THE PENTIUM PAPERS: A CASE STUDY OF COLLECTIVE INSTITUTIONAL INVESTOR ACTIVISM IN LITIGATION

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Table of Contents

I. INTRODUCTION

Suddenly, the spotlight in securities fraud litigation is on institutional investors. Institutions today hold about half the market value of publicly traded

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equity.[1] They also account for roughly seventy percent of trading volume[2] and collect the lion's share of recoveries in federal class action securities fraud proceedings.[3] Institutions have nonetheless been conspicuous by virtue of their silence in the conduct of multi-million dollar class action securities fraud litigation. That litigation involves billions of dollars of claims in which institutional investors have the largest amounts at stake.

There are several cogent explanations for institutional investors' passivity with respect to class action securities fraud litigation.[4] This passivity is, however, under attack today as never before, and institutions appear to be rethinking their traditionally inactive role in the securities fraud litigation arena. A key provision of the Private Securities Litigation Reform Act of 1995 (the "1995 Reform Act" or "Act")[5] establishes a new category of class action plaintiff known as the "lead plaintiff."[6] The statutory procedure mandated to identify and select lead plaintiffs, together with the accompanying legislative history, create a strong presumption in favor of large institutions over smaller individual investors who have typically undertaken the role of name plaintiff in securities fraud proceedings.[7] Indeed, the legislative history is clear that Congress was concerned that small, individual investors were often incapable of exercising meaningful control over class action counsel.[8] By creating the role of lead plaintiff and by giving institutions a leg up in the procedures used to select lead plaintiffs, Congress hoped that institutional investors would be able to instill a sense of client oversight that Congress found absent in much securities fraud litigation.[9]

Two other recent developments add to the interest in institutional investor participation in litigation. One institutional investor has volunteered to serve as class representative in a securities fraud action that was filed prior to

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1. Carolyn K. Brancato & Patrick A. Gaughan, *Institutional Investors and Capital Markets*, 1991 UPDATE (Colum. Institutional Investor Project, Ctr. for Law & Econ. Stud., Colum. U. Sch. of Law), Sept. 1991, at 8.

2. Elliott J. Weiss & John S. Beckerman, *Let the Money Do the Monitoring: How Institutional Investors Can Reduce Agency Costs in Securities Class Actions*, 104 YALE L.J. 2053, 2056 n.10 (1995) (citing Supplementary Information to Securities Transactions Settlement, 58 Fed. Reg. 52,891, 52,896 (1993)).

3. *Id.* at 2088–94.

4. *See generally* Part II, *infra*.

5. The Private Securities Litigation Reform Act of 1995, Pub. L. No. 104–67, 109 Stat. 737 (1995) (to be codified at 15 U.S.C. §§ 77a et seq.), which was enacted into law on December 22, 1995 over the veto of President Clinton, amends the Securities Act of 1933, 15 U.S.C. §§ 77a–77bbbb (1994) [hereinafter 1933 Act], and the Securities Exchange Act of 1934, 15 U.S.C. §§ 78a–78*ll* (1994) [hereinafter 1934 Act].

6. 1933 Act, § 27 (a)(3), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

7. 1933 Act, § 27 (a)(3), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744; H.R. CONF. REP. NO. 369, 104th Cong., 1st Sess., 32–35 (1995), *reprinted in* 1995 U.S.C.C.A.N. 679, 731–34.

8. *See* H.R. CONF. REP. NO. 369, *supra* note 7, at 32, *reprinted in* 1995 U.S.C.C.A.N. 679, 731.

9. *Id.*

> These provisions are intended to encourage the most capable representatives of the plaintiff class to participate in class action litigation and to exercise supervision and control of the lawyers for the class. These provisions are intended to increase the likelihood that parties with significant holdings in issuers, whose interests are more strongly aligned with the class of shareholders, will participate in the litigation and exercise control over the selection and actions of plaintiff's counsel.

Id.

the effective date of the 1995 Reform Act, and was therefore not subject to the Act's lead plaintiff provision.[10] A second institutional investor has recently moved to intervene in a state court derivative proceeding, thereby intruding into an area that has also been viewed as the traditional domain of smaller individual investors.[11]

Are these events the harbinger of a new era in securities fraud class action litigation? Are institutional investors about to emerge from a cocoon to assert a profound influence on securities fraud litigation just as they have reshaped the debate over corporate governance?[12] Or are these recent events transitory blips in history that herald no continuing pattern in institutional participation in shareholder litigation?

This article suggests that institutional investors have rational incentives to become more active in the litigation arena, but that the current debate is falsely constrained because it rests on the assumption that institutional investors must participate either by (1) assuming the formal role of lead plaintiff, class representative, or intervenor or, (2) not participating at all. This is a false dichotomy because, as this article demonstrates, institutions have available to them a rich array of flexible, informal, and relatively inexpensive mechanisms by which they can make their views known to litigants and courts alike. These alternative, flexible, and informal mechanisms allow institutions to influence the course of litigation without incurring the costs or exposing themselves to the litigation risks inherent in strategies that require formal participation. These informal means of participation could well prove to be the more cost-effective techniques for the expression of institutional investor voice, and may supplant the more formal forms of institutional participation that require lead plaintiff, class representative, or intervenor status.

Put another way, if the age of institutional investor passivity has passed—and it is far too early to relegate that period to the history books—the future of institutional activism in shareholder litigation may look very different from the world of institutional lead plaintiffs contemplated by the 1995 Reform Act.[13] Indeed, the Act may ultimately prove irrelevant to an awakening of institutional shareholder activism.

Our hypothesis that institutional investor activism is more likely to flourish through flexible, informal mechanisms is rooted in practical experience gathered in connection with the Institutional Investors' Forum at Stanford Law School (the "Forum"), a group that first convened in December of 1994. The Forum is a discussion group at which institutional investors meet to learn about and discuss issues of common concern. The Forum takes no position as a group, and has no authority to bind or speak on behalf of any of

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10. *In re* California Micro Devices Sec. Litig., No. C–94–2817–VRW, 1996 U.S. Dist. LEXIS 1361 (N.D. Cal. Feb. 2, 1996).

11. Weiser v. Grace, No. 95–106285 (N.Y. Sup. Ct., filed Apr. 6, 1995).

12. For a review of institutional shareholder influence over the governance debate, see, e.g., Bernard S. Black, *Agents Watching Agents: The Promise of Institutional Investor Voice*, 39 UCLA L. REV. 811 (1992); Bernard S. Black, *The Value of Institutional Investor Monitoring: The Empirical Evidence*, 39 UCLA L. REV. 895 (1992); John C. Coffee, Jr., *Liquidity Versus Control: The Institutional Investor as Corporate Monitor*, 91 COLUM. L. REV. 1277 (1991); Joseph A. Grundfest, *Just Vote No: A Minimalist Strategy for Dealing With Barbarians Inside the Gates*, 45 STAN. L. REV. 857 (1993).

