until some time later.[38]

Two hypothetical examples illustrate this proposition.[39] Assume that W purchases the stock of a chemical company which three years earlier had reported that it would have to spend $100 million over the next ten years to comply with environmental regulations. At the time

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34. Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 718 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); *accord* Chemetron Corp. v. Business Funds, Inc., 682 F.2d 1149, 1162 (5th Cir. 1982); Huddleston v. Herman & MacLean, 640 F.2d 534, 549 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 787 (E.D. Pa. 1981); *see* Oleck v. Fischer, [1979 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 96,898, at 95,702-03 (S.D.N.Y. 1979), *aff'd on other grounds*, 623 F.2d 791, 795 n.8 (2d Cir. 1980); Sargent v. Genesco, Inc., 75 F.R.D. 79, 84-85 (M.D. Fla. 1977); Federman v. Empire Fire & Marine Ins. Co., [1975-1976 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 95,418, at 99,114 (S.D.N.Y. 1976); Tucker v. Arthur Anderson & Co., 67 F.R.D. 468, 481 (S.D.N.Y. 1975).

35. See *infra* text accompanying notes 41-42.

36. *See* Huddleston v. Herman & MacLean, 640 F.2d 534, 555 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 787-88 (E.D. Pa. 1981).

37. Although the fraud itself may have its full impact on the day it is committed, in subsequent days general market forces will affect the stock as it is perceived due to the fraud, rather than affecting it as it would have been perceived had the fraud not been committed. *See* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1345 & n.7 (9th Cir. 1976) (Sneed, J., concurring); *In re* LTV Sec. Litig., 88 F.R.D. 134, 149 (N.D. Tex. 1980). See *infra* note 77.

38. *See, e.g.*, Hanson v. Ford Motor Co., 278 F.2d 586, 594-98 (8th Cir. 1960) (fraudulent misrepresentation as to profitability of business); Green v. Jonhop, Inc., 358 F. Supp. 413, 418 (D. Or. 1973) (misrepresentation relating to earnings predictions); Hotaling v. A.B. Leach & Co., 247 N.Y. 84, 87-94, 159 N.E. 870, 871-73 (1928) (misrepresentations with respect to safety of bonds).

39. The first example was presented in Fischel, *Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities*, 38 Bus. Law. 1, 1 (1982). The second example was developed for the purposes of this Note.

of W's purchase, the stock is selling for $30 per share on the stock exchange. One month later the company announces that instead of the original $100 million to comply with these regulations it expects to spend $1 billion, an amount which it was fully aware of at the time of the original report. The stock then falls to $20 per share. In this situation, the fraud had its full effect on the value of the stock on the date of purchase, because the company's misrepresentation resulted in a one-time artificial inflation in the value of the stock and no related events occurred prior to disclosure. In this instance, the out-of-pocket and proximate cause measures will be equivalent[40] because the full effect of the fraud can be measured at the date of purchase. Under each measure, the plaintiff recovers $10 per share. For purposes of this Note, this is labeled a Type I fraud.

By contrast, the two measures can yield different awards when the full effect of the fraud occurs some time after the date of purchase. Assume for example that an oil company owning one oil field obtains, but does not release, information that the probability of striking oil is not the 50% it had originally estimated and released to the public during the past year, but rather only 20%. The stock price on the date that the company receives this new estimate is $30 per share at which time X and Z purchase stock. Three months later, X sells his stock. Six months later, while Z still owns his stock, all of the wells on the field come up dry and the stock price falls to zero. Assume also that had the later estimate been released when it became available, the stock price would have fallen to $15, reflecting the decreased probability of a successful strike. The price would not have fallen to zero, however, as there would still have been a chance for a successful well.

The appropriate award for X is an out-of-pocket measure. An award based on proximate cause would be inaccurate because the event further affecting the value of the stock—the ultimate failure of the wells—did not occur during the period of X's ownership.[41] His actual recovery is dependent upon the effect of market forces on the true value of the stock during this period. Thus, with respect to X this is a Type I fraud. For Z, however, who held the stock beyond the occurrence of the event and until disclosure, the out-of-pocket award would be the difference between the true value of the stock on the

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40. The out-of-pocket measure and the proximate cause measure will yield identical awards only in the absence of market forces. In the presence of market forces, the awards yielded by the two measures will differ because the measurement of the spread between price and value is done on different days. The out-of-pocket measure determines the spread on the date of purchase and the proximate cause measure determines the spread on the date of disclosure. In the absence of market forces, the gross loss measure will yield the same award as the two net loss measures because the assumption underlying a date of disclosure valuation is the absence of market forces. See *infra* note 86 and accompanying text.

41. See *supra* notes 32-33 and accompanying text.

date of the purchase and the price paid—$15 per share. A proximate cause measure would properly award to Z his total loss, in this instance $30 per share, because the substance of the fraud "touched upon" the event resulting in the total decline.[42] This fraud relates to the probability of a future event occurring. If this future event becomes a certainty prior to disclosure of the fraud, the total decline in the value of the stock due to this change in the underlying value of the company relating to the substance of the fraud should be included in the damage award. This situation is labeled a Type II fraud for purposes of this Note.

Courts awarding damages in Rule 10b-5 actions have used numerous measures to do so, and have characterized these awards as based upon "proximate cause,"[43] "out-of-pocket,"[44] or "net economic

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42. In a situation similar to the oil company example, the court suggested awarding to a plaintiff holding partnership shares at disclosure the difference between the price paid and the price of the shares had the truth concerning the investment been known. Sharp v. Coopers & Lybrand, 649 F.2d 175, 191 (3d Cir. 1981), *cert. denied*, 455 U.S. 938 (1982). This is not consistent with the principle of proximate cause, which requires the plaintiff be awarded all losses that are a natural and proximate consequence of the act complained of. *See* Hanson v. Ford Motor Co., 278 F.2d 586, 592, 594-95 (8th Cir. 1960); Hotaling v. A.B. Leach & Co., 247 N.Y. 84, 87-94, 159 N.E. 870, 871-73 (1928).

The proximate cause measure is presently employed by courts in actions against brokers for fraud against an individual. These courts award the difference between the price of the stock and how the stock "would have fared in the absence of . . . such misconduct." Miley v. Oppenheimer & Co., 637 F.2d 318, 328 (5th Cir. 1981); *see* Arrington v. Merrill Lynch, Pierce, Fenner & Smith, Inc., 651 F.2d 615, 621 (9th Cir. 1981) (action against broker for inducing customer to take on excess risk); Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 84-85 (2d Cir. 1980) (action against broker for mismanagement of portfolio); Sullivan v. Chase Inv. Servs., 79 F.R.D. 246, 262-63 (N.D. Cal. 1978) (action brought under Investment Advisors Act of 1940 in which court constructed index of suitable securities to compare to actual holdings); *cf.* Feit v. Leasco Data Processing Equip. Corp., 332 F. Supp. 544, 586-87 (E.D.N.Y. 1971) (action under § 11 of Securities Act of 1933 for misrepresentation in registration statement). See *supra* note 16. It has also been suggested that a post-transaction valuation, limiting a defendant's liability to plaintiffs owning stock at disclosure to the loss in value directly related to the fraud, "is no more than a disguised date-of-transaction test." Crane, *supra* note 31, at 135-36. This may be the result in a Type I fraud, see *supra* notes 39-40 and accompanying text, but not in frauds in which an event relating to the fraud has caused a change in value following the transaction.

43. *See, e.g.*, Huddleston v. Herman & MacLean, 640 F.2d 534, 555 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 777-78 (E.D. Pa. 1981). The characterization, however, does not always match the nature of the award. See *supra* note 36 and accompanying text.

44. *See, e.g.*, Nickels v. Koehler Mgm't Corp., 541 F.2d 611, 617-18 (6th Cir. 1976), *cert. denied*, 429 U.S. 1074 (1977); Arber v. Essex Wire Corp., 490 F.2d 414, 422 (6th Cir.), *cert. denied*, 419 U.S. 830 (1974); Tucker v. Arthur Anderson & Co., 67 F.R.D. 468, 482 (S.D.N.Y. 1975).

loss."[45] Regardless of the characterization, however, the awards constitute attempts by courts to reimburse the plaintiff for net losses caused by the defendant's fraud. The definition of net economic loss adopted in this Note encompasses all of these measures. Net economic loss is defined as that loss stemming from the substance of the fraud, not including those losses arising from non-fraud related factors. This definition is consistent with the purpose of these measures—"to calculate the amount of damages based upon [those] losses that are truly attributable to the fraud."[46]

II. Net Loss Measurement Procedures

A variety of procedures have been used or suggested for the valuation of stocks under the net loss measure when the market price fails to reflect true value. Analysis of these methods, however, reveals flaws which prevent them from yielding a true net loss.

