Bulls & Bears & Bugs: Computer Investment Advisory Programs That Go Awry, 10 Computer L.J. 47 (1990)

Wayne Hagendorf

NOTES

BULLS & BEARS & BUGS: COMPUTER INVESTMENT ADVISORY PROGRAMS THAT GO AWRY

INTRODUCTION

No one can completely predict the future. Yet, brokers and investors are continually attempting to discover new ways to anticipate movements in the financial markets.[1] With the advent of computers, brokers and investors have acquired access to a power that allows them to react more quickly and accurately to market changes. As a result, they are better able to "predict" the future of the financial world.

For years, brokers and investors have been utilizing computers for various tasks.[2] With recent advances in hardware and software,[3] computers have been created not only to process information but to be artificially intelligent (i.e., to communicate in plain English with the user, to review options and make inferences, to explain its analysis, and to learn from its errors).[4] One outgrowth of computers and artificial intelligence is a computer program which provides a user with specific advice. Several of these programs are currently being used by brokers and investors to generate advice ranging from general information, such as economic and general market and industry analyses and trends, to specific company stock price movements.

Unfortunately, even though computers and artificial intelligence are providing tremendous advantages and benefits,[5] errors, malfunctions and fraudulent schemes are bound to occur. Indeed, these

---

1. A financial market is any organized place or method which allows buyers and sellers of investments to interact (e.g., the New York Stock Exchange, the Over-The-Counter market, etc.).

2. *See* Wittebort, *How the Computer is Revolutionizing the Financial World*, INSTITUTIONAL INVESTOR, Feb. 1982, at 145.

3. *See generally id.*

4. Artificial intelligence is distinguishable from information processing because of these enhanced abilities. Gregg, *Thinking About Artificial Intelligence*, INSTITUTIONAL INVESTOR, Jan. 1984, at 239.

5. *See* Wittebort, *supra* note 2, at 151-72.

problems are likely to multiply, especially as demand increases (for more programs and more sophisticated programs), computers become more powerful, and programs become more complex.

Section one of this Note will survey current uses of computer software that provide investment advice. Section two will review potential malfunctions associated with these computer programs. Section three will discuss and analyze various causes of actions available to a user when the investment advice program malfunctions. Finally, section four will propose a logical, efficient, and fair method for dealing with computer programmers and manufacturers who produce software that provides erroneous investment advice.

I. CURRENT USES OF COMPUTER SOFTWARE

In the financial world, computers were traditionally used to perform calculations,[6] process information,[7] and manipulate data.[8] With the advances in artificial intelligence and the creation of computers that can parallel the human thought process,[9] it was inevitable that programs would be created to aid users in making investment decisions. Computers are able to perform this task because they can efficiently handle the vast amount of stored information,[10] systematically analyze historical data for decisionmaking purposes,[11] and minimize human errors.

Investment decisionmaking involves "subjective predictions about future events"[12] based on historical data.[13] Although there are hundreds of investing strategies, all of the logical strategies are based upon technical and fundamental investment analyses.[14] Thus, computer programs can be, and are, specifically designed to perform objective tests based on historical data just like their human counterparts.

---

6. Welles, *The Analyst and His Micro*, INSTITUTIONAL INVESTOR, July 1982, at 67, 68.

7. *See* Wittebort, *supra* note 2, at 145.

8. Siegal, *Surviving the Software Explosion*, INSTITUTIONAL INVESTOR, July 1982, at 67.

9. *See* Gregg, *supra* note 4, at 239.

10. Langevoort, *Information Technology and the Structure of Securities Regulation*, 98 HARV. L. REV. 747, 749 (1985).

11. *Id.*

12. *Id.* at 758.

13. *See supra* text accompanying note 1. Since no one can know the future, the only information available is past, historical data.

14. This assumes that investors do not base their decisions on merely the name of the company or some illogical procedure. Technical and fundamental investment analysis is based upon historical data that is subjected to basic accounting calculations and valuation methods. For a detailed explanation of investment analysis, see G. CHRISTY & J. CLEN-DENIN, INTRODUCTION TO INVESTMENTS (1982); R. HAGIN, THE DOW JONES-IRWIN GUIDE TO MODERN PORTFOLIO THEORY (1979).

It is argued that computers could never completely replace brokers or the investment process because computers are limited to objective tests while human investors utilize human psychology.[15] While this may or may not be true,[16] investors who use brokers and logical investment techniques do so because they do not have access to the proper resources which can assess human psychological factors.[17] Moreover, a vast majority of investors do not use brokers because they are not willing to pay to receive that type of information.[18] Therefore, even though computers are limited to objective tests,[19] it appears reasonable to assume that computer programs that make investment decisions based only on historical data and logical investment techniques (and not human psychology) are using the same or similar techniques as the average human investor. It also appears reasonable to assume that a program that provides advice can be relied upon if a logical strategy is employed and historical data is utilized.[20] Thus, legal reliance notions are applicable to these types of programs.

Despite the limitations of a computer, programs are currently being sold in the market[21] which are designed to make investment decisions.[22] Basically, the standard system has two features: (1) a software program,

---

15. Langevoort, *supra* note 10, at 758. *See also* Sandler, *Wall Street is Finding Its Trusty Computers Have Their Dark Side*, Wall St. J., Dec. 4, 1984, at 1, col. 6. Even if brokers do use human psychological factors, human psychology has proven difficult to properly assess and few investors would accept a broker's recommendation, based upon human psychology, without supplemental technical analysis.

16. This author does not believe that computers will never replace brokers or the investment process. After all, today's computers perform functions that critics claimed computers could never perform. Therefore, it is reasonable to believe that, with continued advances, computers could replace brokers and the investment process in the future.

17. For example, it is claimed that current investment analysis relies heavily on interviews with company officials but only a select few can interview these company officials. Langevoort, *supra* note 10, at 758 n.44.

18. Investors who use brokers pay for the brokers' advice through higher broker fees. Full service brokers' fees are generally higher because they include the costs of acquiring information to make recommendations. Investors can avoid these higher fees by relying on general information channels for data. Welles, *supra* note 6, at 71-72; Wittebort, *supra* note 2, at 167.

19. Although computer programs are limited to objective tests, some programs have begun to utilize experts' "rules of thumb" in analyzing stocks. *See Tracking Stocks Like an Expert*, PERS. COMPUTING, Apr. 1988, at 238 [hereinafter *Tracking Stocks*].

20. *See supra* note 14.

21. Due to rapid technological advances and extreme competition, these programs have become commonplace and readily available in the marketplace. *See* Advertisement, INSTITUTIONAL INVESTOR, Feb. 1982, at 152.