13. Or the voluntary intervention in *Cal Micro* and *Weiser*.

the institutional investors who participate in the Forum's sessions. The Forum is properly described as a "coffee klatch" at which participants meet, discuss, debate, and learn about issues of common interest, including matters related to securities fraud litigation. It was as a result of Forum meetings that smaller groups of institutional investors exercised their own independent judgment and decided to participate informally in two shareholder class action securities fraud proceedings: the litigation growing out of Intel Corporation's difficulties in connection with a flaw in their Pentium microprocessor,[14] and the litigation arising from allegations of fraud involving senior management at California Micro Devices.[15]

This article reports in detail on the institutional investors' role in the Pentium litigation, which consisted simply of writing a detailed letter to plaintiff and defense counsel alike. That letter presented a detached analysis of facts available in the public record suggesting that Intel's management may not have handled the situation as well as possible, but that negated the inference of fraud. The institutional investors requested that counsel respond to their concerns and provide any additional information that would support a finding of fraud so that the institutions could evaluate their preliminary conclusions.

The letters proved effective in suggesting, without concluding, that the litigation lacked merit and should be dismissed. Plaintiffs' counsel in the securities class action complaint against Intel voluntarily dismissed their complaint a day before receiving a copy of the letter. Plaintiffs' counsel in the derivative litigation against Intel decided to dismiss their companion suit within ninety minutes of receiving a copy of the letter. These events demonstrate that, at a minimum, institutional investors can identify complaints that should be withdrawn because they lack merit. At a maximum, these events indicate that a carefully researched letter to counsel sent by large institutions with a stake in the outcome of the litigation can help persuade plaintiff counsel to dismiss a claim that lacks merit. Formal participation and its attendant litigation cost and risk may therefore be an unnecessarily complex and expensive means for institutional investors to express their views on the merits of class action or derivative litigation.

Before turning to the specifics of the Forum participants' involvement in the Pentium litigation, this article first reviews academic literature that helps place institutional activism in a broader theoretical context. Section II provides an overview of the economic analysis of class action dynamics that has emerged over approximately the last decade. In addition to describing the generally accepted model, Section II extends the literature by analyzing in a more textured way the effects that variable claim size and the presence of positive portfolio values will have on the cost-effectiveness of individual monitoring and on other participatory efforts by class members. We argue that the economic model of class actions has, to date, concentrated primarily on a bipolar model in which claims will either be significant enough to opt out of the class entirely or small enough that they must remain in the class action and thereby be susceptible to collective action problems. Our analysis suggests that there exists a third category of situations in which it is rational for members of a class not to opt out yet to become modestly involved through informal means because

14. *See generally* Part IV, *infra.*
15. *See infra* note 226.

they possess claims that are sufficiently large, either because of the sheer size of the claim or, more likely, because of the combination of claim size and the possibility of generating positive externalities that increase portfolio values over time, to warrant monitoring or other participation within the class action. Class actions exhibiting these characteristics, including many securities class actions, present a window of opportunity for new forms of institutional investor activism.

Section III begins to place these theoretical observations into a real world setting by examining the formation of the Institutional Investors' Forum at Stanford Law School. This section discusses the initial preparatory meetings of the Forum, the participants' objectives, the types of cases that Forum participants thought might lend themselves to effective institutional activism, and the types of strategies that the participants devised.

Section IV then turns to the Pentium litigation itself. The section describes in some detail the flaw that was discovered in the Pentium chip and how Intel's response to that problem exacerbated the situation the company faced. The section also describes how these events affected Intel's stock price, and describes the allegations lodged against Intel in the ensuing securities class action, derivative litigation and consumer class actions.

Section V describes the Forum participants' evaluation of the Pentium litigation and the strategy they devised to make known their concerns about the merits of the securities class action and the derivative litigation. The section also describes the outcome of those interventions. Section VI briefly describes the Forum participants' assessment of the consumer class actions against Intel. It describes why the institutions decided not to participate actively in those actions, despite concerns about the proposed consumer class action settlement and, more particularly, about Intel's and plaintiffs' class counsel's agreement concerning attorneys' fees. Finally, Section VII describes some of the preliminary lessons learned from the institutions' activities to date and evaluates some of the provisions of the 1995 Reform Act in light of the Forum's experience. Appendix A reproduces a copy of the "Pentium Letter" forwarded by the institutional investors to plaintiff and defense counsel.

II. THE THEORY OF COLLECTIVE ACTION AND CLASS ACTIONS

The class action device is an attempt to overcome the problem of dispersed injured parties whose damage claims are sufficiently small that they lack incentives to pursue individual litigation.[16] Absent the class action device, collective action problems[17] can prevent the aggregation of individual claims

16. Jonathan R. Macey & Geoffrey P. Miller, *The Plaintiffs' Attorney's Role in Class Action and Derivative Litigation: Economic Analysis and Recommendations for Reform*, 58 U. CHI. L. REV. 1, 8 (1991).

17. This phrase refers to the difficulties that arise in any situation where discrete individuals must coordinate their actions. *Id.* at 8 n.6; *see* IAIN MCLEAN, PUBLIC CHOICE: AN INTRODUCTION 11–12 (1987); MANCUR OLSON, THE LOGIC OF COLLECTIVE ACTION 1–2 (1965); PETER C. ORDESHOOK, GAME THEORY AND POLITICAL THEORY: AN INTRODUCTION 222 (1986). Collective action problems take essentially three forms: free-rider problems, communication and coordination problems, and rational apathy problems. Grundfest, *supra* note 12, at 909.

into one action that would support economically viable litigation.[18] Free-rider problems are among the most common forms of collective action problems.[19] In the presence of free-rider problems, no injured individual has an incentive to undertake the costs of organizing the affected class because any individual who attempts to join together the claims will have no method for taxing the costs of aggregation to the other injured parties. If, as is often likely, those costs exceed the individual's pro rata share of any damages, then each injured party would rationally prefer to allow the others to undertake the costs of bringing a claim while she reaps the benefits for free.[20] Indeed, even if it is individually rational for one party to cause the class to form, each litigant would rather see someone else bear the costs.

Transactions costs present another significant impediment to dispersed claimants, both in organizing the injured claimants and in effectively operating the case. If the number of injured parties is large, joining all of the parties in a single action would be unwieldy, and it would be difficult to communicate with and coordinate the actions of the many plaintiffs.[21]

The class action procedure addresses these problems in several ways. First, it creates an inexpensive method for aggregating claims because one injured party can litigate the action[22] on behalf of all injured parties, provided that the representative party's claims are typical of the class' claims as a whole and the representative party adequately represents the interests of the class.[23] More importantly, the class action procedure vests in the plaintiff's lawyer financial incentives to prosecute the action on behalf of the affected class.[24]

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18. John C. Coffee, Jr., *Understanding the Plaintiff's Attorney: The Implications of Economic Theory for Private Enforcement of Law Through Class and Derivative Actions*, 86 COLUM. L. REV. 669, 679 (1986).

19. MCLEAN, *supra* note 17, at 143–47.

20. Macey & Miller, *supra* note 16, at 8; *see* Grundfest, *supra* note 12, at 908.

21. Macey & Miller, *supra* note 16, at 8–9.

22. The party seeking class certification must, of course, demonstrate that the action fits into one of the three subcategories described in Rule 23(b). FED. R. CIV. P. 23(b) (1966). Shareholder class actions are most often certified under Rule 23(b)(3), in which "questions of law or fact common to the members of the class predominate over any questions affecting only individual members, and [the] class action is superior to other available methods for the fair and efficient adjudication of the controversy." *Id.*; *see* FED. R. CIV. P. 23(b)(3), Advisory Committee Notes, 1966 Amendments (recognizing that "a fraud perpetrated on numerous persons by the use of similar misrepresentations may be an appealing situation for [(b)(3) treatment], and it may remain so even despite the need, if liability is found, for separate determination of the damages suffered by individuals within the class.").