A. *Valuation Using Basic Financial Theories*

1. Intrinsic Valuation

A basic method of valuing a company's stock on the date of purchase for purposes of an out-of-pocket award is intrinsic valuation.[47] A general definition of intrinsic value is "that value which is justified by the facts, e.g., assets, earnings, dividends, definite prospects, including the factor of management."[48] In other words, arriving at intrinsic value at the time of purchase essentially involves a general analysis of the company.[49] The estimate of value may be stated either as an

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45. *E.g.*, Clark v. John Lamula Investors, Inc., 583 F.2d 594, 604 (2d Cir. 1978); Marbury Mgm't, Inc. v. Kohn, 470 F. Supp. 509, 516 (S.D.N.Y. 1979), *aff'd in part, rev'd in part on other grounds*, 629 F.2d 705 (2d Cir.), *cert. denied*, 449 U.S. 1011 (1980); *see* Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 84 (2d Cir. 1980).

46. Marbury Mgm't, Inc. v. Kohn, 470 F. Supp. 509, 516 n.13 (S.D.N.Y. 1979), *aff'd in part, rev'd in part on other grounds*, 629 F.2d 705 (2d Cir.), *cert. denied*, 449 U.S. 1011 (1980); *see* Huddleston v. Herman & MacLean, 640 F.2d 534, 555 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Rolf v. Blyth, Eastman Dillon & Co., 570 F.2d 38, 49 (2d Cir.), *cert. denied*, 439 U.S. 1039 (1978), *modified*, 637 F.2d 77, 84 (2d Cir. 1980).

47. *See* Sirota v. Solitron Devices, Inc., 673 F.2d 566, 576-77 (2d Cir.), *cert. denied*, 103 S. Ct. 86 (1982); Chris-Craft Indus. v. Piper Aircraft Corp., 384 F. Supp. 507, 515-17 (S.D.N.Y. 1974), *aff'd in part, rev'd in part*, 516 F.2d 172 (2d Cir. 1975), *rev'd*, 430 U.S. 1 (1977); Simon v. New Haven Bd. & Carton Co., 393 F. Supp. 139, 144-50 (D. Conn. 1974), *aff'd*, 516 F.2d 303 (2d Cir. 1975); Kohler v. Kohler Co., 208 F. Supp. 808, 826 (E.D. Wis. 1962), *aff'd*, 319 F.2d 634 (7th Cir. 1963).

48. B. Graham, D. Dodd, S. Cottle, Security Analysis: Principles and Techniques 28 (4th ed. 1962).

49. This type of technique is used to value stocks for estate and gift tax purposes. *See* Rev. Rul. 59-60, 1959-1 C.B. 237. The Revenue Ruling outlines an approach to

estimate of the value itself during a discrete time period,[50] or as a percentage of the market price during that period.[51]

The intrinsic method, however, is both inaccurate and subjective.[52] Because the estimate is based upon a large number of variables, many of which cannot be measured accurately, a precise determination of

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valuation that bases the estimate of value on "all the relevant facts, . . . elements of common sense, informed judgement and reasonableness." *Id.* at 238. The ruling lists and explains some of the factors that may be considered in making the valuation. *Id.* at 238-42.

The Treasury Regulations that relate to this Revenue Ruling outline a procedure to estimate stock value which is based upon market prices rather than intrinsic valuation. 26 C.F.R. § 20.2031-2 (1982). This estimate is a weighted average computed using the market prices of the stock on the closest dates before and after the transaction which were not affected by the fraud. These market prices reflect the true value of the security on that date. *Id.* An example from the regulations clarifies the procedure:

> Assume that sales of X Company common stock nearest the valuation date (Friday, June 15) occurred two trading days before (Wednesday, June 13) and three trading days after (Wednesday, June 20) and on these days the mean sale prices per share were $10 and $15, respectively. The price of $12 is taken as representing the fair market value of a share of X Company common stock as of the valuation date
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> $$[(3 \times 10) + (2 \times 15)]/5.$$

Id. § 20.2031-2(b)(3).

An approach similar to that of the Treasury Regulations was adopted by the plaintiffs in Elkind v. Liggett & Myers, Inc., 472 F. Supp. 123 (S.D.N.Y. 1978), *aff'd in part, rev'd in part*, 635 F.2d 156 (2d Cir. 1980), in which the expert witness constructed a linear "value-line" for the time period between a date prior to the fraud and the date of disclosure. *Id.* at 130-31; Memorandum for Plaintiff, exhibits 148 & 152, Elkind v. Liggett & Myers, Inc., 472 F. Supp. 123, 131 (S.D.N.Y. 1978) (exhibits later found to be relevant only to a previously dismissed claim, court therefore disregarded). The approach suggested by the plaintiffs is theoretically incorrect. The behavior of stocks is not linear; daily price fluctuations are somewhat random. *See generally* Kuehner, *Efficient Markets and Random Walk*, in Financial Analyst's Handbook 1226, 1234-58 (S. Levine ed. 1975). In order to be accurate, the "value-line" should reflect these fluctuations. Furthermore, the "value-line" theory suggested by the plaintiffs fails to recognize the daily shifts in the market and assumes a gradual impact of an immediate and total disclosure on the value of the stock. But the market, in fact, will impute the truth into the price of the stock almost immediately. *See* Aharony & Swary, *Quarterly Dividend and Earnings Announcements and Stockholders' Returns: An Empirical Analysis*, 35 J. Fin. 1, 6 (1980); Hillmer & Yu, *The Market Speed of Adjustment to New Information*, 7 J. Fin. Econ. 321, 338 (1979). *But see* Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. Fin. 383, 414-15 (1970) (market may take up to four days to adjust to new information).

50. *See* Kohler v. Kohler Co., 208 F. Supp. 808, 826 (E.D. Wis. 1962), *aff'd*, 319 F.2d 634 (7th Cir. 1963).

51. *See* Sirota v. Solitron Devices, Inc., 673 F.2d 566, 576-77 (2d Cir.), *cert. denied*, 103 S. Ct. 86 (1982).

52. *See* Kohler v. Kohler Co., 208 F. Supp. 808, 826 (E.D. Wis. 1962), *aff'd*, 319 F.2d 634 (7th Cir. 1963); F.H. O'Neal & J. Derwin, Expulsion or Oppression of Business Associates—"Squeeze-Outs" in Small Enterprises § 2.16, at 35 (1961).

value is almost impossible.[53] In addition, estimates of the intrinsic value usually are made for long, discrete periods, and consequently do not reflect the daily fluctuations in value that most stocks experience during those periods.[54] This problem is compounded in class actions, in which large numbers of plaintiffs will have purchased the stock over a long period of time. In computing the award, the class period may be divided into several of these discrete periods of value estimation.[55] As a result, class members who are involved in transactions occurring only one day apart, and who pay the same price for stock having virtually the same value on both days, may receive drastically different damage awards because they fortuitously fall into different periods of value estimation.[56]

On the other hand, measurement of value in terms of percentage of the market price appears to take into account day-to-day fluctuations because the estimate of value fluctuates along with the market price. Fluctuating estimates of value, however, are the result of market forces affecting the company as it is perceived due to the fraud, rather than the result of those forces as they would have affected the company had all the relevant facts been disclosed. The fluctuations in the perceived value thus fail to represent changes in the true value. Furthermore, the percentage of market price estimate is as speculative as the direct estimate.[57] Finally, estimates of percentage of market value are also for discrete periods of time,[58] so that estimates of value, and thus damage awards, may change significantly from one period to the next as the percentage estimate changes.[59]

2. Projected Earnings and Dividends

The intrinsic valuation may be refined by basing the valuation upon the projected stream of earnings or dividends as estimated at the

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53. *See* Gottlieb v. Sandia Am. Corp., 304 F. Supp. 980, 990 (E.D. Pa. 1969), *aff'd in part, rev'd in part on other grounds*, 452 F.2d 510 (3d Cir.), *cert. denied*, 404 U.S. 938 (1971); *Remedies for Private Parties*, *supra* note 28, at 341.

54. Hagaman & Jensen, *Investment Value and Security Analysis*, 33 Fin. Analysts J. 63, 64 (Mar.-Apr. 1977).

55. *See* Sirota v. Solitron Devices, Inc., 673 F.2d 566, 577 (2d Cir.), *cert. denied*, 103 S. Ct. 86 (1982).

56. *Cf. id.* at 576-77 (disparate results using percentage of market price as estimate). See *infra* note 59.