22. Wittebort, *supra* note 2, at 154. *See also* Feinberg, *Learning to Love the Computer*, INSTITUTIONAL INVESTOR, Feb. 1982, at 175, 179 (a computer program is fed information on a client, and the program provides a suggested savings and investment program); Dunn, *How to Pick Your Stocks By Computer*, BUS. WK., Sept. 12, 1983 at 121-22 (several investment decisionmaking programs are listed).

(which utilizes established investment theories and strategies and performs the actual analysis) and (2) an information service (which continually provides updated data).[23] Although these programs are highly sophisticated, a user does not need a sophisticated understanding of how they work to be able to use them.[24] In fact, some of the programs are designed to be utilized by either a professional or non-professional investor.[25] Yet, producers of the software, and brokers who utilize the programs, point out that there are limitations to the programs,[26] so a limited knowledge of investing is necessary and highly recommended.[27] The brokers who use these programs also rely on the recommendations generated by the programs to support their own conclusions and investment advice to clients; therefore, they are utilizing the programs as a service as well (i.e., as a broker's broker). Thus, since the programs may be used by intelligent non-professional, as well as professional, investors, any legal analysis concerning the programs is applicable to both types of users.

II. POTENTIAL MALFUNCTIONS ASSOCIATED WITH COMPUTER PROGRAMS

There are three types of malfunctions that can occur with a computer system that provides investment advice.[28] First, the hard copy of the program could be "defective" (i.e., the program will not "run" properly or cannot be loaded into the computer system). This is usually not a problem because minimal damage is incurred.[29] Second, the service that provides investment data could supply the system with misinformation.[30] Since the producer of a program has no control over this as-

---

23. Dunn, *supra* note 22, at 121. Information services gather, store, and transmit raw investment information that the software can analyze. Langevoort, *supra* note 10, at 757.

24. An article that reviewed one such program stated that the program "makes investing in stocks a no brainer." *Tracking Stocks, supra* note 19, at 240.

25. *Id.* at 238.

26. *Id.* (the program is designed for the long-term investor); Wittebort, *supra* note 2, at 157 (the system needs to be understood by the user and cannot be run by a chimpanzee).

27. Gregg, *supra* note 4, at 251 (some human interaction will always be necessary).

28. These three types of malfunctions are the author's own classifications; they are strictly for purposes of convenience and for aiding the reader in the understanding and analysis of this Note.

29. This can become a problem if the program is custom designed. Custom designed programs are made specifically for the user and can lead to excessive damages. *See* Note, *A Comprehensive Statute of Limitations for Litigation Arising From Defective Custom Computer Systems*, 37 STAN. L. REV. 1539 (1985). Otherwise, damage is usually minimal (the cost of the program) because the program has not done anything from which damages can arise. Also, users cannot claim reliance on any advice because the program has not yet provided any advice.

30. Misinformation includes untrue material facts as well as the omission of material

pect of the system,[31] this type of error is outside the purview of this Note's analysis of investment advice software program malfunctions. Third, the advice that the program provides could be "faulty" (i.e., it could be inaccurate or cause the investor to incur losses). The reasons for the faulty advice may be twofold: (1) the program may generate erroneous data that is later analyzed, and/or (2) the analysis or strategy employed is not successful. (Not all investment strategies have been known to work.) Whatever the reason, determining the source of the faulty advice (which may be very difficult if the program does not separate the two processes) is irrelevant since the user is relying on the final output, (the advice) and the producer of the program is responsible for both aspects of the program.

This third type of error is probably the most dangerous and costly to the user. It is dangerous because a user may not know that the advice provided by the program is faulty (unless the advice given is absurd or the investor is sophisticated enough to recognize the error) and may rely upon the program for an extended amount of time. As a result, the user could suffer damages from lost opportunities or lost capital. Because of the many problems involved in measuring damages,[32] for purposes of this Note, damages will be limited to real damages in the form of lost capital.[33]

With regard to program errors, this Note will focus on over-the-counter programs that provide erroneous advice to either a professional or non-professional investor.[34] This author believes there are at least three possible causes of action for malfunctions of this type (assuming

---

facts. This is a topic which should be explored in-depth but is beyond the scope of this Note; it involves a service wholly different from producing computer software to provide investment advice.

31. This assumes that the software producer is not in the business of providing investment information. Even so, the two services can be segregated and analyzed separately.

32. The problem of measuring damages will be directly related to the type of action that is brought.

33. Lost capital results when the program advises, in an initial purchase, to buy or sell an investment when a counteraction should have been taken, or, in a subsequent action, (any action after the initial purchase) the program's advice is to hold the investment (take no action) when some action (either to buy or sell) should have been taken. All other types of erroneous advice will only result in lost opportunities to increase an investment's value or investor's net worth. In all cases, no action will lie if the user did not incur damages. The argument that a user was damaged because the program advised the user not to invest and the user forewent an opportunity that turned out to be lucrative has been rejected by the court in other situations where the investor forewent an opportunity that later became lucrative. *See* Blue Chip Stamps v. Manor Drug Stores, 421 U.S. 723 (1975).

34. Essentially, there is no difference between a professional and a non-professional investor who utilizes this type of program; both can equally rely upon the program. *See supra* text accompanying notes 20, 25-27.

real damages result from the malfunction): (1) an action for breach of contract, (2) an action in tort, and (3) an action for violation of Federal regulations.

III. AVAILABLE CAUSES OF ACTION

A. CONTRACT

One possible cause of action a user could bring against the producer of a faulty investment program is breach of contract. Under this theory, the user could claim either a breach of an express warranty in the contract or a breach of an implied warranty (e.g., either an implied warranty of merchantability or an implied warranty of fitness for a particular purpose).

This raises the issue of what type of law is applicable; specifically, does the Uniform Commercial Code (UCC) apply? Article 2 of the UCC applies only to "transactions in goods."[35] Goods are defined as "things . . . which are movable."[36]

It has been argued that a computer program is a good under the UCC[37] because the program copy is both a "thing" and "movable,"[38] and the purpose and policies of the UCC support such a conclusion.[39]

Although a program copy may be considered a good under the UCC,[40] a computer program which is designed to make *investment decisions* does not seem to fall under the purview of the UCC. After all, the basic characteristics of a good under the UCC are movability, transferability, and identification at the time of sale.[41] This definition does not seem to include a transaction entered into solely to acquire recommendations and advice from a program and not merely the program itself or its instructions.[42] Since advice is what is being purchased, and advice is an intangible that possesses none of the above characteristics, a computer program that primarily functions to provide advice should not be considered a good.

---

35. U.C.C. § 2-102 (1988).

36. *Id.* § 2-105.