23. FED. R. CIV. P. 23(a). Rule 23(a) also requires a showing that the class is so numerous that joinder of all members is impracticable and that there are questions of law or fact common to the class. *Id.*

24. Although Rule 23 contains no attorneys' fee provision, the court has the power to award attorneys' fees to the extent that the attorneys have conferred a benefit on the class or have created a common fund from which the class members can recover for any injuries they may have suffered. Boeing Co. v. Van Gemert, 444 U.S. 472, 478 (1980); Mills v. Electric Auto-Lite Co., 396 U.S. 375, 389–97 (1970); *see* Blum v. Stenson, 465 U.S. 886, 900 n.16 (1984). There are two theories for granting such awards. First, an economic rationale posits that such awards are necessary to encourage private attorneys to litigate socially beneficial actions. Charles Silver, *A Restitutionary Theory of Attorneys' Fees in Class Actions*, 76 CORNELL L. REV. 656, 658 (1991). This is the private attorneys general or "bounty hunter" theory of class actions. *See* Coffee, *supra* note 18, at 669 n.1. The second theory is based on restitution; because the attorney has conferred a benefit on the class at her own expense, she is entitled to recover the reasonable value of her services. *Boeing*, 444 U.S. at 478; Central Railroad & Banking Co. v.

Plaintiffs' attorneys, who often receive roughly twenty to thirty percent of the amount of any settlement or judgment as compensation for their efforts,[25] will typically have more at stake in the litigation than any individual claimant within the class.

A. The Classical Paradigm: A Bipolar Model

Over approximately the last ten years, an economic analysis of the class action system has emerged based largely on the work of John Coffee, Jr.,[26] and Jonathan Macey and Geoffrey Miller.[27] This literature emphasizes that although class actions resolve one set of collective action problems, they do so at a price: they can create high agency costs[28] and generate an entirely new set of collective action problems.[29] This view of class actions recognizes that, like all agency relationships, the interests of the agent (the class action attorney) and the principal (the class) are not perfectly aligned.[30] While the same misalignment can occur in a traditional single plaintiff/single attorney relationship, class actions present significantly greater opportunities for attorneys to engage in opportunistic behavior because the representative plaintiff's typically small stake in the action creates insufficient incentives for the named plaintiff or other class members to monitor counsel's conduct.[31] Instead, it is often suggested that the named plaintiff tends to be merely a "figurehead who adds little or nothing to the conduct of the litigation,"[32] other than to serve as a

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Pettus, 113 U.S. 116, 126–27 (1885); Silver, *supra*, at 657–58. Denying an award of attorney's fees would unjustifiably enrich the class members at the attorney's expense. *Id.*

Courts generally are charged with awarding fees in class actions, which are calculated according to one of two methods: the lodestar or the contingency method. Macey & Miller, *supra* note 16, at 22–23. These methods and the misalignment of incentives they may create are discussed in more detail below. *See infra* notes 36–43 and accompanying text.

25. John C. Coffee, Jr., *The Regulation of Entrepreneurial Litigation: Balancing Fairness and Efficiency in the Large Class Action*, 54 U. CHI. L. REV. 877, 890 n.31 (1987); Weiss & Beckerman, *supra* note 2, at 2059 n.29 (citing Court Awarded Attorney Fees, Report of the Third Circuit Task Force, 108 F.R.D. 237, 247 n.32 (Oct. 8, 1985)).

26. *See, e.g.*, John C. Coffee, Jr., *Rethinking the Class Action: A Policy Primer on Reform*, 62 IND. L.J. 625 (1987) [hereinafter Coffee, *Rethinking the Class Action*]; Coffee, *supra* note 25; Coffee, *supra* note 18; John C. Coffee, Jr., *The Unfaithful Champion: The Plaintiff as Monitor in Shareholder Litigation*, 48 LAW & CONTEMP. PROBS. 5, 12 (1985) [hereinafter Coffee, *Unfaithful Champion*].

27. *See* Macey & Miller, *supra* note 16.

28. Agency costs are those costs incurred to control inappropriate behavior in a principal-agent relationship, like the traditional relationship between the individual client and her attorney. The agent engages in inappropriate behavior when she does not provide her best effort in performing her duties ("shirking") or where her discretionary behavior is guided by her own self-interest rather than the best interests of the principal ("opportunism"). Coffee, *supra* note 18, at 679–80; *see* Oliver E. Williamson, *The Modern Corporation: Origins, Evolution, Attributes*, 19 J. ECON. LIT. 1537, 1544–46 (1981); Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 308–09 (1976). Agency costs also include the residual costs of the agent's inappropriate behavior that is not cost effective to deter or prevent. *Id.*

29. The collective action problems in class actions are similar to those found in the proxy context. Grundfest, *supra* note 12, at 908–14.

30. Macey & Miller, *supra* note 16, at 12–27.

31. *Id.* at 19–20; Coffee, *supra* note 18, at 679–80.

32. Macey & Miller, *supra* note 16, at 83; Weiss & Beckerman, *supra* note 2, at 2059–60. Scholars are not alone in recognizing that lawyers instigate and effectively control the conduct of this type of litigation; courts recognize this reality as well. *See, e.g.*, Kamen v. Kemper Fin. Servs., 908 F.2d 1338, 1349 (7th Cir. 1990), *rev'd on other grounds*, 500 U.S.

"ticket of admission" that confers on the class action attorney the ability to file the suit.[33]

The costs associated with these problems are well-documented in the literature and there is no need to reiterate them at length here.[34] For present purposes, it is sufficient to summarize two particular manifestations of these problems: the misincentives arising from the award of attorneys' fees and the potential for excessive litigation.

The differing incentives between the class and their attorney are readily observable, and in fact can be exacerbated by the fee structures that predominate in those actions.[35] The prevailing method for calculating attorneys' fees is the lodestar method, under which the court attempts to compensate the plaintiffs' attorney for the reasonable value of the time she spent prosecuting the action, with adjustments in certain cases based on the quality of the work, the riskiness of the litigation, or other similar factors.[36] In this situation, attorneys may have incentives to engage in make-work or otherwise to multiply their charges, at least to the extent they expect the court will still approve those fee requests.[37] Excessive charges of this nature are obviously contrary to the interests of the class because any fee award is deducted from the common fund.[38] The incentives created by the lodestar method may also cause plaintiffs' attorneys to settle for a lower amount on the eve of trial, even if they reasonably expect that they could obtain a greater recovery for the class at trial.[39] This is so because just before trial the class' attorneys have completed most of the work upon which their fee will be based, and they typically expect insufficient additional fees by going to trial to compensate them for the risk of losing and recovering nothing.[40]

The alternative method for awarding fees, the percentage of recovery method, is gaining broader acceptance, but can also create misincentives, including incentives for plaintiff counsel to agree to "premature" settlements.[41]

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90 (1991) (recognizing that "[s]ecurities [class] actions, like many suits under Rule 23, are lawyers' vehicles").