57. The estimate based on percentage of market price is simply another way of expressing the intrinsic value of the company. It is based upon the same factors as a direct statement of value. See *supra* notes 48-50 and accompanying text.

58. Sirota v. Solitron Devices, Inc., 673 F.2d 566, 576-77 (2d Cir.), *cert. denied*, 103 S. Ct. 86 (1982).

59. *Id.* Two of the valuation periods in *Sirota* were May 5, 1967–June 5, 1968 and June 6, 1968–May 22, 1969. The jury found that the price was inflated 33% during the first period and 54.2% during the second period. *Id.* The closing price on June 5, 1968 was $45.25 per share, and on June 6, 1968 was $46.875 per share. ISL Daily Stock Price Index, American Stock Exchange 194 (Apr.-June 1968). The dam-

time of purchase.[60] These projections are made using a variety of techniques, including probabilistic forecasting, growth models and computer models.[61] They are then discounted to the then present value using an appropriate capitalization rate to derive an estimated value of the stock for various discrete periods during the fraud.[62]

A problem with this method is that both the estimate of future earnings and the capitalization rate are speculative.[63] Actual earnings figures for the capitalization period cannot be used because the valuation is to be made from the perspective of the date of purchase, when these future earnings were uncertain.[64] Additionally, because estimates of earnings and dividends generally do not vary significantly from day to day during these discrete periods, the estimate of value will remain constant.[65] The problems that inhere in the estimates with respect to intrinsic valuation thus apply as well to this type of valuation.[66]

3. Price/Earnings Ratios

Another method to estimate value utilizing earnings involves the use of a price/earnings (P/E) ratio.[67] This value is the price per share of

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age award for a plaintiff purchasing stock on June 5 would thus be $15.08 per share (33% of market price). The damage award for a plaintiff purchasing on June 6 would be $25.41 per share (54.2% of market price). 673 F.2d at 576-77.

60. Chris-Craft Indus. v. Piper Aircraft Corp., 384 F. Supp. 507, 515-16 (S.D.N.Y. 1974), *aff'd in part, rev'd in part*, 516 F.2d 172 (2d Cir. 1975), *rev'd*, 430 U.S. 1 (1977); Simon v. New Haven & Carton Co., 393 F. Supp. 139, 144-50 (D. Conn. 1974), *aff'd*, 516 F.2d 303 (2d Cir. 1975); *see* 5B A. Jacobs, *supra* note 24, § 260.03[*i*][iv], at 11-168; W. Sharpe, Investments 366-71 (2d ed. 1981); *cf.* Note, *Developments in the Law—Damages*, 61 Harv. L. Rev. 113, 125 & n.122 (1947) (discussing capitalization of the earning power of a sunken barge to estimate its value).

61. Cohen, *Analysis of Common Stock*, in Financial Analyst's Handbook 134, 167 (S. Levine ed. 1975).

62. Simon v. New Haven Bd. & Carton Co., 393 F. Supp. 139, 148-49 (D. Conn. 1974), *aff'd*, 516 F.2d 303 (2d Cir. 1975); F. Amling, Investments 196-98 (4th ed. 1978); D. Bellemore, H. Phillips & J. Ritchie, Investment Analysis and Portfolio Selection: An Integrated Approach 110-15 (1979); Hagaman & Jensen, *supra* note 54, at 64; Note, *Measurement of Damages in Private Actions Under Rule 10b-5*, 1968 Wash. U.L.Q. 165, 173 & n.46 [hereinafter cited as *Measurement of Damages*]. The discounted dividends will produce a direct estimate of value, but the discounted earnings must be multiplied by an appropriate price/earnings ratio. For a discussion of these ratios, see *infra* notes 67-72 and accompanying text.

63. *See* Brudney, *Efficient Markets and Fair Values in Parent Subsidiary Mergers*, 4 J. Corp. L. 63, 76-77 (1978) (earnings estimates and capitalization rate); *Measurement of Damages, supra* note 62, at 173-74 (earnings estimates). Advanced techniques are avaliable to estimate earnings. *See* Cohen, *supra* note 61, at 167-71.

64. *See* Sharp v. Coopers & Lybrand, 649 F.2d 175, 190-91 (3d Cir. 1981), *cert. denied*, 455 U.S. 938 (1982); 5B A. Jacobs, *supra* note 24, § 260.03[*i*][i], at 11-159.

65. *See* F. Amling, *supra* note 62, at 195, 387.

66. See *supra* notes 57-59 and accompanying text.

stock divided by the earnings per share of the company. The ratio for the period of the fraud is estimated by examining the company's historical P/E ratio as well as the current P/E ratios of similar companies.[68] The earnings per share during the period of the fraud are then multiplied by the ratio to derive the estimated value.[69]

This method has a number of problems. First, although it eliminates uncertainty with respect to future earnings, the estimated P/E ratio is speculative, as is demonstrated by the disagreements among experts as to its value.[70] In addition, the true ratio fluctuates daily as prices change, while the earnings figures in the denominator of the ratio remain constant.[71] These daily fluctuations are not reflected by the P/E estimates, which are fixed for extended periods.[72] Finally, because the actual earnings figures will be available for discrete periods of time only, artificial distinctions will again be made between plaintiffs perhaps only one day apart in their purchases.

B. *Price Change on the Date of Disclosure*

An additional attempt to measure the effect of the fraud on the price of the stock involves using the change in the price of the stock on the date that the fraud was disclosed. The value obtained is used as an estimate of the spread between the distorted market price and the true value of the stock over the period of time prior to disclosure.[73] This method assumes that the price movement on the date of disclosure is an adjustment by the market to reflect the new information.[74] The

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67. *See, e.g.*, Holmes v. Bateson, 583 F.2d 542, 562-63 (1st Cir. 1978); Chris-Craft Indus. v. Piper Aircraft Corp., 384 F. Supp. 507, 515 (S.D.N.Y. 1974), *aff'd in part, rev'd in part*, 516 F.2d 172 (2d Cir. 1975), *rev'd*, 430 U.S. 1 (1977); Simon v. New Haven Bd. & Carton Co., 393 F. Supp. 139, 144-48 (D. Conn. 1974), *aff'd*, 516 F.2d 303 (2d Cir. 1975).

68. *See* Chris-Craft Indus. v. Piper Aircraft Corp., 384 F. Supp. 507, 517 (S.D.N.Y. 1974), *aff'd in part, rev'd in part*, 516 F.2d 172 (2d Cir. 1975), *rev'd*, 430 U.S. 1 (1977).

69. *See* Champion Home Builders Co. v. Jeffress, 385 F. Supp. 245, 247-48 (E.D. Mich. 1974); W. Sharpe, *supra* note 60, at 375-76.

70. *See* Champion Home Builders Co. v. Jeffress, 385 F. Supp. 245, 247-48 (E.D. Mich. 1974) (range of figures suggested by various experts); Chris-Craft Indus. v. Piper Aircraft Corp., 384 F. Supp. 507, 517 (S.D.N.Y. 1974) (same), *aff'd in part, rev'd in part*, 516 F.2d 172 (2d Cir. 1975), *rev'd*, 430 U.S. 1 (1977).

71. *See* F. Amling, *supra* note 62, at 470 (P/E ratio is daily stock price divided by current annual earnings).

72. The P/E ratio is calculated using the past year's or other interim earnings figures. *Cf.* F. Amling, *supra* note 62, at 470 (uses projected earnings to predict future price). The computation of P/E ratios appears daily in the financial sections of most newspapers. *E.g.*, Barron's, Jan. 3, 1983, at 53 (stock tables); N.Y. Times, Nov. 30, 1982, at D14, col. 1 ("Stock Tables Explained").

73. *See* Blackie v. Barrack, 524 F.2d 891, 909 n.25 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976); Rubenstein v. Republic Nat'l Life Ins. Co., 74 F.R.D. 337, 346 (N.D. Tex. 1976); Entin v. Barg, 412 F. Supp. 508, 514-15 (E.D. Pa. 1976).

74. *See* Blackie v. Barrack, 524 F.2d 891, 909 n.25 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976).

result is an out-of-pocket award in which each plaintiff who has purchased during that period and who still holds stock on the date of disclosure receives the amount of the price-value spread multiplied by the number of shares purchased.[75]

This measure also has a number of weaknesses. First, the market may have anticipated the disclosure of the fraud, so that price movements on previous days will have already incorporated some of the correction.[76] Accordingly, the price change on the date of disclosure may not totally reflect the effect of the fraud on the value of the stock.

Another problem with the measure is its assumption that the fraud had a constant effect on the price of the stock during the time prior to disclosure, resulting in a constant spread between price and value. This assumption is invalid. The true spread may change because the effect of general market forces upon the stock during the fraud is not the same as it would have been were no fraud committed.[77] In other words, the fraud affects the sensitivity of the stock to market forces.