37. Note, *Computer Software as a Good Under the Uniform Commercial Code*, 65 B.U.L. REV. 129 (1985) [hereinafter B.U.L. REV.]; Note, *Computer Programs as Goods Under the UCC*, 77 MICH. L. REV. 1149 (1979) [hereinafter MICH. L. REV.].

38. MICH. L. REV., *supra* note 37, at 1152.

39. B.U.L. REV., *supra* note 37, at 134-35, 156-61.

40. Most articles have approached the problem by analyzing what a software program is, not what it does. *See, e.g., supra* note 37.

41. B.U.L. REV., *supra* note 37, at 151.

42. It was argued that "the dominant purpose or essence of *every* software transaction—the thing of value contracted for—is the intangible program . . . it is the abstract instructions that are in fact at the heart of any contract for software." *Id.* at 132-33 (emphasis added).

However, in some instances, a transaction involving a program that provides investment advice may also have been for the purpose of acquiring the program itself. In this situation, the transaction may be deemed to be a hybrid transaction[43] (i.e., a transaction involving both the sale of a good (as defined by the UCC) and the sale of a non-good).

There are two main approaches courts have used to determine whether hybrid transactions are governed by the UCC. The first approach, called the "essence of the agreement" or "dominant thrust" test, looks to the predominant thrust of the transaction.[44] If the transaction's dominant characteristic is the sale of a good, then the UCC will apply to the whole transaction because any services will be viewed as incidental to the basic transaction.[45] The second approach uses a straightforward test; this test is applied by the UCC to transactions involving *only* goods.[46] According to this test, any transaction that also involves a service, even if the service is incidental to the transaction, would not fall under the purview of the UCC.[47] This approach seems logical since other provisions of Article 2 of the UCC (i.e. offer, acceptance, and consideration) apply only to the sale of, and not a transaction in, goods.[48] Thus, courts are able to hold that the entire transaction is outside the scope of the UCC.[49] Applying this second approach to hybrid transactions suggests that these transactions should not be governed by the UCC—especially if the transaction is a "true" hybird, i.e., there is no logical or feasible method to segregate the good from the non-good (service). Since the sale of a computer software program that provides investment advice is a true hybrid, because there is no means of isolating the program's advice, which is a non-good, from the software program, which is considered a good, the transaction should not be regulated by the UCC.

An analogy which further supports the proposition that investment advice programs are not goods, but rather more related to services, is the comparison of investment advisory programs to brokers. This simple and appropriate analogy is accurate since computer programs that provide advice are performing functions very similar to those performed by brokers; this is especially true of programs that have been designed

---

43. There are generally four tests used to determine if a transaction is a hybrid: 1) predominant factor test; 2) divisibility of contractual obligations; 3) terminology of the contract; and 4) the movability test. B.U.L. REV., *supra* note 37, at 139 n.65.

44. RRX Indus., Inc. v. Lab-Con, Inc., 772 F.2d 543, 546 (9th Cir. 1985); Montana Millwork, Inc. v. Caradco Corp., 648 F. Supp. 88 (D. Mont. 1986).

45. *RRX Indus.*, 772 F.2d at 546; *Montana Millwork*, 648 F. Supp. at 90.

46. Data Processing v. L.H. Smith Oil Corp., 492 N.E.2d 314 (Ind. Ct. App. 1986).

47. *Id.* at 318.

48. B.U.L. REV., *supra* note 37, at 139-40.

49. *Id.* at 140 n.72.

to utilize the same strategies, formulas, and rules of thumb that brokers use.[50] Therefore, in essence, programs are providing services comparable to those that brokers are providing. Since a broker's advice is not considered a good by any stretch of the imagination, a computer program that provides advice should not be considered a good either.

Thus, by definition, by implication, and by analogy, computer programs which provide investment advice are not goods as defined by the UCC and, therefore, should not be governed by the UCC.

Case law has not reached a definitive conclusion on this UCC issue. To date, only seven federal cases have been adjudicated on the subject. Of those seven, *none* of the cases involved investment programs or programs that provided any type of advice. However, the cases have shown that the UCC will be utilized where it is practical to do so.

In three of the seven cases on the subject, the courts held that computerized programs did not fall under the purview of the UCC.[51] In an early case, *Computer Servicenters, Inc. v. Beacon Manufacturing Co.*,[52] the court held that the furnishing of data processing was a service because no title passed from the seller to the buyer to constitute a "sale" under the UCC.[53] A year later, in *Clements Auto Co. v. Service Bureau Corp.*,[54] the court applied a tort theory of fraud for misrepresentation, instead of a warranty theory, to a proposed data processing system designed to execute accounting procedures,[55] thereby furthering the view that data processing systems are services and not goods. Recently, in *Data Processing Services, Inc. v. L.H. Smith Oil Corp.*,[56] the court determined that a contract to design, develop, and implement an electronic data processing system was not governed by the UCC.[57] The court reasoned that, although the end result was to be preserved as a tangible software product, the transaction involved a service (the development of the program) and, thus, did not fall under the UCC.[58]

In three other cases, the courts determined that custom designed software was a good under the UCC.[59] In *Triangle Underwriters, Inc.*

---

50. *Tracking Stocks, supra* note 19, at 238.

51. *See infra* text accompanying notes 52-58.

52. 328 F. Supp. 653 (D.S.C. 1970), *aff'd*, 443 F.2d 906 (4th Cir. 1971).

53. *Id.* at 654-55.

54. 444 F.2d 169 (8th Cir. 1971) *modifying* 298 F. Supp. 115 (D. Minn. 1969).

55. *Id.* at 180-81.

56. 492 N.E.2d 314 (Ind. Ct. App. 1986).

57. *Id.* at 318.

58. *Id.* at 318-19. The court commented that neither computer hardware nor generally-available standardized software were involved in the transaction; this made the cases which held that the UCC governed computer software inapplicable. *Id.* at 319.