33. Coffee, *supra* note 18, at 683.

34. *See, e.g.*, Macey & Miller, *supra* note 16; Coffee, *supra* note 25.

35. *See* Coffee, *supra* note 25, at 887–89; Coffee, *supra* note 18, at 669–70.

36. Lindy Bros. Builders, Inc. v. American Radiator & Standard Sanitary Corp., 487 F.2d 161, 166–69 (3d Cir. 1973), *aff'd in part and vacated in part*, 540 F.2d 102 (3d Cir. 1976); *In re* Activision Sec. Litig., 723 F. Supp. 1373, 1374–75 (N.D. Cal. 1989); Macey & Miller, *supra* note 16, at 22; Weiss & Beckerman, *supra* note 2, at 2071.

37. Macey & Miller, *supra* note 16, at 22–23; Coffee, *supra* note 25, at 887–88. For an excellent critical discussion of the lodestar method, see *In re* Oracle Sec. Litig., 131 F.R.D. 688 (N.D. Cal. 1990).

38. The 1995 Reform Act addresses this problem in one context by prohibiting the payment of attorneys' fees from Securities Exchange Commission disgorgement funds. 1933 Act, § 20(f), 1995 U.S.C.C.A.N. (109 Stat.) 737, 756; 1934 Act, § 21(d)(4), 1995 U.S.C.C.A.N. (109 Stat.) 737, 756–57. The 1995 Reform Act also limits attorneys fees in all cases to "a reasonable percentage of the amount of any damages and prejudgment interest actually paid to the class," although the Act is notably silent on what factors the court is supposed to consider in making that determination. 1933 Act, § 27(a)(6), 1995 U.S.C.C.A.N. (109 Stat.) 737, 740; 1934 Act, § 21D(a)(6), 1995 U.S.C.C.A.N. (109 Stat.) 737, 745.

39. Coffee, *supra* note 25, at 888.

40. *Id.*

41. In *Chesny v. Marek*, Judge Posner offers the following example to illustrate this problem:

> Suppose a defendant offers $100,000, the contingent fee is 30 percent regardless of when the litigation ends, and the lawyer is sure he can get a judgment for

Both methods create the potential for collusive agreements where the plaintiffs' attorney barters a low settlement or a settlement paid predominantly by the corporation rather than by culpable individuals for a high negotiated attorneys' fee or for an agreement that the defendants will not oppose plaintiffs' attorneys' fee request.[42] These costs are ultimately absorbed by shareholders through at least two distinct mechanisms. First, to the extent that litigation involving real fraud is settled "on-the-cheap" there will be excessive fraud in the market because of insufficient settlements that under-deter harmful behavior. Second, because incentive structures in class action litigation make it rational to sue defendants who are in fact innocent of any wrongdoing, social costs are imposed in the form of excessive resources devoted to unnecessary litigation costs.[43] At the end of the day, we may have too many weak cases filed and too many good cases settled out too cheaply.

Another cost associated with these differing incentives is the potential for excessive litigation because plaintiffs' attorneys may expect to profit from a suit even though that suit may not be in the best interests of shareholders they theoretically represent. Disputes over the extent to which such suits exist and over whether (or, more accurately, how much) the actual merits of the particular case matter in negotiating shareholder class action settlements have been heavily debated since Janet Cooper Alexander's 1991 article on the topic.[44] Certainly, all securities class actions do not fall in this category but the potential danger presented by such strike suits has long concerned the courts in connection with derivative and other shareholder litigation.[45] Moreover, several scholars have persuasively demonstrated the potential for plaintiffs' attorneys to profit from filing non-meritorious suits because of the cost

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> $120,000 if the case is tried but knows that it will cost him, in time and other expenses, $8,000 to try it. His client will be better off if the case is tried, for after paying the lawyer's fee he will put $84,000 in his pocket rather than $70,000 if it is settled. But the lawyer will be worse off, since his additional fee, $6,000 ($36,000 – $30,000) will be less than the trial costs of $8,000 that he must incur.

720 F.2d 474, 477 (7th Cir. 1983), *rev'd on other grounds*, 473 U.S. 1 (1985). *See also* Coffee, *supra* note 25, at 887.

42. Macey & Miller, *supra* note 16, at 44–45; *see* Coffee, *Unfaithful Champion*, *supra* note 26, at 24; Weiss & Beckerman, *supra* note 2, at 2067–71 (describing circumstances surrounding settlement of securities and derivative actions against Warner Communications and some of its officers and directors). An example of such a settlement is the one General Motors recently entered to settle class action litigation that alleged that older model General Motors trucks were defective because they posed an excessive fire hazard in certain collisions. That settlement, which was rejected on appeal to the Third Circuit, would merely have given owners of allegedly defective trucks coupons toward the purchase of a new General Motors truck. *In re* General Motors Corp. Pick-Up Truck Fuel Tank Prods. Liab. Litig., 55 F.3d 768 (3d Cir. 1995), *cert. denied*, 116 S. Ct. 88 (1995). Judicial review, however, may only be a weak constraint against collusive settlements. *See infra* text accompanying note 58.

43. Joseph A. Grundfest, *Why Disimply?*, 108 HARV. L. REV. 727, 732 (1995).

44. Janet C. Alexander, *Do the Merits Matter? A Study of Settlements in Securities Class Actions*, 43 STAN. L. REV. 497 (1991); *see, e.g.*, James Bohn & Stephen Choi, *Fraud in the New-Issues Market: Empirical Evidence on Securities Class Actions*, 144 U. PA. L. REV. 903 (1996); Grundfest, *supra* note 43, at 739–43; Joel Seligman, *The Merits Do Matter: A Comment on Professor Grundfest's "Disimplying Private Rights of Action Under the Federal Securities Laws: The Commission's Authority,"* 108 HARV. L. REV. 438 (1994); Weiss & Beckerman, *supra* note 2, at 2080–84.

45. *See, e.g.*, Surowitz v. Hilton Hotels Corp., 383 U.S. 363, 371 (1966); *In re* Time Warner Inc. Sec. Litig., 9 F.3d 259, 263 (2d Cir. 1993), *cert. denied*, 114 S. Ct. 1397 (1994).

differentials and asymmetric stakes that prevail in class action litigation.[46] In these cases, the plaintiffs' attorneys, potentially with very little cost to themselves, can impose substantially larger costs on the defense. Even if the defendant believes that it is likely to prevail at trial, it may be cheaper for the defendant to settle than to litigate the case to a successful conclusion.[47] Indeed, the ability to impose costs on defendants may create incentives under certain circumstances to file lawsuits even where the net present value of going to trial is negative under a discounted cash flow model.[48] In these situations, the costs of too many lawsuits again will ultimately be borne by shareholders.

Although economists have identified a number of tools for reducing the costs associated with agency problems,[49] the scholars examining these problems have demonstrated that these tool can be largely ineffective in the litigation context.[50] Consider the problem of monitoring. In the traditional attorney-client relationship, monitoring costs can be high because of the attorney's greater expertise and familiarity with the record.[51] In addition, the attorney's actions are not always readily observable making it difficult to detect shirking or other opportunistic attorney behavior.[52] These same problems prevail in securities class actions. The typical representative plaintiff is often a small investor who may not possess the legal or investment sophistication necessary to evaluate the legal theories asserted in the complaint or the underlying factual merits of the case.[53] In other cases, it has been suggested that representative plaintiffs may have been recruited by class counsel or may otherwise have a close relationship with counsel that may undermine their ability or willingness to assess whether the attorney is acting in the best interests of the class as a whole.[54]

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46. Coffee, *supra* note 25, at 889–90; Coffee, *Unfaithful Champion*, *supra* note 26, at 13–33 (discussing derivative litigation).