The consequence of this assumed constant spread, however, is that purchasers of the stock who have resold prior to disclosure are considered to have recovered from the marketplace the amount of which they were defrauded at the time of purchase. These purchasers would thus be precluded from any recovery even though they may have

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75. *See* Entin v. Barg, 412 F. Supp. 508, 514-15 (E.D. Pa. 1976).

76. *See* Schwert, *Using Financial Data to Measure Effects of Regulation*, 24 J.L. & Econ. 121, 139-40 (1981) (citing R. Kellogg, An Empirical Investigation of Disclosure Error Civil Damage Lawsuits under the Federal Securities Laws (1980) (unpublished doctoral dissertation, Univ. of Rochester, Grad. School of Mgm't)); *Actively Traded Securities*, *supra* note 8, at 394 & n.121; *cf.* Fama, Fisher, Jensen & Roll, *The Adjustment of Stock Prices to New Information*, 10 Int'l Econ. Rev. 1, 20 (1969) (adjustment to announcements of stock splits); Pettit, *Dividend Announcements, Security Performance, and Capital Market Efficiency*, 27 J. Fin. 993, 1004 (1972) (adjustment to dividend announcements).

77. *See* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1345 (9th Cir. 1976) (Sneed, J., concurring):

> A numerical example of subsequent events increasing the value of the misrepresentation is as follows. Assume Corporation C discloses the discovery of X barrels of oil when, in fact, no oil was discovered at all. Further assume that the per share value of X barrels of oil is $10. Following the false disclosure the stock sells on the open market at $150 per share. At this point, P purchases a share. Its true value is $140 ($150—$10). An oil embargo by the OPEC nations is imposed thereafter, and as a result of the embargo, the per share value of C's false disclosure increases to $25. The market value of the stock, assuming no other changes in such value, now stands at $165. P does not sell. In due course, the falsity of C's report is revealed and upon disclosure the stock drops to $140, its true value all the time.

Id. at n.6 (Sneed, J., concurring). Judge Sneed's example apparently assumes that the remainder of the company's business is unaffected by the oil embargo and other market forces, because he has assumed the true value of the stock remains constant at $140.

actually suffered a compensable loss due to a narrowing of the market price-true value spread from the date of purchase to the date of disclosure.[78]

Although confining the measurement of damages to the date of disclosure excludes from the award consideration of price changes caused by general market forces prior to diclosure, the effect of these forces persists, and may affect the price of the stock on the date of disclosure. The entire price change on that date may not be attributable to the fraud, thus distorting the damage award.[79] Moreover, the full effect of disclosure by the company may not take place on a single day—the stock exchange may suspend trading for the day upon the company's initial announcement concerning the fraud, or the disclosure may be made in stages.[80] In such a case the total effect of the fraud will not be reflected on the date of initial disclosure, but rather only when disclosure of all of the relevant facts is made.[81]

C. Harris *Measure of Damages*

The simplest method of estimating the value on the date of purchase is that used by the court in *Harris v. American Investment Co.*[82] This method is based upon the price of the stock following complete disclosure, when price and value are assumed to coincide.[83] Because that

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78. *See id.* at 1346 (Sneed, J., concurring) (recovery possible using out-of-pocket measure); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 789 (E.D. Pa. 1981) (same); *In re* LTV Sec. Litig., 88 F.R.D. 134, 149 (N.D. Tex. 1980) (no recovery under assumption of constant spread); *cf. Remedies for Private Parties, supra* note 28, at 349-50 (no recovery using gross loss type of award when price at disclosure exceeds purchase price).

79. *See* Huddleston v. Herman & MacLean, 640 F.2d 534, 555 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Blackie v. Barrack, 524 F.2d 891, 909 n.25 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976).

80. *See* Blackie v. Barrack, 524 F.2d 891, 894 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976); Rubenstein v. Republic Nat'l Life Ins. Co., 74 F.R.D. 337, 346 (N.D. Tex. 1976); Gold v. DCL, Inc., 399 F. Supp. 1123, 1130 (S.D.N.Y. 1973); *Actively Traded Securities, supra* note 8, at 395 (describing release of information relating to renowned Texas Gulf Sulphur fraud).

81. *Actively Traded Securities, supra* note 8, at 394-95 & n.123.

82. 523 F.2d 220 (8th Cir. 1975), *cert. denied*, 423 U.S. 1054 (1976). This case is often cited as the leading authority in support of this method of damage computation. *See, e.g.*, Austin v. Loftsgaarden, 675 F.2d 168, 180 n.24 (8th Cir. 1982); Shapiro v. Midwest Rubber Reclaiming Co., 626 F.2d 63, 68 (8th Cir. 1980), *cert. denied*, 449 U.S. 1079 (1981); Bonime v. Doyle, 416 F. Supp. 1372, 1385 n.6 (S.D.N.Y. 1976), *aff'd mem.*, 556 F.2d 554 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977).

83. Harris v. American Inv. Co., 523 F.2d 220, 226 (8th Cir. 1975), *cert. denied*, 423 U.S. 1054 (1976). The assumption that price and value converge within one day has been supported by financial literature. *See* Aharony & Swary, *supra* note 49, at 6; Hillmer & Yu, *supra* note 49, at 336-37. *But see* Fama, *supra* note 49, at 414-15 (market may fail to adjust to new information within one day, but four-day period will allow for full and accurate adjustment).

price is considered the first valid post-purchase indicator of value, it is used to estimate the value at the time of purchase.[84] An out-of-pocket award in this context would give the plaintiff the difference between the price he paid and this post-disclosure price.[85]

The premise underlying this type of measure is that the post-disclosure price is a valid estimate of the value on the date of purchase. This premise in turn assumes that the true value of the stock remains relatively constant for the duration of the fraud.[86] This assumption, however, is highly suspect. The longer the interval between the date of purchase and the valuation date, the larger the potential inaccuracy.[87] This is especially true in the present securities markets, which have demonstrated a marked increase in volatility.[88] As one analyst noted: "Market moves that used to take place in a year now occur over just two or three months."[89] Given daily swings of up to 40 points on the Dow Jones Industrial Average,[90] a period of one day between the purchase and valuation may produce an inaccurate estimate. Moreover, while the *Harris* measure has been characterized as yielding an out-of-pocket award, in effect it awards the plaintiff rescissory damages.[91] The plaintiff receives his gross loss—the difference between the price paid and the price on the date of disclosure—with no adjustments for external market forces.[92]

Defects in existing methods of measuring damages have made possible awards that bear no relationship to the defendant's wrong. Tech-

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84. *See* Harris v. American Inv. Co., 523 F.2d 220, 226 (8th Cir. 1975), *cert. denied*, 423 U.S. 1054 (1976); Esplin v. Hirschi, 402 F.2d 94, 104 (10th Cir. 1968), *cert. denied*, 394 U.S. 928 (1969); 4 A. Bromberg & L. Lowenfels, Securities Fraud & Commodities Fraud § 9.1, at 228 (1982).

85. Harris v. American Inv. Co., 523 F.2d 220, 226 (8th Cir. 1975), *cert. denied*, 423 U.S. 1054 (1976).

86. *See* 5B A. Jacobs, *supra* note 24, § 260.03[*i*][ii], at 11-165 to 11-166.

87. *Actively Traded Securities*, *supra* note 8, at 384-85. An obvious problem with this measure is its exclusion of the possibility that a value from a date prior to the fraud may be used to estimate true value, when in fact this date may be closer in time to the date of purchase.

88. Arenson, Wall Street's Furious Swings, N.Y. Times, Nov. 30, 1982, at Dl, col. 3; Scholl, The Year's Action in the Dow: Wow!, Barron's, Jan. 3, 1983, at 18.

89. Arenson, *supra* note 88, at Dl, col. 3 (quoting Stanley B. Shopkorn, managing director at Salomon Brothers in charge of equity trading).

90. *Id.*

91. Schwarz & Kummer, *Damages Under Federal Securities Laws*, in New Directions in Securities Litigation 461, 466 (S. Wechsler ed. 1976). For criticisms of damage awards based upon the gross loss theory, see Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 719-20 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1342 (9th Cir. 1976) (Sneed, J., concurring); Mullaney, *supra* note 2, at 287-88; Painter, *supra* note 31, at 1370.

92. See *supra* notes 5-6 and accompanying text.

niques used by financial analysts, however, may be adapted to yield a more accurate measurement of a plaintiff's net economic loss. At present these theories are primarily used to evaluate securities for the purpose of determining whether they are suitable for purchase.[93] The analysis may readily be applied to damage calculations in Rule 10b-5 actions.