59. *See infra* text accompanying notes 60-66.

v. Honeywell, Inc.,[60] the court held that a custom designed computer software system was a good under the UCC because intangibles may be goods as defined by the UCC, and the services involved in the transaction (the design, installation, and maintenance of the system) were incidental to the sale.[61] Similarly, in *Chatlos Systems, Inc. v. National Cash Register Corp.,*[62] the court held that the sale of computer hardware and software was controlled by the UCC because the service aspects of the sale were incidental to the transaction.[63] In *Analysts International Corp. v. Recycled Paper Products, Inc.,*[64] the court applied the "dominant purpose" test and found that the sale of a computerized software system and program for re-ordering merchandise "was a transaction in goods and was within the purview of the UCC."[65] The court assumed that software bought off the shelf at a computer store would undoubtedly be a good and reasoned that customized software was also a good because the service necessary to produce or create the specialized software was incidental to the sale.[66]

In *RRX Industries, Inc. v. Lab-Con, Inc.,*[67] the last of the seven cases, the court held that computer software was a good for the purpose of determining remedies because "the sales aspect of the transaction predominates" and any services were incidental to the sale.[68]

In addition, in *Samuel Black Co. v. Burroughs Corp.,*[69] the court expressed reservations about applying the UCC to hybrid transactions involving software and hence failed to resolve that issue.[70] However, the court did employ the UCC by analogy because the the court believed the UCC would be helpful and persuasive and its application would not have affected the end result.[71]

Once it is established that the purchase of a computer program that provides investment advice is a non-good transaction, it becomes clearer

---

60. 457 F. Supp. 765 (E.D.N.Y. 1978), *aff'd in part, rev'd in part,* 604 F.2d 737 (2d Cir. 1979).

61. *Id.* at 769.

62. 479 F. Supp. 738 (D.N.J. 1979), *aff'd in part, rev'd in part,* 635 F.2d 1081 (3d Cir. 1980).

63. *Id.* at 742.

64. No. 85-C-8637 (N.D. Ill. June 19, 1987) (WESTLAW, 1987 WL 12917).

65. *Id.*

66. *Id.*

67. 772 F.2d 543 (9th Cir. 1985).

68. *Id.* at 546.

69. No. 78-3077-F (D. Mass. Dec. 18, 1981) (LEXIS, Genfed library, Courts file), *cited in* Comment, *The Warranty of Merchantability and Computer Software Contracts: A Square Peg Won't Fit in a Round Hole,* 59 WASH. L. REV. 511, 512-13 (1984).

70. Comment, *supra* note 69, at 513-14.

71. *Id.* at 514.

that recovery under a contract theory of express or implied warranty, is inappropriate and inadequate.

First, the UCC should not be applied by analogy because results would become unpredictable (one would never know whether or not the UCC will be used by the court) and some common law notions could never be applied using the UCC as an analogy (e.g., the statute of limitations).[72]

Second, any recovery under express warranties will be inadequate because smart producers will either disclaim any express warranties or severely limit their liabilities thereby leaving the consumer with an inadequate recovery.[73]

Third, implied warranties are inappropriate because they are imposed by either statutory law or by public policy. Both the implied warranty of merchantability and the implied warranty of fitness for a particular purpose are based upon statutory law, the UCC.[74] Since a computer program that gives investment advice is not a good, the UCC is not applicable[75] and neither are its warranties. Nevertheless, when a service is involved, a court could imply warranties based upon public policy. However, any implied warranty will tend to discourage the development of new ideas because of the high quality standard that it will impose.[76] In addition, implied warranties are usually employed to prevent conduct bordering on fraud and deception or conduct which cannot be properly handled by tort litigation.[77] Since other tort causes of action are available to prevent fraud and deception, public policy does not justify the imposition of implied warranties as a method of recovery. Therefore, any potential use of implied warranties is generally unsatisfactory.

Fourth, as discussed below, any implied warranties that the court imposes for policy reasons[78] can be more effectively and efficiently handled by tort litigation.

Finally, any damages that may be awarded will probably be inadequate since punitive damages cannot be awarded[79] and consequential

---

72. B.U.L. REV., *supra* note 37, at 150.

73. Gemignani, *Product Liability and Software*, 8 RUTGERS COMPUTER & TECH. L.J. 173, 176 (1981).

74. U.C.C. §§ 2-314, 2-315 (1988).

75. *Id.* § 2-102.

76. Comment, *supra* note 69, at 521.

77. *Id.* at 530.

78. Nycum, *Liability for Malfunction of a Computer Program*, 7 RUTGERS J. COMPUTERS, TECH. & L. 1, 3 (1979). In practice, implied warranties arise infrequently. *Id.* at 6.

79. U.C.C. § 1-106(1) (1988); American Ry. Exp. Co. v. Bailey, 142 Miss. 622, 107 So. 761 (1926); RESTATEMENT (SECOND) OF CONTRACTS § 342 (1981).

and incidental damages may be limited.[80] In addition, a user that is damaged by faulty advice will want to recover the money he lost in his investments, not the cost of the program nor a market differential (e.g., the difference in value between a program that works properly and the user's faulty program) which are the usual measures of damage for a breach of contract.[81]

Although the buyer and seller could theoretically bargain over and create a contract that takes into account expectations and possible breaches, this solution is unrealistic. Since the programs this Note is addressing are assumed to be sold over-the-counter, the buyer has little, if any, opportunity to negotiate with the seller. Instead, as with most marketable goods, the unsophisticated buyer (unsophisticated with respect to contract formation) will probably be at the mercy of the seller and submit to the seller's form contract. In addition, even if the bargaining positions were even, a buyer could not accurately or reasonably anticipate the possible losses that could result from a faulty program. Nor, for that matter, would any seller be foolish enough to allow a blanket clause in the contract which would indemnify the buyer for possible losses, as this would threaten the seller with unlimited liability.

Thus, for the foregoing reasons, faulty computer programs that provide investment advice should not be litigated under a contract cause of action.

B. TORT

The second possible cause of action a user of a faulty investment advice program could bring against a producer is a tort. The three most probable causes of action under a tort theory are misrepresentation, strict liability, and negligence. Of these three, a cause of action for negligence appears to be the most efficient and effective method for determining liability when misrepresentation is not appropriate.

1. *Misrepresentation*

There are two types of misrepresentations which could support a cause of action against the producer: fraudulent misrepresentation and negligent misrepresentation.[82]

Fraudulent misrepresentation which results in pecuniary losses is a relatively straightforward tort. When a producer fraudulently misrepresents a fact or opinion with the intent to induce another to rely on

---

80. *See* J. CALAMARI & J. PERILLO, CONTRACTS 14-22 (3d ed. 1987).

81. U.C.C. §§ 2-711, 2-714 (1988); J. CALAMARI & J. PERILLO, *supra* note 80, at 14-20.

82. RESTATEMENT (SECOND) OF TORTS, ch. 22 (1965). The two other types of misrepresentations that could be actionable are concealment and nondisclosure, and innocent misrepresentation—both of which are beyond the scope of this Note. *See id.*

that misrepresentation, the producer is liable to those who so rely and suffer damages.[83] In this unique situation, existing law is adequate since the law is based upon a reliance notion.[84] Because reliance is not concerned with the type of transaction,[85] this cause of action probably covers most situations including the purchase of an investment program that provides advice.