47. Grundfest, *supra* note 43, at 740–741. The costs and benefits of litigating the case to conclusion include the defense costs and any ancillary benefits the defendant derives from not settling, e.g., developing a reputation for not settling cases that may decrease the number of suits brought against it in the future. *Id.* at 741 n.76. Like the plaintiffs' attorney, the defendant will often have additional strong incentives to settle cases rather than try them to conclusion. *See* Alexander, *supra* note 44, at 528–34, 548–68. Even the court evaluating a proposed settlement may prefer settlement to trial. *See infra* text accompanying note 58. The strong incentives against trial on all sides of the case are the likely reason why the vast majority of class actions are settled or are terminated by pre-trial motions. *See* Weiss & Beckerman, *supra* note 2, at 2064; Frederick C. Dunbar et al., *Shareholder Litigation: Deterrent Value, Merit and Litigants' Options* (Business, Law, and Economics Center, Washington University), Oct. 27, 1995, at 1 (finding that from January 1991 through December 1994, 83% of shareholder class actions were settled rather than reaching any other disposition).

48. Lucian A. Bebchuk, *A New Theory Concerning the Credibility and Success of Threats to Sue*, 25 J. LEG. STUD. 1 (1996); Bradford Cornell, *The Incentive to Sue: An Option-Pricing Approach*, 19 J. LEGAL STUD. 173 (1990); Joseph A. Grundfest & Peter H. Huang, Real Options and the Economic Analysis of Litigation: A Preliminary Inquiry (1996) (unpublished Working Paper, Stanford Law School).

49. Among the tools available in these situations are monitoring by the agent and bonding by the principal. Jensen & Meckling, *supra* note 28, at 308. Macey and Miller suggest that another strategy is to create devices that more closely align the interests of the principal and agent. Macey & Miller, *supra* note 16, at 13.

50. Macey & Miller, *supra* note 16, at 13.

51. *See* Coffee, *supra* note 25, at 884.

52. *See* Macey & Miller, *supra* note 16, at 13–14; Coffee, *supra* note 25, at 884.

53. *See* Weiss & Beckerman, *supra* note 2, at 2060.

54. *Id.* at 2059–61. Much criticism has been lodged against the practice of class action attorneys employing so-called "professional plaintiffs" as their representative plaintiffs in class

These monitoring problems are exacerbated by collective action problems. The shareholder with a small injury will have little or no incentive to undertake the significant costs of effectively monitoring the entrepreneurial attorney because he would incur all the costs of monitoring but only realize a share of the benefits.[55] Rule 23's solution to this problem—requiring the court to approve all settlements[56]—has been challenged as largely ineffective because courts have neither the time nor the information necessary to review rigorously the merits of the settlement. Courts reviewing class action settlements typically invoke the "strong judicial policy favoring the resolution of disputes through settlement."[57] The court's incentives may reinforce this policy because approving a settlement (even a clearly deficient settlement) will often be more attractive than retaining the likely complicated case for further proceedings, including potentially a long and protracted trial.[58] This incentive is likely to be particularly strong in districts with crowded dockets where pressures are high to dispose of cases expeditiously.

The misalignment of incentives in class action litigation can also express itself in the form of conflicts among class members. Consider, for example, a mass tort class action in which significant conflicts can arise in structuring a settlement that divides recoveries between class members who have currently manifesting injuries and class members who have been exposed to the defective product but whose injuries will only manifest, if ever, on a later date.[59] Analogous conflicts can develop in securities litigation between, for example,

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actions. Indeed, the 1995 Reform Act contains several provisions aimed at limiting this practice. The statute states that "a person may be a lead plaintiff, or an officer, director, or fiduciary of a lead plaintiff, in no more than 5 securities class actions brought as plaintiff class actions pursuant to the Federal Rules of Civil Procedure during any 3-year period." 1933 Act, § 27(a)(3)(B)(vi), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(vi), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744. The statute also prohibits any payments for serving as lead counsel other than the same pro rata share of the recovery that all other class members receive and any "award of reasonable costs and expenses (including lost wages) directly relating to the representation of the class." 1933 Act, § 27(a)(4), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(4), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

Although this system is problematic because it may impede effective monitoring of the class action attorney, it is a logical outgrowth of the class action system. The so-called private attorney general system is designed to create rewards for those who seek out specified wrongful conduct. Because the attorney's potential rewards for finding such conduct are much greater than those of many of the potential members of the class, it is not surprising that attorneys have taken a much more active role in bringing such cases. Creating a ready stable of representative plaintiffs, or creating devices to access such plaintiffs, is simply a way for the attorney to limit the costs associated with bringing class action litigation. Coffee, *supra* note 18, at 682–83.

55. Macey & Miller, *supra* note 16, at 19–20. Practical experience supports this observation. For example, individual class members with small claims rarely step forward to contest requests for awards of attorneys' fees. *In re* Oracle Sec. Litig., 131 F.R.D. 688, 689 (N.D. Cal. 1990); *In re* Activision Sec. Litig., 723 F. Supp. 1373, 1374 (N.D. Cal. 1989).

56. FED. R. CIV. P. 23(e).

57. Parker v. Anderson, 667 F.2d 1204, 1209 (5th Cir. 1982), *cert. denied*, 459 U.S. 828 (1982); *see also In re* Warner Communications Sec. Litig., 618 F. Supp. 735, 740 (S.D.N.Y. 1985), *aff'd*, 798 F.2d 35 (2d Cir. 1986) (noting that "the court starts from the familiar axiom that a bad settlement is almost always better than a good trial").

58. Alexander, *supra* note 44, at 566; Coffee, *Unfaithful Champion*, *supra* note 26, at 26–27; Macey & Miller, *supra* note 16, at 45–47; Weiss & Beckerman, *supra* note 2, at 2066–67.

59. *See* Ryan v. Dow Chem. Co., 781 F. Supp. 902, 919 (E.D.N.Y. 1991), *aff'd*, 996 F.2d 1425 (2d Cir. 1993), *cert. denied*, 114 S. Ct. 1125 (1994); *see generally* John C. Coffee, Jr., *Class Wars: The Dilemma of the Mass Tort Class Action*, 95 COLUM. L. REV. 1343 (1995).

shareholders who purchased shares during a period of price inflation but who did not sell those shares and those traders who bought and sold during the period.[60] Rule 23 attempts to address these kinds of problems by permitting certification of subclasses, but the creation of subclasses may lead to even higher costs[61] because each subclass will likely suffer from similar collective action and agency cost problems as the class as a whole, and because greater transactions costs will be generated as the various factions battle over distribution of any settlement. In extreme cases, conflicts can be so significant that they preclude use of the class action device.[62] Even if class members overcome these problems and actively monitor the litigation, communication and coordination costs remain substantial.[63]

All of these difficulties, either working alone or in combination, can create rational apathy among class members.[64] If class members rationally calculate that active participation in the litigation has only a small likelihood of affecting the ultimate resolution of the case—either because their interest in any possible recovery is so small or because they anticipate collective action problems will prevent a group response among class members—then those class members may decide to take no action at all.[65] The consequence of this rational apathy can be a class action attorney who operates not as the agent for the class but as an independent entrepreneur who maintains a portfolio of actions, and who is driven largely by his or her own self-interest in prosecuting those claims.[66] The potential result is an inefficient class action procedure characterized by either vexatious litigation or by premature termination of meritorious actions.