These methods produce estimates of value for each date during the period that the fraud has affected the market, taking into account the various forces that normally affect the price of the stock. By deriving daily estimates of value, the spread between price and true value may be calculated on a daily basis, thus enabling a court to calculate an accurate out-of-pocket measure.[94] Finally, the methods can be used to compute the loss proximately caused by the fraud by estimating a value of the stock at some post-purchase date that reflects the stock's normal price level absent the fraud and fraud-related events.[95]

III. Damage Measurement Procedures Utilizing the "Market Model"

Application of advanced financial theories to the area of damage measurement in securities fraud has been virtually unexplored.[96] One commentator has proposed a damage measurement procedure in 10b-5 actions based upon the Market Model,[97] which represents the return on a particular stock in terms of the return on the market in general.[98] Although theoretically sound, this technique has not been adopted by the courts,[99] perhaps because of the level of financial sophistication

93. *See* Modigliani & Pogue, *An Introduction to Risk and Return: Concepts and Evidence* (pt. 1), 30 Fin. Analysts J. 68, 68 (Mar.-Apr. 1974), *reprinted in* Financial Analyst's Handbook 1296, 1296 (S. Levine ed. 1975).

94. See *infra* pt. III(A)-(B).

95. See *infra* pt. III(C)-(D).

96. *See generally* Fischel, *supra* note 39, at 17-19. Finance theories have, however, been applied to other aspects of a securities fraud action, such as the measurement of the effect of stock splits, dividend announcements and mergers on the market price of the stock. *Id.* at 17 & n.45.

97. E. Fama, Foundations of Finance 63-98 (1976); Fama, *Risk, Return and Equilibrium: Some Clarifying Comments*, 23 J. Fin. 29, 37 (1968). The underlying theories of the model were developed in Markowitz, *Portfolio Selection*, 7 J. Fin. 77 (1952). For a simple presentation of the Market Model, see Modigliani & Pogue, *An Introduction to Risk and Return: Concepts and Evidence* (pts. 1 & 2), 30 Fin. Analysts J. 68, 76-79 (Mar.-Apr. 1974), 30 Fin. Analysts J. 69, 69-77 (May-June 1974), *reprinted in* Financial Analyst's Handbook 1296, 1311-27 (S. Levine ed. 1975).

98. *Actively Traded Securities*, *supra* note 8, at 385-98. Proposed Method 1 and the method described in *Actively Traded Securities* produce equivalent estimates of value. Both are based upon the deviation between expected price as computed using the Market Model and the actual price, attributing the total difference to the fraud.

99. *Actively Traded Securities*, *supra* note 8, has been cited by courts as constructing a potential method of valuation. *See* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1344 (9th Cir. 1976) (Sneed, J., concurring) (apparently referring to

necessary to compute the damage award. The methods proposed herein have the same theoretical foundation, but the procedures involved have been simplified in order that they may be used and understood by both courts and practitioners.

A. *Proposed Method 1*

The first proposed method estimates the value of the stock on the date of the purchase so that an out-of-pocket measure may be applied to compute the damage award in all Type I frauds.[100] The method utilizes the observable correlation, denominated as beta (β), between the return on a stock and the return on the market,[101] and if desired, the return on the stocks within a particular industry[102] as represented in the Market Model.[103] Once this correlation is determined, it is possible to predict the return on the stock for a given level of return on the market. The proposed method then derives the price on the date of purchase that, given the price on the date of disclosure, would maintain that observed correlation. This procedure assumes that the beta of the stock has remained constant over the time period.[104] The relationships are represented in an equation derived by performing a regression analysis.[105]

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that Note in stating that value-line formation is possible); *In re* LTV Sec. Litig., 88 F.R.D. 134, 152 n.9 (N.D. Tex. 1980).

100. The values on dates subsequent to the date of purchase may also be computed so that the value-line method presented by Judge Sneed may be used. *See* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1341-46 (9th Cir. 1976) (Sneed, J., concurring).

101. The market portfolio in the Market Model consists of every risky asset in proportion to its relative value in the total marketplace. Because such a portfolio is not found in the real world, a stock index such as the Standard & Poor's 500 Common Stock Index may be used as a surrogate. *See* S. Tinic & R. West, *supra* note 32, § 11.4, at 289-90.

102. This additional variable is used to fine tune the estimate by including factors that may affect a particular industry but not the market as a whole, or that may affect a particular industry more than the market in general. *See* S. Tinic & R. West, *supra* note 32, § 7.3, at 171 n.5; *Actively Traded Securities*, *supra* note 8, at 389. As one commentator noted, the selection of only one industry may not produce an accurate estimate:

> A particular company may be well correlated with more than one industry, in which case additional independent variables may be appropriately added. In case of uncertainty over which industries are relevant to a conglomerate corporation, multiple regressions may be performed on all of the plausibly relevant industries, individually as well as in the different possible combinations, to determine the combination of market and industry indexes with the highest correlation with the performance of the individual company.

Id. at 389 n.97.

103. *See* Fischel, *supra* note 39, at 18 & nn.47-48.

104. *See* E. Fama, *supra* note 97, at 132 (beta constant for up to seven years); *Actively Traded Securities*, *supra* note 8, at 388 & n.91 (beta constant over time).

The regression equation[106] may be represented graphically as the most explanatory line that may be drawn through a scatter of points—

Conceivably, however, beta may change as a result of changes in the company itself, such as through mergers and diversification, or through changes in the sensitivity of the business to market forces. To resolve this problem, beta can be determined from investment fundamentals, such as variance of cash flow, variance of earnings and current dividend yield. Rosenberg & Guy, *Prediction of Beta from Investment Fundamentals* (pts. 1 & 2), 32 Fin. Analysts J. 60, 62 (May-June 1976), 32 Fin. Analysts J. 62, 67 (July-Aug. 1976); *see* Marathe, *Portfolio Beta Prediction*, in The Investment Manager's Handbook 202, 215 (S. Levine ed. 1980). Alternatively, beta may be calculated utilizing accounting risk measures such as dividend payout, growth, leverage, liquidity, asset size, variability of earnings and covariability of earnings. Beaver, Kettler & Scholes, *The Association Between Market Determined and Accounting Determined Risk Measures*, 45 Acct. Rev. 654, 660 (1970); *see* Bowman, *The Theoretical Relationship Between Systematic Risk and Financial (Accounting) Variables*, 34 J. Fin. 617 (1979). *But see* Elgers, *Accounting-Based Risk Predictions: A Re-examination*, 55 Acct. Rev. 389, 403 (1980) (accounting-based risk predictions of beta not superior to market beta).

Because the financial variables are obtained through an ex post facto examination of the company, beta can be calculated directly for the period of the fraud, rather than by using historical betas as an estimate of beta during the fraud, even though the fraud itself may have distorted the relationship between the return on the stock and the return on the market. This method of calculating beta may also be used when the fraud consists of a misrepresentation involving or related to one of the financial variables, because the true values of these variables will be known when the fraud is cured. Moreover, the method may be applied in situations in which the stock does not trade on an exchange or if it has not been listed on an exchange for a sufficient period to calculate beta using a regression analysis of returns on both the stock and the market.

Finally, there are alternative theories of valuation that utilize multiple factors to estimate value. *See* Roll & Ross, *An Empirical Investigation of the Arbitrage Pricing Theory*, 35 J. Fin. 1073 (1980). These theories may be used in place of the Market Model should they be shown to provide more accurate estimates.

105. For a more detailed discussion of regression analysis, see generally Fisher, *Multiple Regression in Legal Proceedings*, 80 Colum. L. Rev. 702 (1980). Most computer software packages include regression programs, which facilitate the derivation of the equation. *See, e.g.*, Statistical Analysis System (SAS) User's Guide 237-63 (1979 ed.) (GLM (General Linear Models) procedure).