Negligent misrepresentation occurs when the producer acts in good faith but, nonetheless, makes negligent or reckless misrepresentations.[86] In this situation, a producer will be held liable "if he fails to exercise reasonable care or competence in obtaining or communicating the information."[87] Thus, the producer who acts in good faith, yet sells a software program that does not perform adequately because the producer failed to live up to a reasonable person's level of care and competence, is subject to suit under this standard.[88]

This standard is much more practical than the fraudulent misrepresentation standard because the producer usually acts in good faith (or at least we would like to believe so). Moreover, the injured party is not required to prove that the producer knew the program would provide faulty advice or had limited capabilities. Instead, a user need only show that he or she relied on the information, that the producer was negligent, and that damages resulted.[89] In addition, this standard covers two types of faulty situations: where the data generated is deficient, and where the investment strategy is unsound.

However, the standard does possess some limitations that make it less than ideal as a cause of action. First, the reasonable care and competence standard is vague and varies according to the character of the information and the character of the supplier of the information.[90] Second, the information and practice of investing, involved in the sale of investment software, is often highly specialized. This makes analysis of reliance a tricky issue, especially if the purchaser is a sophisticated investor.[91] Third, discerning who made the representation may become difficult as the distribution chain lengthens. For example, the information may be disseminated by the producer of the software or by a mid-

---

83. *Id.* § 525.

84. *Id.* §§ 525, 537.

85. *See id.* § 537.

86. *Id.* § 552.

87. *Id.* § 552(1).

88. *Id.* § 552 comment e.

89. 37 Am. Jur. 2d *Fraud & Deceit* §§ 435, 436 (1968).

90. Restatement (Second) of Torts § 552 comment e (1965).

91. *See* Feinberg v. Leighton, [1987 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 93,117 (S.D.N.Y., Jan. 30, 1987).

dle salesperson. Therefore, although the standard is appropriate, it is not the perfect method for assessing liability.

An alternate approach may be to categorize the investment software program as "chattel."[92] If the program is considered chattel, then section 402B of the *Restatement of Torts* may be applicable.[93] Section 402B is broader than the previous sections because it includes both fraudulent and negligent misrepresentations.[94] However, this section is limited to physical harms.[95] Therefore, even if investment programs are chattel, recovery under this section is inappropriate because no physical damage can result from a faulty program.

2. *Strict Liability*

The most common form of strict liability, i.e., liability without fault, is product liability as construed in section 402A of the *Restatement of Torts*.[96] Section 402A provides a user with a remedy when a defective product causes physical injuries even if a seller exercised all possible care.[97] Since product liability applies to products, not services, the threshold issue is whether or not programs that provide investment advice are products.

Strict product liability should not apply to investment advice programs because, as discussed above,[98] these types of programs are not products. Like brokers and investment bankers, these programs are designed and purchased "not for the numbers they run . . . but for the strategic decisions and recommendations they make."[99] They are, for all intents and purposes, providing the service of investment advice. In addition, section 402A applies only to those situations that result in physical harms.[100] Most courts have not been receptive to the concept of applying section 402A to cases that involve only economic losses.[101] Therefore, since investment programs that provide advice are in essence

---

92. Chattel is any tangible, movable thing. RESTATEMENT OF RESTITUTION § 128 comment b (1936). Although chattel is a comprehensive term that is usually broader in meaning than "goods," Smith v. Wilcox, 24 N.Y. 353, 358-59 (1862), the same basic argument resurfaces regarding whether a tangible program or the intangible advice is being purchased. If the intangible service of advice is the dominating feature, then the software will probably not be considered chattel.

93. RESTATEMENT (SECOND) OF TORTS § 402B (1965).

94. *Id.* § 402B comment a.

95. *Id.*

96. *Id.* § 402A.

97. *Id.* § 402A comment a.

98. *See supra* notes 40-? and accompanying text. *See also*, Nycum, *supra* note 78, at 18 (who believes that computer programming is closer to a service than a good).

99. Feinberg, *supra* note 22, at 179.

100. RESTATEMENT (SECOND) OF TORTS § 402A (1965).

101. Gemignani, *supra* note 73, at 197.

services and do not cause physical harms when defective, strict product liability under 402A is inappropriate as a cause of action.

In the alternative, strict liability may be applied by the court even to a non-product, if public policy justifies its application.[102] The reasons for imposing strict liability in such a situation are as follows: the producer is in the best position to reduce hazards[103] and to spread the cost of harm through liability insurance,[104] and the plaintiff's burden of litigation is greatly reduced because the injured user is not required to identify the defect or to prove negligence.[105] Although it could be argued that strict liability should be applied anyway,[106] there are strong reasons to suggest why it should not be applied to investment software programs. First, since software programs are current state-of-the-art technology, strict liability would hinder the development of the software industry with "intolerable liability responsibilities"[107] by encumbering programmers with the impossible task of creating an error-free program. Second, it would shift the burden of proof unfairly to the producers. Since it is the user who has the program in his possession and the cause of the malfunction could be due to something other than a programming design defect (e.g., the user misapplied or misused the software, the hardware was faulty or the input data was faulty), the burden should not be uniformly and automatically shifted to the producer. Third, strict liability is usually applied only when the producer creates something defective that is an unreasonably dangerous hazard to life and health.[108] Since providing faulty advice on investing is not unreasonably dangerous to life or health and does not involve a large section of an unwary public, strict liability is an overly drastic measure to protect users.

3. Negligence

The concept of negligence is based upon an individual's act that, compared to a reasonable person in the same position, lacks in care and/or competence and creates an unreasonable risk of harm.[109] Although the terms care and competence are often used interchangeably, the two should be distinguished because want of competence *may*

---

102. Escola v. Coca-Cola, 24 Cal.2d 453, 461-63, 150 P.2d 436, 440-44 (1944) (Traynor, J., concurring).

103. *Id.* at 462.

104. *Id.*

105. *Id.*

106. Nycum, *supra* note 78, at 17.

107. Freed, *Products Liability in the Computer Age*, 17 JURIMETRICS J. 270, 285 (1977).

108. RESTATEMENT (SECOND) OF TORTS § 402A comment i (1965).

109. *Id.* §§ 298, 299.

be negligent while want of reasonable care *is* negligent.[110]

"Competence is a matter of the ability or capacity of the individual to use care; care is the attention and caution exercised in the use made of that competence."[111] Thus, a person who, by acting unreasonably, creates an unreasonable risk of harm to another can be held liable to the injured party.[112] Accordingly, a producer of a software program that provides faulty investment advice can be held liable under this standard. If a software producer creates an unreasonable risk by constructing the program in an unreasonable manner, as compared to a reasonable person in the same position, the producer will probably be found liable. Therefore, the level of care and competence that a producer ought to achieve is set at the equivalent of a reasonable person in the same position as the producer. This raises the threshold question: What type of reasonable person should the producer of a faulty program be compared to? This question has no efficacious answer. It would take the court many years and numerous cases before a workable standard could ever be developed.