Although this analysis provides a powerful explanation for many of the problems that plague class action litigation, it overlooks a more subtle analysis of the effect that variability of claim size and other factors can have on resolution or amelioration of collective action problems.[67] Instead of

60. *See, e.g., In re* Seagate Technology II Sec. Litig., 843 F. Supp. 1341 (N.D. Cal. 1994).

61. FED. R. CIV. P. 23(c)(4).

62. *See, e.g., In re Seagate*, 843 F. Supp. 1341.

63. Providing current information to widely dispersed class members is itself an expensive and difficult proposition. If lines of communication are implemented, class members still face the problem of devising a timely method for obtaining input on litigation decisions, most of which are unlikely to involve simple yes or no propositions. Any system developed would likely be so unwieldy that it would eliminate, or at least greatly impair, many of the benefits derived from the class action procedure, which established the named plaintiff as a means of eliminating these problems in the first place.

64. *See* Grundfest, *supra* note 12, at 909–10.

65. *See id.* at 910–11.

66. Coffee, *Rethinking the Class Action*, *supra* note 26, at 628; Coffee, *supra* note 18, at 677; Coffee, *Unfaithful Champion*, *supra* note 26, at 12; Macey & Miller, *supra* note 16, at 19–27.

67. This discussion focuses on class actions seeking predominantly monetary relief rather than claims seeking predominantly injunctive relief, *i.e.*, those claims not certified under Federal Rule of Civil Procedure 23(b)(2) or state equivalents. Actions certified under Rule 23(b)(2) can exhibit many of the same collective action problems and misalignment of incentives as actions seeking monetary relief. These actions, however, may contain a large ideological component that significantly alters either the attorneys' or the class members' incentives. As Professor Coffee has noted: "In much 'public interest' litigation, the structure of the 'public interest' law firm—in particular, its independent board, its more limited ability to pay out earnings to its attorneys, and its need to raise funds from donors in the future—may substitute

considering the possibility that there is a range of both potential class actions and different kinds of class members, most scholars have employed an essentially bipolar model. This comment is not intended as a criticism—employing a simplified, bipolar model makes eminent sense when one seeks to demonstrate the presence of the dynamics summarized above. Nonetheless, when searching for a solution to collective action problems, it is important to define the optimal conditions that present the best possibility for individual class members to overcome collective action problems.

The bipolar model of class action dynamics is premised on the assumption that individual claims aggregated in the class action will all tend to be small enough to prevent any single claimant or group of claimants from monitoring the class action attorney or otherwise becoming actively involved.[68] To be sure, some commentators have recognized that there is likely to be a great deal of variability in the size of claims in a shareholder class action and that the largest claimant is likely to be the most effective monitor:[69] But the analyses typically stop with that observation[70] and then go on to observe that such large claimants will have strong incentives to, and often will, opt out of the litigation to avoid certain effects that are often present in class actions that may tend to reduce the amount high stakes claimants can expect to recover if they remain in the class action.[71]

In particular, class actions often exhibit adverse selection problems.[72] Claimants with weak or non-meritorious claims (or, more accurately, their attorneys) who want to obtain some recovery from the defendant will tend to employ the class action mechanism rather than an individual action because they hope that, despite the deficiencies in their causes of action, they may still be able to recover from a global settlement of all claims.[73] In other words, these claimants seek to become lost in the crowd and to obtain recovery because the defendant or court is unable to distinguish readily these claimants from those with more meritorious claims. At the same time, in settling cases there tends to be an "averaging of claims" effect, whereby the presence of weak claims may drive down the average expected recovery for all claimants.[74] Weaker claimants benefit from this effect because they may be able to obtain some recovery, even though they may not be entitled to any recovery on a strictly

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for client control and produce substantial monitoring of attorney opportunism." Coffee, *supra* note 18, at 680. For these reasons, actions such as these are beyond the scope of this article.

68. Weiss & Beckerman, *supra* note 2, at 2088; *see, e.g.*, Coffee, *supra* note 25, at 894–95; Macey & Miller, *supra* note 16 (authors focus predominantly on issues arising in "large-scale, small-claims" litigation).

69. *See* Coffee, *supra* note 25, at 879, 895–96. Professor Coffee was an early adherent of preferring the attorney for the largest claimant for the role of lead counsel. The proposed 1995 Reform Act takes the same approach.

70. *See, e.g., id.*

71. *Id.* at 904–17.

72. *Id.* at 906–07; *see* George A. Akerlof, *The Market for 'Lemons': Quality Uncertainty and the Market Mechanism*, 84 Q.J. BUS. & ECON. 488 (1970). In economics, "[a]dverse selection now refers to any situation in which an individual has knowledge about his own quality (the goods he sells, his ability to perform, his health status) while whomever he is dealing with knows only about the characteristics of the average member of the group." VICTOR P. GOLDBERG, READINGS IN THE ECONOMICS OF CONTRACT LAW 2 (1989). In other words, adverse selection is a problem of hidden information. PAUL MILGROM & JOHN ROBERTS, ECONOMICS, ORGANIZATION & MANAGEMENT 150 (1992).

73. Coffee, *supra* note 25, at 906–07.

74. *Id.* at 917.

legal basis. But this benefit conferred on the weak claimants tends to harm stronger claimants because those stronger claimants will tend to recover an amount less than they could expect to obtain in an individual action.[75] These claimants will have an incentive to opt out of the class.[76]

The adverse selection effect, when present, thus tends to drive the "stronger" claims out of the class action. Those that remain in the class, this analysis suggests, will tend to have unmarketable claims, i.e., weak or non-meritorious claims or claims that are insufficiently large to support an independent action. While this analysis appears correct as far as it goes, to date there has been little attempt to delineate the differences among these independently non-viable claims.[77] Instead, it has largely been assumed that these claimants will, more or less, be victims of collective action problems. For this reason, adherents of this view have largely eschewed improved monitoring or other similar devices, and have instead gravitated toward proposals that they claim will more closely align the incentives of the plaintiffs' attorney and the class.[78]

B. The Expanded Model: Active Low-Cost Monitoring by Class Members

In contrast to this largely bipolar model, we suggest that securities fraud class action litigation may support a third alternative. This alternative is reinforced by the recent emergence of a more textured view of the "unmarketable" claims that remain in class actions, at least with respect to class actions alleging securities fraud claims.[79] Professors Weiss and Beckerman, among others, have recognized that institutional investors are often the largest claimants in securities class actions, with claims potentially large enough to make individual monitoring actions within the class action cost effective.[80] In a

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75. *Id.* at 916–17.