106. The formulas for deriving a linear regression equation are as follows:

$$\beta = \frac{N[(\Sigma xy) - (\Sigma y)(\Sigma x)]}{N(\Sigma x^2) - (\Sigma x)^2}$$

$$\alpha = \frac{\Sigma y - \beta \Sigma x}{N}$$

N = number of pairs of observations

x = return on the market per period

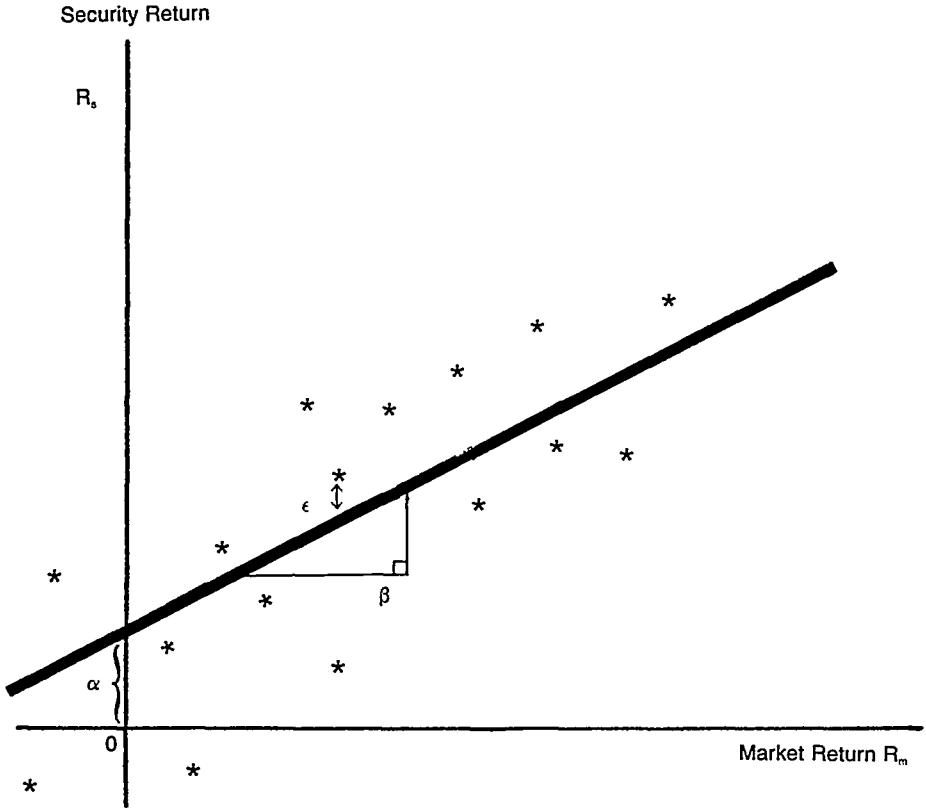
y = return on the stock per period

See F. Amling, *supra* note 62, at 322 n.11.

in this instance the line best representing the relationship between the rates of return of the stock against rates of return on the market, for various time periods.[107] The beta factor used in the equation may be thought of as the slope of the line representing the relationship between the price movements of the stock and those of the market. Thus, beta equals the expected percent increase in stock return for each one percent increase in market return.[108]

The data used in the regression analysis are the monthly returns of the stock and the market for the five years prior to the initiation of the fraud.[109] The basic formula is as follows: R_s (return on the stock) equals alpha (a constant) plus the product of beta and R_m (return on the market). Thus,

$$R_s = \alpha + \beta R_m + \epsilon \quad \text{(eq. 1)}.^{110}$$



107. *Actively Traded Securities*, *supra* note 8, at 388 n.92.

108. Modigliani & Pogue (pt. 1), *supra* note 93, 30 Fin. Analysts J. at 76, *reprinted in* Financial Analyst's Handbook at 1312.

109. *See* E. Fama, *supra* note 97, at 132. For a discussion of alternative means of computing beta, as when a stock has not been traded on an exchange for five years, see *supra* note 104.

110. Specifically: R_s = Return on the stock; α = alpha, a constant (y intercept); β = beta, or regression coefficient; R_m = Return of the market; and ϵ = error of the

Once the correlation between the return on the stock and the return on the market is determined, the return on the security had the fraud not occurred, R_s, may be estimated for the period between the transaction and disclosure. This estimate is produced by inserting the actual return on the market during the period between the purchase and date of disclosure or resale, R_m, into the regression equation derived above (eq. 1).[111]

Once the estimated return on the stock, R_s, is determined, it may be used to derive P_0, the estimated value on the date of purchase, because R_s may also be stated in terms of stock prices and dividends. R_s is equal to the price following disclosure when price equals value, P_1, less the estimated value on the date of purchase, P_0, plus dividends, D, all divided by P_0. Thus,

$$R_s = (P_1 - P_0 + D)/P_0 \quad \text{(eq. 2)}.[112]$$

Solving equation 2 for P_0 results in P_0 equaling the price paid plus dividends, divided by the estimated return on the stock plus one:

$$P_0 = (P_1 + D)/(R_s + 1) \quad \text{(eq. 3)}.$$

The damage award is then the difference between P_0 and the price paid for the stock. This value may be used with the out-of-pocket measure in a Type I fraud.[113]

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regression. *See Actively Traded Securities*, *supra* note 8, at 388. Alpha is a constant equal to the average value of the unsystematic returns on the stock over time. These returns depend on factors unique to the company, such as labor difficulties or the resignation of the company's president. They are independent of the returns based upon the relationship between the return of the market and the return on the stock as measured by beta. Modigliani & Pogue (pt. 1), *supra* note 93, 30 Fin. Analysts J. at 77, *reprinted in* Financial Analyst's Handbook at 1311-12. ϵ is epsilon, the error of the regression, which is assumed to have a zero mean, Fischel, *supra* note 39, at 18 n.47, and is disregarded in the rest of this analysis.

111. Daily figures for the Standard & Poor's 500, which this Note utilizes as a surrogate for the market, as well as other indices, are available in Standard & Poor's Security Price Index Record, which is published annually.

112. *See Actively Traded Securities*, *supra* note 8, at 387 n.87. The variables in Proposed Method 1 are defined as follows: P_1 = market price of the stock when price equals value following disclosure of the fraud; P_0 = value of the stock on the date of purchase; and D = dividends payable to stockholders during the period. *Id.* For a discussion of determining when full disclosure is actually made, see *supra* notes 80-81 and accompanying text. For research on selection of a date following full disclosure to determine P_1, see *supra* note 83 and accompanying text.

113. If disclosure is made following the occurrence of a related event—a Type II fraud—Proposed Method 1 cannot be applied to estimate value. Method 1 utilizes a true value of the stock at a post-disclosure date to obtain the estimated value. Once the event occurs and is disclosed, either together with or prior to disclosure of the fraud, the post-disclosure price will reflect the event as well as the fraud. Valuation of the stock as it would have been had the fraud alone affected the price is thus

B. *Applying Proposed Method 1*

Proposed Method 1 may be demonstrated by applying it to one of the hypothetical frauds discussed in Part I of this Note.

Assume that the chemical company discussed in the example of a Type I fraud releases a statement on July 29, 1966, just before the market closes, that it will spend $100 million to comply with environmental regulations. At the close of trading on that date the stock sells for $30 per share. The stock continues to trade at prices consistent with its performance during the past few years. No dividends are payable to shareholders during the month. On September 1, 1966, prior to the opening of the market, the company discloses that it will in fact cost $1 billion to comply with the regulations, a fact which it knew at the time of the initial disclosure. The stock price falls to $20 per share, which is assumed to be the true value of the stock on that date.[114] This will be P_1 in the equation. The hypothetical trading prices for the company during the month that the fraud affected the price may be seen in column I of Chart I in the Appendix.

The regression equation for the stock, equation 1, is assumed to be $R_s = .0005 + 1.5R_m$.[115] The value of the stock for each date during the period is determined by first deriving the estimated return on the stock, R_s. This estimate in turn is derived by inserting the return on the Standard & Poor's 500 Stock Index from each date until the date of curative disclosure—September 1, 1966. These values may be seen in column II of Chart I.

The estimated return for each date is inserted into equation 3 to derive the value of the stock for each date. P_1 is the closing price of the stock on the date of disclosure, $20 per share. For example, the computation of the true value of the stock purchased by a plaintiff on August 16 and retained until disclosure is as follows: Standard & Poor's 500 on August 16 = 81.63; Standard & Poor's 500 on September 1 = 77.70; R_m between August 16 and September 1 = -4.81%. Inserting R_m into the the regression equation produces R_s = -7.17%. This value is then used to compute P_0 using equation 3.

$$P_0 = 20/(-.0717 + 1)$$
$$= \$21.54$$

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impossible using this method. Any attempt at valuation would have to be made using the techniques discussed in Part II, section A of this Note. While inaccurate, these are the only methods that do not rely on the market price to determine the award and thus separate the effects of the fraud and the event.

114. This assumes that price and value will coincide on the date of disclosure. It may, however, take up to four days for the market price to incorporate the information contained in the disclosure. See *supra* note 83.

115. These values are representative of actual α and β values. *See* S. Tinic & R. West, *supra* note 32, at 184-85; *Actively Traded Securities*, *supra* note 8, at 391.

The damage award for this plaintiff would thus equal $7.59 per share, the difference between P_0, $21.54, and the market price on that date, $29.125.[116] The hypothetical prices, estimated values and the spreads between them for the period from the beginning of the fraud to the date of curative disclosure, are indicated in Chart I.