However, a practicable solution does exist. The narrow standard of professional negligence (also referred to as professional malpractice) can provide the courts with a standard that is less vague than the average reasonable person standard. Professional negligence results when an actor renders services which are, in relation to the skill and knowledge possessed by others in the same profession or trade in similar communities, incompetent.[113]   This standard is based upon skill which "is that special form of competence which is not part of the ordinary equipment of the reasonable man, but which is the result of acquired learning, and aptitude developed by special training and experience."[114]

Because the standard can apply to anyone who renders services to others in the practice of a profession or skilled trade, the courts can apply this special form of competence to producers of investment programs.[115] After all, the production of sophisticated computer software that provides advice involves acquired learning and requires special training and, therefore, it should be included within the confines of professional negligence. As explained in section four below, this is probably the most efficient and effective method of recovery for a user of a faulty investment advice program.

---

110. *Compare id.* § 298 *with* § 299.

111. *Id.* § 298 comment a.

112. *Id.* § 298.

113. *Id.* § 299A.

114. *Id.* § 299A comment a.

115. *Id.* § 299A comment b.

C. REGULATION

The third possible cause of action a user could bring against a producer of a faulty investment advice program is for a violation of federal regulations. The only act[116] which a user might utilize to bring such an action is the Investment Advisers Act of 1940 (the "Act").[117] Currently, there are no specific regulations that control the production, manufacture, or sale of computer programs which provide investment advice. However, since the programs provide advice, the same regulations that control investment advisors should arguably govern the programs.

As with most regulations, the underlying congressional purpose is to control the honesty and competency of those being regulated. Hence, it is not surprising that the articulated purpose of the Act is "to protect the public and investors against malpractice by persons paid for advising others about securities."[118]

While the objectives of the Act are to control honesty and competence, not much attention has been devoted to the competence of investment advisors.[119] Instead, the Act has mainly been concerned with the problem of honesty.[120] As a result, it proves most useful in situations involving fraud.[121] The Act attempts to achieve its objectives by requiring all "investment advisors" to register with the Securities and Exchange Commission (SEC)[122] in order "to promote accurate as well as full disclosure of material facts by investment advisors."[123] In addition, the Act controls advertisements by advisors, prohibits fraudulent and deceptive actions, and requires investment advisors to furnish information about themselves.[124]

The Act is limited in that it only applies to "investment advisers."[125] An "investment adviser," as defined by the Act, is "any person who, for compensation, engages in the business of advising others, either directly or through publications or writings, as to the value of securities or as to the advisability of investing in, purchasing, or selling

---

116. All other security regulatory acts are inapplicable because investment advisory services are not "securities." Sullivan v. Chase Inv. Serv. of Boston, Inc., 434 F. Supp. 171, 175-77 (N.D. Cal. 1977).

117. 15 U.S.C. § 80b (1976).

118. S. REP. NO. 1760, 86th Cong., 2d Sess. I, *reprinted in* 1960 U.S. CODE CONG. & ADMIN. NEWS 3502, 3503; SEC v. Myers, 285 F. Supp. 743, 746 (D. Md. 1968).

119. Note, *The Regulation of Investment Advisers*, 14 STAN. L. REV. 827 (1962).

120. *Id.* at 831.

121. *See id.* at 832-35.

122. 15 U.S.C. § 80b-3 (1976).

123. Sullivan v. Chase Inv. Serv. of Boston, Inc., 79 F.R.D. 246, 261 (1978).

124. 15 U.S.C. §§ 80b-3 to -6 (1976). Section 80b-6 is commonly referred to as the anti-fraud provision.

125. *Id.*

securities."[126] Although producers of investment advice programs do not themselves directly provide advice, the SEC has interpreted "investment adviser" to include these types of producers. Currently, no judicial decisions involving computer programs have defined "investment adviser." However, the SEC has published no-action letters[127] which make it clear that the SEC expects a producer of an investment advice program to register.[128] Using a broad definition of investment adviser, the SEC requires producers to register simply because they participate in an investment advisory activity.[129]

Since producers will have to register under the Act, users of faulty investment advisory programs will most likely want to employ section 80b-6 of the Act (the anti-fraud provision) which applies to all investment advisors.[130] The anti-fraud provision makes it unlawful, directly or indirectly, "to employ any device, scheme, or artifice to defraud any client" or "to engage in any transaction, practice, or course of business which operates as a fraud or deceit."[131] Since the courts have given this section broad effect,[132] buyers of fraudulent investment programs would find it easier to recover under the Act than under a tort theory.[133]

Before a defrauded individual can recover under the Act, the threshold issue of whether a private cause of action exists must be resolved. Since the Act does not expressly provide for a private remedy,[134] a defrauded user will probably only be able to recover if an implied private cause of action is found to exist.

In 1979, the Supreme Court in *Transamerica Mortgage Advisors, Inc. v. Lewis*,[135] finally settled the issue[136] of whether a private cause of

---

126. *Id.* § 80b-2(a)(11).

127. A no-action letter by the SEC is a statement by a staff member recommending that the SEC take no enforcement action under the specific circumstances.

128. Investment Decisions, Inc., [1971-1972 Transfer Binder] Fed Sec. L. Rep.(CCH) ¶ 78,330 (June 23, 1971); Alphadex Corp., [1971-1972 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 78,624 (Jan. 21, 1972).

129. Investment Decisions, Inc., [1971-1972 Transfer Binder] Fed Sec. L. Rep.(CCH) ¶ 78,330 (June 23, 1971); Alphadex Corp., [1971-1972 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 78,624 (Jan. 21, 1972).

130. 15 U.S.C. § 80b-6 (1976).

131. *Id.*

132. Lovitch, *The Investment Advisers Act of 1940-Who is an "Investment Adviser"?*, 24 U. KAN. L. REV. 67, 75 (1975). For example, in *Sullivan*, the court held that reckless conduct satisfies the scienter requirement. *Sullivan*, 79 F.R.D. at 259 n.2.

133. Lovitch, *supra* note 132, at 75.

134. 15 U.S.C. § 80b (1976); Transamerica Mortgage Advisors, Inc. v. Lewis, 444 U.S. 11 (1979).

135. 444 U.S. 11 (1979).