76. *See id.* at 906–07. The recent breast implant litigation provides an example of these phenomena. There, a class member with a strong claim could reasonably anticipate that she would be better off if she opted out of the class action and pursued an individual action rather than accepting the comparatively small sums available through the negotiated settlement. As a result, many of the stronger claims did in fact opt out, leaving many of the weak claims in the class action, a result that undermined many of the benefits of the settlement for the defendants. Indeed, defendants in that case (as well as defendants in other mass tort class actions) anticipated this problem and sought to protect themselves should the opt outs become too numerous. The breast implant settlement provided that if too many plaintiffs opted out of the class, then the defendants could walk away from the settlement. *In re* Silicone Gel Breast Implant Prods. Liab. Litig., No. CV–92–P–100000–S, 1994 U.S. Dist. LEXIS 12521, at *17, *23, and *65 (N.D. Ala. Sept. 1, 1994); *see also* Georgine v. Amchem Prods., Inc., 157 F.R.D. 246, 325 (E.D. Pa. 1994) (noting that settlement contained such a provision), *vacated*, No. 94–1925, 1996 U.S. App. LEXIS 11191 (3d Cir. May 10, 1996); Coffee, *supra* note 59, at 1382 n.144.

77. Coffee, *supra* note 25, at 904–07.

78. *See, e.g.*, Coffee, *Unfaithful Champion*, *supra* note 26, at 12 (advocating that "the law should seek to fashion the incentives that it holds out so as to align better the interests of the plaintiff's attorney with those of his clients."); Coffee, *supra* note 25, at 881–82 (criticizing class action reform proposals for their "excessive reliance on monitoring devices"); Macey & Miller, *supra* note 16, at 105–16 (advocating that plaintiffs' claims be auctioned off with the plaintiffs receiving the proceeds of the auction and the winning bidder retaining the difference between the bid price and the recovery in the suit).

79. Weiss & Beckerman, *supra* note 2.

80. *Id.* at 2088–94. There had been some earlier mention in the literature of the possibility of institutional investors engaging in monitoring efforts in shareholder class actions. Professors Macey and Miller observed, in a discussion of inefficiencies in the Supreme Court's

study of eighty-two class actions, they found that the fifty largest claimants "accounted for a median of 57.8% and an average of 57.5% of all allowed losses, even though they represented only a median of 1.7% and an average of 3.5% of all claims filed."[81] The average and median losses for these claimants were $597,000 and $267,927, respectively.[82] In fifteen of the class actions studied, the "fifty largest claimants' average allowed loss exceeded $1 million."[83]

Weiss and Beckerman concentrate on the absolute size of the institution's claim in the class action. However, the size of claims or potential claims in any particular class action is only one piece of the puzzle because size alone may not create sufficient incentives for institutions to undertake monitoring. For example, even if Institution *X* has fifty percent of the potentially allowable claims in a class action, if that class action is the only one the institution reasonably expects to encounter "in scale," then it may still be rational to let the traditional mechanism operate. In such a situation, it may not be cost effective for an institution to design and implement monitoring or other strategies if they may only be utilized once. This cost-benefit analysis may change, however, if the institution can expect that it will have significant claims in many class actions. In this scenario, a "repeat game" effect[84] may occur, and in those circumstances the institution may generate sufficient positive externalities over the course of its participation in multiple class actions to justify monitoring costs in individual class actions.

Data cited in the Weiss/Beckerman article suggest that such a repeat game effect may occur with respect to institutional investor actions because institutional investors have a significant presence in the equity securities markets as both traders and investors.[85] For example, evidence indicates that in 1990, institutions owned over fifty percent of public and private equity securities.[86] Other studies estimated that in 1992, institutional investors accounted for roughly seventy percent of the daily trading volume on the New York Stock Exchange.[87]

Moreover, even if the institution expects large claims in numerous class actions, activism is unlikely if the marginal costs of activism exceed the expected benefits from activism. Consider, for example, an institution that expects to recover $1 million from a class action if it undertakes the role of lead plaintiff, but only $800,000 if it engages in no active participation in the class action. The institution will only engage in these activities if the cost of activism (including opportunity costs) is less than $200,000. This analysis

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interpretation of the notice rules, that notice to institutional investors holding large potential claims in shareholder class actions "would serve due process values, and would also facilitate potential monitoring of the plaintiffs' attorney by sophisticated claimants with relatively substantial stakes." Macey & Miller, *supra* note 16, at 33 n.103. Professors Macey and Miller, however, only mentioned the possibility of using institutional investors as monitors in passing, and did not develop any scheme for how such monitoring efforts might operate.

81. Weiss & Beckerman, *supra* note 2, at 2089.
82. *Id.*
83. *Id.*
84. *See generally* ORDESHOOK, *supra* note 17, at 441–84.
85. Weiss & Beckerman, *supra* note 2, at 2056 nn.9–10.
86. *Id.* at 2056 n.9 (citing Brancato & Gaughan, *supra* note 1).
87. *Id.* at 2056 n.10 (citing Supplementary Information to Securities Transactions Settlement, 58 Fed. Reg. 52,891, 52,896 (1993)).

suggests three factors that should strongly influence whether institutions undertake more active participation in class actions. First, for the institution to generate some positive gain, it must currently be recovering less than it otherwise would recover from the class action if the class action procedure were operating at a more efficient level. Although the evidence is far from conclusive, some studies suggest that class members recover a low percentage of their actual losses.[88] If this is so, then institutions may be able to achieve positive net benefits from activism.

Second, the level of activism should be a function of the costs associated with the activities that generate positive benefits. If the only actions likely to alter materially the institution's gross recovery are those with high associated costs, then the marginal benefits may be outweighed in all but the rare case where the institution has an extremely large claim. If this is the case, individual institutions are likely to become active in fairly limited situations. Activism may be increased in this situation if the costs can be spread among a group of institutions. Activism may also be increased if the class member can devise effective, lower cost strategies which may be utilized in a broader array of cases.

A third consideration involves the amount "at stake" in any given class action. It is inappropriate to view this amount as merely the institution's losses in a case because activism may produce ancillary benefits that extend beyond the merits of any given case. A common example of this type of effect from the defense perspective is the mass tort defendant, like a cigarette manufacturer, who will rationally spend more in defense costs than the probable jury award in a given case in order to avoid an adverse judgment that may prompt additional claims or awards against it or to develop a valuable reputation for tenacity.[89] So too with plaintiff class members; if a class member can foresee positive benefits to its portfolio from individual actions (such as from a future decrease in non-meritorious litigation), then she may take actions that would not be cost justified from the perspective of the individual class action viewed in isolation. A cost-benefit analysis still applies, however. If the class member determines that individual action is still unlikely to enhance substantially portfolio values over time, or if the costs of individual action still exceed the expected increases in portfolio values, then rational apathy and a suboptimal level of monitoring or participation are likely to occur.

These observations suggest that the bipolar economic picture of class actions that has prevailed to date has failed to appreciate fully the effect that other factors, such as disproportionately large potential claimants within the class or the possibility of positive portfolio effects, may have on class action dynamics. Figure 1 presents a more textured view; it depicts a continuum that attempts to highlight the area in which collective action problems are most likely to be overcome. In Figure 1, the significance of claims within the class increases from left to right. On the far left side of this continuum are class actions characterized by uniformly small claims, none of which are economically viable as independent claims. This is the archetypal class action,

88. *Id.* at 2089.
89. ORDESHOOK, *supra* note 17, at 451–52.