C. *Proposed Method 2*

The second proposed method measures losses proximately caused by frauds and related events, which result in declines in true value after the date of purchase but prior to disclosure—a Type II fraud—for plaintiffs who hold their stock until disclosure.[117] The appropriate measure of damages in this situation is the difference between the market price of the stock on the date of disclosure[118] and the value of the stock on that date had both the fraud and the event upon which it "touches" not occurred.[119] Awarding to the plaintiff in this instance the difference between purchase price and the price on date of disclosure would indemnify the plaintiff against all market risks. Losses due to general market forces are thus factored out of the award as they are accounted for in both values used in the proposed computation. In order to compute the hypothetical value of the stock on the date of disclosure, the Market Model used in Proposed Method 1 is applied.[120]

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116. The damage award for plaintiffs who sell prior to disclosure is the price/value spread on the date of purchase less the price/value spread on the date of sale. *See* Green v. Occidental Petroleum Corp., 541 F.2d 1335, 1344-46 (9th Cir. 1976) (Sneed, J., concurring).

117. The proximate cause award is preferred for this type of plaintiff because the substance of the fraud "touches upon" the reasons for the stock's decline in value subsequent to the purchase. Huddleston v. Herman & MacLean, 640 F.2d 534, 549 (5th Cir. 1981), *aff'd in part, rev'd in part on other grounds*, 103 S. Ct. 683 (1983); Marbury Mgm't, Inc. v. Kohn, 629 F.2d 705, 717-18 (2d Cir.) (Meskill, J., dissenting), *cert. denied*, 449 U.S. 1011 (1980); Beissinger v. Rockwood Computer Corp., 529 F. Supp. 770, 787 (E.D. Pa. 1981). See *supra* note 31 and accompanying text. Difficulties arise in measuring the damage award for plaintiffs who buy prior to the event and who sell after the event but prior to disclosure. See *infra* note 125.

118. *See* Nye v. Blyth Eastman Dillon & Co., 588 F.2d 1189, 1200 (8th Cir. 1978); Foster v. Financial Technology Inc., 517 F.2d 1068, 1072 (9th Cir. 1975). See *supra* note 6.

119. *Cf.* Arrington v. Merrill Lynch, Pierce, Fenner & Smith, 651 F.2d 615, 621 (9th Cir. 1981) (action against broker for inducing customer to take on excess risk); Miley v. Oppenheimer & Co., 637 F.2d 318, 327-28 (5th Cir. 1981) (action against broker for "churning" of account); Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 84 (2d Cir. 1980) (action against broker for mismanagement of portfolio); Bird v. Ferry, 497 F.2d 112, 113 (5th Cir. 1974) (restoring investment club "to the position it would have occupied had the defalcations not occurred"); Feit v. Leasco Data Processing Equip. Corp., 332 F. Supp. 544, 586-87 (E.D.N.Y. 1971) (action under § 11 of Securities Act of 1933 for misrepresentation in registration statement).

120. The variables used in Proposed Method 2 are defined as follows: $R_\cdot$ = Return on the stock; $\propto$ = alpha, a constant (y intercept); β = beta, or regression coefficient; R_m = Return of the market; P_1 = estimated value of the stock on the date of disclo-

The regression equation is derived as was done in Proposed Method 1. The unknown value under this method, however, is P_1, the value of the stock in the absence of the related event. Additionally, for Proposed Method 2, P_0 is the price of the stock on a date just prior to the beginning of the fraud and is thus unaffected by it.[121] The actual return on the market during the period between the date selected above for determining P_0 and the date of disclosure is inserted into the equation, producing the estimated return on the stock during that period. When equation 2 is solved for P_1, the result is:

$$P_1 = P_0 (R_s + 1) - D \quad \text{(eq. 4)}.[122]$$

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sure; P_0 = market price of the stock prior to the fraud; and D = dividends payable to stockholders during the period.

121. Courts employing this type of computation utilize the price on date of purchase as P_0. *See* Feit v. Leasco Data Processing Equip. Corp., 332 F. Supp. 544, 586 (E.D.N.Y. 1971). See *infra* note 122. This is an alternative to the use of a date prior to the fraud in an omission case, in which the stock price behaves normally during the period prior to disclosure. In cases involving a misrepresentation, the date prior to the misstatement and prior to potential leaks of the misstatement, *cf.* Petit, *supra* note 76, at 1004 (investors' pre-announcement access to information has "anticipation effect" on stock price), must be used as P_0, because the price on the date of purchase has been distorted by the fraud.

The selection of a date to measure P_0 will be subject to dispute between parties to a lawsuit, because the prices on certain dates may result in more favorable damage awards than others. The differences in the resulting damage awards should not be significant if the regression equation, equation 1, is an accurate representation of the normal behavior of the stock price. For methods of improving the accuracy of the regression equation, see *supra* note 104, *infra* note 128 and accompanying text. Any date prior to the commencement of the fraud may then be used, but the closer to the commencement of the fraud, the better, as this will decrease the time interval involved in the projections of estimated values of the stock.

122. This equation may be compared to the damage formula derived by the court in Feit v. Leasco Data Processing Equip. Corp., 332 F. Supp. 544, 586-88 (E.D.N.Y. 1971), and later refined by the court in Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 84 (2d Cir. 1980).

The court in *Feit* used the percentage change in a market index to adjust the price paid for the stock in order to factor out the effect of the market from the damage award. 332 F. Supp. at 586; *see* 3A H. Blumenthal, Securities and Federal Corporate Law § 8.26[4], at 8-76 (1982 ed.). The *Rolf* court refined this measure by using the percentage change of an index of a more specialized group of stocks in order to represent more accurately the effect of market forces on the stocks in question. 637 F.2d at 84 (Standard & Poor's Low-Priced Index). Proposed Method 2 may be considered a further refinement of this type of measure as it utilizes the expected return of the individual security as opposed to broad-based market-industry returns. As one commentator has stated in this regard, "[t]here is no reason to use a sledgehammer when a laser can be constructed." Reder, *supra* note 2, at 1850.

The parameters of the equation used to estimate the return on the stock may be tailored to meet a particular fact situation involving frauds on individuals. Because beta is a measure of the stock's risk, this value may be adjusted to match the desired level of risk in actions alleging that the plaintiff was induced to take on more risk

P_1 is then compared with the actual price of the stock on the date of disclosure, with the difference between the two being the damage award.[123]

D. *Applying Proposed Method 2*

Consider a situation similar to that of the oil company described in Part I. In this example of a Type II fraud, the company owns two oil fields, one with a 60% chance of a successful strike and the other with a 30% chance of success. On February 28, 1966, the stock sells for $30 per share on the basis of these publicized estimates. After the close of the market on that date, the company learns that a revised estimate with respect to the first oil field shows only a 30% chance of success. This information should be released before the stock begins trading the next day, March 1, but the company does not make such a release. On March 25, the oil field in question is found to be totally dry, thus making the land worthless. The company does not disclose this to the public until April 1, 1966, prior to the opening of the market. The company should have disclosed this information on the date that it became aware of the dry field. Following the April 1 disclosure, the price of the stock falls to $12 per share. The market price of the stock during the month of March, the Standard & Poor's 500 Stock Index for that month and the true value for the month may be seen in Chart II.

The damage award using Proposed Method 2 for all plaintiffs who purchased stock prior to the wells coming up dry, and who still hold stock on the date of disclosure, is as follows. The first step is determining a date prior to the fraud when the price of the stock reflects all information that the company has a duty to disclose and has accurately released.[124] This price, which will be used as P_0, is assumed to equal $30 per share, the price on February 28. The return on the

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than he would have otherwise been willing to accept. *See* Garnatz v. Stifel, Nicolaus & Co., 559 F.2d 1357, 1361 (8th Cir. 1977), *cert. denied*, 435 U.S. 951 (1978). This value may be determined by examining the beta of the plaintiff's portfolio. *See* W. Sharpe, *supra* note 60, at 156-57 (beta of portfolio is a weighted average of betas of individual stocks). In situations in which a plaintiff has purchased a stock subject to a fraud upon a limited number of people, so that the price paid is equal to the true value of the security, the estimated return on the stock had the event not occurred may be computed using the company's historical beta value. This of course assumes that the event is not typical for the company, as these typical events are imputed into the historical beta value.

123. *Cf.* Rolf v. Blyth, Eastman Dillon & Co., 637 F.2d 77, 84 (2d Cir. 1980) (Rule 10b-5 action against broker for mismanagement of portfolio); Feit v. Leasco Data Processing Equip. Corp., 332 F. Supp. 544, 586-87 (E.D.N.Y. 1971) (action under § 11 of Securities Act of 1933 for misrepresentation in registration statement).