136. The courts have been split on this issue for quite some time. For a list of the cases holding for each side, see *Sullivan*, 434 F. Supp. at 178-79.

action exists under the Act.[137] In that case, a shareholder of a trust brought suit against investment advisors of the trust for various frauds and breaches of fiduciary duty. The Court, in a split (5-4) decision, held that an implied private cause of action exists only if Congress intended to create a private cause of action.[138] Applying this test, the Court determined that a private remedy did exist under the Act but only for the limited purposes of voiding an investment advisor's contract and for restitution; otherwise no other private causes of action were available under the Act.[139] Therefore, investors who seek to recover damages from the contract or under the anti-fraud provision will be limited to restitution damages (i.e., recovery of the software program's purchase price).[140]

Based on the foregoing, it appears that where a faulty investment advice computer program is involved, a user will probably be able to bring a cause of action under the Act for the purchase price of the program but will be barred from recovering any incidental or consequential damages (e.g., losses in investment value) that result from using the program. Thus, this avenue of recovery is effectively useless to a defrauded program user, since the user will probably want to recover both the cost of the program *and* any investment losses.

IV. A PROPOSED SOLUTION

Computer programs that provide investment advice seem to resemble services more than goods because of the purpose for which users acquire them — to obtain advice. If computer programs that provide advice are viewed as services, then a negligence action appears to be the most appropriate cause of action for determining liability. Specifically, when incompetence is involved, a professional malpractice action should be used. However, when deceit or fraud is involved, a fraud notion should be used or a private cause of action under the Investment Advisers Act should be allowed.

A. INCOMPETENCE

Undoubtedly, producers of goods or services owe some level of care to consumers.[141] The key questions are: (1) what standard of care is owed?, and (2) to whom is it owed? In resolving these issues and determining the standard of care that should be exercised by the producer, one must strive for a standard that is fair, effective, and easy to apply.

---

137. *Transamerica Mortgage,* 444 U.S. at 13.
138. *Id.* at 15-16.
139. *Id.* at 19-24.
140. *Id.* at 24 n.14.
141. Gemignani, *supra* note 73, at 189.

As previously noted, the class of claimants should be limited to those who actually incur damages.[142]

One such standard is professional malpractice. Professional malpractice is, in a form, a balancing test that requires the producer of an advisory program to exercise an average level of care gauged by the reasonable professional in the same trade or occupation.[143] Thus, under this standard, producers of computer software that provide advice will have a duty to provide services that a reasonable producer in the computer software industry would provide.

Imparting upon a producer the designation of "professional" is rational because programmers hold themselves out to be experts with specialized knowledge, skills, and experiences.[144] Under this standard, the producer would not be an insurer but would be required to meet an average level of care.[145]

This standard would also be fair, effective, and easy to apply. In determining whether the producer breached his duty, the court could "look at the adequacy of the testing and debugging."[146] Since no amount of testing and debugging can make a program error-free,[147] the professional malpractice standard would be fair to producers who perform an adequate and reasonable amount of testing. In determining what amount of testing is fair and reasonable,[148] the user, who is trying to establish the breach of duty, can bring in other producers to testify as experts regarding what an average and reasonable level of testing should have been in that particular circumstance. The fact that the user bears the burden here is not unusual since the burden is typically on the user in other professional malpractice suits.[149] Thus, producers who do create a sound product through reasonable testing will not be considered negligent.

In addition, a modified Learned Hand negligence test[150] could be utilized to ensure that a minimum level of care is achieved. In order to

---

142. *See supra* notes 32-33 and accompanying text. In addition, the program should be the proximate cause of the damages. Nycum, *supra* note 78, at 14-15.

143. RESTATEMENT (SECOND) OF TORTS § 299A (1965).

144. Nycum, *supra* note 78, at 9-10.

145. *Id.* at 12.

146. *Id.*

147. Gemignani, *supra* note 73, at 185.

148. The proper amount of testing will probably be a question of fact to be determined by the trier of fact.

149. In an attorney malpractice suit, the burden of proof is on the client to allege and prove every essential fact. Dorf v. Relles, 355 F.2d 488 (7th Cir. 1966), *cited in* 7 AM. JUR. 2D *Attorneys at Law* § 223 (1980). In a medical malpractice suit, the burden of proof is on the patient. Price v. Neyland, 320 F.2d 674 (D.C. Cir. 1963), *cited in* 61 AM JUR. 2D *Physicians, Surgeons, etc.* § 329 (1981).

150. U.S. v. Carroll Towing Co., 159 F.2d 169, 173 (2d Cir. 1947)(Judge Learned Hand

meet the minimum level of care, producers would be required to warn users of the possibility of errors and any program limitations.[151] Imposing such a duty on the producer would promote user protection,[152] as well as producer protection, for those producers who properly disclosed to the users the risks involved. In the situation where a user causes or contributes to the harm incurred, the producer should not be held completely liable.[153] These extra precautions will also protect the user from conduct that borders on fraud and deception.

Thus far, only three courts have even discussed the concept of professional malpractice for computer programmers. None of the cases involved computer systems that provided advice. In *F&M Schaefer Corp. v. Electronic Data Systems Corp.*,[154] the judge, in a pretrial hearing, held that the programmer had committed malpractice.[155] Conversely, in *Chatlos Systems, Inc. v. National Cash Register Corp.*,[156] a buyer of computer hardware and software, designed to perform accounting functions, sued the seller when the system proved to be inoperable. The court declined to create the new tort of computer malpractice because of the absence of sound precedential authority.[157] The court did not believe that an elevated responsibility should exist in this situation even though the activity was "technically complex and important to the business community."[158] In *Invacare Corp. v. Sperry Corp.*,[159] Invacare purchased a computer system to coordinate its accounting and manufacturing operations, but the system failed to operate properly. The court, which acknowledged the *Chatlos*[160] holding, took a step in the direction of computer malpractice but claimed the issue of creating an elevated responsibility for those who perform computer sales and services was not before them.[161] Instead, the court viewed the case as one based upon negligence in a business setting and applied an "*ordinary* standard of care to which those in . . . [the] industry are held."[162] Although there

---

determined that liability should be imposed when the burden of taking precautions is less than the damage incurred multiplied by the probability that the damage will occur).

151. Nycum, *supra* note 78, at 19.

152. This brings up the issue of deceptive advertising by the producer. For a detailed discussion of how deceptive advertising could be limited in this type of situation, see, Craswell, *Interpreting Deceptive Advertising*, 65 B.U.L. REV. 658 (1985).

153. Nycum, *supra* note 78, at 8.

154. Civ. No. 76-3982 (S.D.N.Y. 1977), *discussed in* Nycum, *supra* note 78, at 9.

155. *Id.*

156. 479 F.Supp. 738 (S.D.N.Y. 1979), *modified*, 635 F.2d 1081 (3d Cir. 1980).