124. See *supra* note 121.

market, R_m, is then computed for the period between February 28 and the date of disclosure, April 1. This value would be

$$(89.94 - 91.22)/91.22 = -1.40\%.$$

The return on the stock, R_s, is then computed using a regression equation derived using data collected for the period prior to the fraud. This equation is assumed to be $R_s = .0003 + 1.8R_m$. R_s between February 28 and April 1 is thus

$$.0003 + (1.8 \times -.014) = -2.50\%.$$

This value is then inserted into equation 4 to derive P_1. The computation would be $30(-.025 + 1) = $29.25. The per share damage award is the difference between the selling price on the date of disclosure, $12, and the value estimated above, $29.25, or $17.25.[125]

E. *Limitations in Computing Damage Awards*

Concededly problems do exist with these proposed methods of computing damage awards. They cannot account for multiple non-market-related effects on the price of the stock,[126] such as a fraud coupled with the resignation of a key company executive. The proposed methods utilize the Market Model, which represents the return of a security in terms of a limited number of variables—the return on the market and the return on stocks in the industry. The result is that price movements not attributable to these variables are automatically considered to have been caused by the fraud.[127] This problem, however,

125. The proposed method cannot compute the damage award for plaintiffs who purchase and sell prior to the event that occurs in a Type II fraud. See *supra* note 113. The damage award for plaintiffs who buy prior to the event that causes a decline in value, and sell after the event but prior to disclosure, poses an additional problem. If the price/value spreads on the dates of purchase and sale are used, the plaintiff will not be entitled to recover because the spread after the event is usually larger than the spread on the date of purchase. The award in this situation should therefore be the price/value spread on the date of purchase less the price/value spread on the date of sale had the event not occurred. This separates the effect of the fraud from that of the event and will compensate the plaintiff for those losses stemming only from the initial fraud. The value representing the effect of the fraud alone cannot be computed using the proposed methods. The basic valuation methods described in Part II, section A must be used to estimate the value of the stock.

The plaintiff who purchases these shares following the event, but prior to disclosure, will recover the spread between the price and true value of the stock on the date of purchase. This recovery will compensate him for the difference in value due to the event. Such a damage award may be computed using Proposed Method 1.

126. *See Actively Traded Securities, supra* note 8, at 393-94. Proposed Method 1 cannot compute the damage award when the event has occurred prior to disclosure of the fraud—a Type II fraud. Such an event is similar to a non-fraud related event; both have affected the price subsequent to the disclosure, which is used to compute the value on the date of purchase. The intrinsic method of valuation, because it is subjective in nature, may attempt to account for these events. Nevertheless, the inaccuracies of the intrinsic method will still be present. See *supra* notes 52-59 and accompanying text.

127. *See Actively Traded Securities, supra* note 8, at 393-94.

may be minimized. If other non-market factors do affect the stock during the period of the fraud, they may be included in the regression equation through the use of additional variables.[128]

An additional problem exists with respect to Type II frauds. In this instance, the proposed methods cannot compute the true value of the stock for dates before an event which precedes disclosure but relates to the fraud. An out-of-pocket measure thus cannot be used because Proposed Method 1, used to compute values on the date of purchase, utilizes in its computation a price on a date subsequent to disclosure. This price reflects the total impact of the fraud and the event on the value of the stock, which is then discounted back to the date of purchase. The value obtained will thus reflect the impact of both the fraud and the event on the value of the stock. A proper out-of-pocket measure, however, utilizes the price on the date of purchase, which has only been affected by the fraud.

CONCLUSION

The procedures proposed to compute net economic loss provide a superior alternative to the procedures currently used by courts. While the proposed procedures do have some inherent problems, they are insignificant when compared to those of the methods currently in use. The adoption of accurate damage measurement procedures is imperative. The acceptance of a formula to compute damages would immeasurably reduce the conflict on the damage issue. Because potential disputes would be limited to the derivation of the equations, the scope of expert testimony would be greatly diminished. In most situations the computations could be done by a court-appointed special master or expert, leaving only the issue of liability in the hands of the trier of fact.

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128. *See* J. Aber, Beta Coefficients and Models of Security Return 81-82 (1973). These additional variables may include such factors as institutional shares traded during the period, the inventory of the stock specialist, or the resignation of a high level executive. The additional variables need not be numerical. Dummy variables may be used to account for non-fraud related events that cannot be measured with numbers. The variable will take on a 0 or 1 value for the existence or non-existence of a particular event. For example, a variable may be included for each president of a company that will take on a value of 1 during the particular president's tenure and 0 when he is not in office. These variables are included in the regression analysis to derive equation 1. *See* T. Wonnacott & R. Wonnacott, Introductory Statistics 385-90 (3d ed. 1977). The cost of the inclusion of these additional variables is the initiation of disputes during litigation over the exact variables to be included. The inclusion or exclusion of certain variables will affect the estimated return on the stock, R_s. The benefits of including these variables are determined on a case-by-case basis, depending upon the existence of external events that may reduce the validity of the simple regression equation that utilizes the returns on the market and on the industry.

APPENDIX

CHART I

Date	I Hypothetical Market Price*	II S&P 500**	III True Value***	IV Spread
7/29/66	$30.00	83.60	—	—
8/1	$29.25	82.31	$21.82	$7.43
8/2	$29.50	82.33	$21.82	$7.67
8/3	$30.00	83.15	$22.16	$7.83
8/4	$30.25	83.93	$22.49	$7.75
8/5	$30.50	84.00	$22.51	$7.98
8/8	$30.125	83.75	$22.41	$7.705
8/9	$30.00	83.49	$22.30	$7.69
8/10	$29.875	83.11	$22.14	$7.735
8/11	$29.75	83.02	$22.11	$7.64
8/12	$30.00	83.17	$22.17	$7.83
8/15	$29.625	82.74	$21.99	$7.635
8/16	$29.125	81.63	$21.54	$7.585
8/17	$28.875	81.18	$21.36	$7.515
8/18	$28.375	80.16	$20.95	$7.425
8/19	$28.00	79.62	$20.73	$7.27
8/22	$27.375	78.24	$20.20	$7.175
8/23	$27.375	78.11	$20.14	$7.235
8/24	$28.875	79.07	$20.52	$8.355
8/25	$27.375	78.06	$20.12	$7.255
8/26	$28.125	76.41	$19.49	$8.635
8/29	$27.25	74.53	$18.79	$8.46
8/30	$27.875	75.86	$19.28	$8.595
8/31	$28.625	77.10	$19.75	$8.875
9/1	$20.00	77.70	$20.00	—

* Market prices assume a high correlation to market returns.
** Data obtained from Standard & Poor's Daily Stock Price Index Record 179 (1982 ed.).
*** Derived using Proposed Method 1.

CHART II

Date	I Hypothetical Market Price*	II S&P 500**	III True Value***	IV Value for Proximate Cause****
2/28/66	$30.00	91.22	$30.00	
3/1	$29.375	90.06	$24.05	
3/2	$28.75	89.15	$23.62	
3/3	$29.00	89.47	$23.77	
3/4	$28.875	89.24	$23.66	
3/7	$28.125	88.04	$23.10	
3/8	$28.25	88.18	$23.16	
3/9	$28.75	88.96	$23.53	
3/10	$29.50	88.96	$23.53	
3/11	$29.25	88.85	$23.47	
3/14	$28.75	87.85	$23.01	
3/15	$28.25	87.35	$22.78	
3/16	$28.625	87.86	$23.01	
3/17	$28.875	88.17	$23.16	
3/18	$29.00	88.53	$23.32	
3/21	$29.25	89.20	$23.64	
3/22	$29.50	89.46	$23.76	
3/23	$29.125	89.13	$23.61	
3/24	$29.25	89.29	$23.68	
3/25	$29.375	89.54	$23.80	
3/28	$29.625	89.62	$11.92	
3/29	$29.25	89.27	$11.84	
3/30	$29.00	88.78	$11.72	
3/31	$29.125	89.23	$11.83	
4/1	$12.00	89.94	$12.00	$29.251

* Market prices assume a high correlation to the return on the market.

** Data obtained from Standard & Poor's Daily Stock Price Index Record 179 (1982 ed.).

*** These values were obtained using Proposed Method 1 and assume that the value of two oil fields with a 30% chance of success is $24 per share on April 1. The values between March 1 and March 25 cannot be computed using Proposed Method 1 in an actual fraud. See *supra* note 113. They are presented simply to enable comparison of the two methods.

**** Computed using Proposed Method 2.