157. *Id.* at 740 n.1.

158. *Id.*

159. 612 F. Supp. 448 (D.C. Ohio 1984).

160. 479 F. Supp. at 738.

161. *Invacare*, 612 F. Supp. at 454.

162. *Id.* at 453-54.

does not seem to be much of a difference between professional malprac-
tice and negligence in a business setting, the court attempted to draw a
line between the two. This distinction is pointless, however, since the
standard of professional malpractice can be applied to anyone who pos-
sesses a skill which "is not part of the ordinary equipment of the rea-
sonable man."[163] Because most business occupations require some
extraordinary skill, the standard also applies to individuals in these oc-
cupations. Since the court has acknowledged that recovery is available
for negligence in a business setting (which is a form of professional neg-
ligence),[164] a professional negligence standard for producers of software
programs should be accepted. The court would not be *creating* a "new
tort" but would merely be extending the existing law of negligence.

With the advances in computers, (they can now perform *services*) it
is inevitable that the courts will have to re-analyze this aspect of the
law, especially when cases are brought which involve software that pro-
vides advice. Because courts look to the essence of an agreement to de-
termine if a good or service is involved,[165] and, a computer software
package which provides investment advice is arguably most like a ser-
vice, courts will likely find it easier to apply the negligence standard of
professional malpractice to evaluate the producer's liability. It is impor-
tant to note that this standard would not overly burden the industry; it
is only a reasonableness standard measured against an average reason-
able producer in the industry and is substantially less strict than other
standards which could be used, such as the fiduciary duty standard im-
posed on brokers.[166] Such a stringent standard would severely hinder
the growth of the industry.[167] In addition, there appears to be less priv-
ity between a producer and a user than between a broker and his or her
client. While, a broker is in direct and continuous contact with his cli-
ent and provides advice directly to his client, a producer may never
meet the user and is only providing advice indirectly through the com-
puter program. Therefore, a producer's duty should be less strict than
that of a broker.

However, a producer is the creator of the program and should
shoulder the responsibility when the program malfunctions due to neg-
ligence. An efficient, effective, and fair method of ensuring that the re-
sponsibility is born by a negligent producer is through a theory of
professional malpractice where the standard is that of a reasonable pro-
fessional in the software industry.

---

163. RESTATEMENT (SECOND) OF TORTS § 299 comment a (1965).

164. *Invacare*, 612 F. Supp. at 453.

165. *RRX Industries, Inc.*, 772 F.2d at 546.

166. *See supra* text accompanying notes 50 & 99.

167. *See* Freed, *supra* note 107, at 285; Abrahamson v. Fleshner, 568 F.2d 862, 873 (2d
Cir. 1977).

B. FRAUD

Where fraud is present, allowing users of investment advice programs to recover under the Investment Advisers Act,[168] instead of under a common law notion, would be a fair and effective alternative for several reasons. First, the purpose of the Act is to protect precisely these types of investors.[169] Since it is easier to prove fraud under the Act[170] than at common law, investors would be able to effectively protect themselves through the judicial system. Accordingly, investors should be able to bring a private cause of action under the Act to effectuate its purpose. Second, private causes of action will supplement the SEC's efforts to protect investors and, thus, help to further the aim of the Act. Third, analogous precedents in case law support a private cause of action. Under sections 10(b) and 14(a) of the Security Exchange Act of 1934 and Rule 10b-5,[171] private causes of action have been allowed even though none of the sections has an express provision granting a private remedy.[172] Finally, considering the purpose of the Act and the weight of authority in other cases, the holding in *Transamerica Mortgage Advisors*[173] seems improper. Under a proper application of the *Cort v. Ash* test[174] (the current test used by the courts to determine whether a private cause of action should be implied from a federal statute) the criterion "clearly indicate that § 206 of the Act, 15 U.S.C. 80b-6, creates a private right of action."[175]

Since producers are required to register,[176] a limited private cause of action now exists, and there is substantial support for expanding the private remedy; it seems only proper to further protect users by allowing a private cause of action to exist under the Investment Advisers Act.[177]

V. CONCLUSION

As with any increase in user's and investor's reliance on technology, there develops the potential for abuse. Currently, users of faulty investment advice programs have only a few legal theories under which to recover any losses they have suffered. Under a contract theory, a user might be able to recover if the court finds that the program is a

---

168. 15 U.S.C. § 80b (1976).

169. *See supra* text accompanying note 118.

170. *See supra* note 132.

171. 15 U.S.C. §§ 78j, 78n (1976); 17 C.F.R. § 240.10b-5 (1988).

172. Abrahamson v. Fleschner, 568 F.2d 862, 872-73 (2d Cir. 1977).

173. *Transamerica Mortgage*, 444 U.S. at 11 (dissenting opinion).

174. 422 U.S. 66 (1975).

175. *Transamerica Mortgage*, 444 U.S. at 11, 27 (dissenting opinion).

176. *See supra* text accompanying notes 127-129.

177. 15 U.S.C. § 80b (1976).

good under the UCC. Otherwise, any recovery of damages under a contract theory will be limited and will probably not cover any decreases in investment value. Since the courts are split on this issue, it would be risky for a user to bring this type of action as it might jeopardize the possibility of full recovery. Under a tort theory where fraud is involved, (fraudulent or negligent misrepresentation) current common law fraud notions seem adequate to protect users.[178] Yet, in situations that involve incompetence, the common law does not sufficiently protect users.[179] Therefore, a standard should be implemented that will satisfactorily protect users (i.e., the risk imposed upon the users is at an acceptable level) without stifling an industry that is growing, expanding, and advancing at a tremendous rate.

A professional malpractice standard is the solution. A malpractice standard adequately protects users from producers who create software that was unreasonably tested and debugged. It also protects producers from frivolous claims, as long as they meet the minimum average standards of the industry. Since the programs are created by humans who are far from perfect, there are apt to be problems. Thus, any standard that is applied should be effective and fair to all parties involved (including professional and non-professional investors) as well as flexible and easy to apply. Professional malpractice is such a standard.

Finally, the Supreme Court should broaden the availability of private causes of actions under the Investment Advisers Act[180] in order to provide users with another avenue of recovery in situations where they have been defrauded.

Wayne Hagendorf[*]

---

178. *See supra* text accompanying notes 168-177.
179. *See supra* text accompanying notes 141-153.
180. 15 U.S.C. § 80b (1976).

* B.A. (1987) Franklin and Marshall College, Lancaster, PA; J.D. (1990) University of Southern California, Los Angeles, CA. I would like to thank my parents, the only ones who have believed in me and supported me through it all.