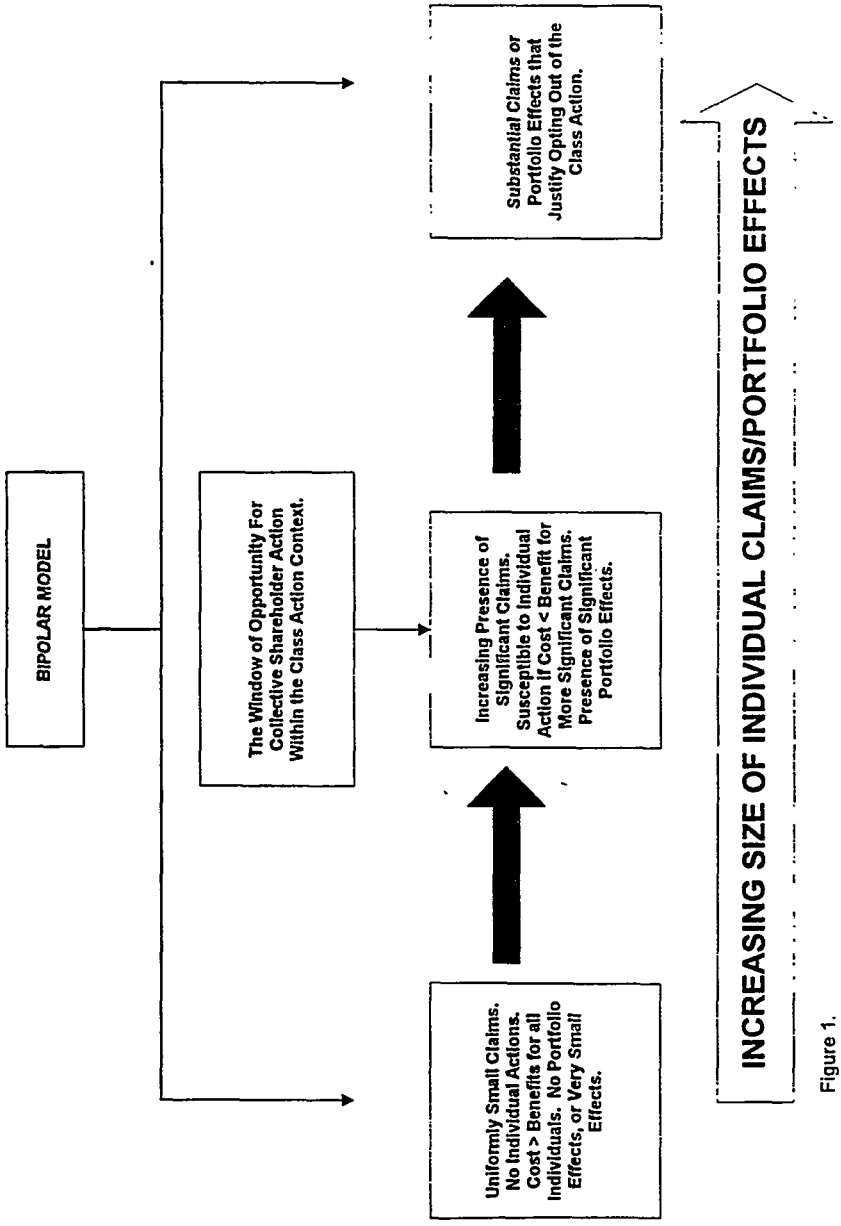
BIPOLAR MODEL
The Window of Opportunity For Collective Shareholder Action Within the Class Action Context.
Uniformly Small Claims. No Individual Actions. Cost > Benefits for all Individuals. No Portfolio Effects, or Very Small Effects.
Increasing Presence of Significant Claims. Susceptible to Individual Action if Cost < Benefit for More Significant Claims. Presence of Significant Portfolio Effects.
Substantial Claims or Portfolio Effects that Justify Opting Out of the Class Action.
INCREASING SIZE OF INDIVIDUAL CLAIMS/PORTFOLIO EFFECTS

Figure 1.

and the situation both courts[90] and commentators[91] often address when discussing class actions. Examples of this type of action include many consumer cases[92] and products liability cases not involving personal injury.[93] The claims in these kinds of actions are all small enough that the classic collective action scenario will tend to predominate because no class member is likely to take independent action within the larger class action to monitor the attorneys or otherwise attempt to address the high agency costs. Individual claimants may still rationally undertake monitoring or other individual activities in this type of action, but such initiatives are only likely if they can generate large externalities with positive portfolio effects for the claimant.

In contrast to class actions with uniformly small claims or portfolio effects, the class actions on the far right side of the continuum are characterized either by the presence of at least some significant claims that are independently viable as individual actions or the presence of sufficiently large portfolio effects.[94] These claimants will have a strong incentive to opt out of the class action. Mass tort cases provide the best example of this phenomenon. In these cases, adverse selection and averaging of claims problems can drive out large claimants and claimants with stronger cases.[95]

Between the two extremes lie class actions characterized by either: (1) the presence of some class members with claims that are significant but not quite large enough to make opt out a viable option; or (2) the presence of significant portfolio effects but, again, effects that are not large enough to justify pursuit of a separate action. This area presents a window of opportunity for a new class of low-cost responses that are designed to overcome the collective action problems inherent in class actions. These low-cost strategies provide an additional set of tools, which are rarely used, that can have an attractive cost-benefit ratio in a larger number of situations.

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90. *See, e.g.*, Phillips Petroleum Co. v. Shutts, 472 U.S. 797, 809 (1985); Eisen v. Carlisle & Jacquelin, 417 U.S. 156 (1974).

91. *See, e.g.*, FLEMING JAMES, JR. ET AL., CIVIL PROCEDURE 555–56 (4th ed. 1992); Macey & Miller, *supra* note 16, at 3.

92. *See, e.g.*, Miner v. Gillette Co., 428 N.E.2d 478 (1981) (dispute over company's failure to provide promotional table lighter to certain consumers).

93. For example, a large number of product liability cases were brought against the manufacturers and sellers of polybutylene plumbing pipe because of allegations the pipe fittings deteriorated when exposed to warm water and chlorine. *See* Williams v. Shell Oil Co., 169 B.R. 684 (S.D. Cal. 1994). Because damages claims were often relatively small, many of these cases were brought as class actions. *See In re* U.S. Brass Corp., 173 B.R. 1000 (Bankr. E.D. Tex. 1994); *see also Du Pont Joins in Plastic Plumbing Settlement*, N.Y. TIMES, Nov. 18, 1995, at 37; *Settlement Approved Over Leaky Plumbing*, N.Y. TIMES, Nov. 10, 1995, at D4.

94. The significance of claim size or of portfolio effects is not the only factor that may drive opt outs. If entrepreneurial plaintiffs' attorneys can expect higher compensation in an individual action, then they may cause their clients to opt out of a class action, even if it may result in a lower potential recovery for their clients. *See* Coffee, *supra* note 25, at 881. This is, of course, another example of the costs associated with the client's inability to monitor effectively their attorneys.

95. Opt out is not inevitable, however, even if the claims are sufficiently large to support an independent action. A plaintiff with such a claim may rationally prefer the class action device because, among other things, it may reduce transaction costs, it threatens defendants with greater liability thereby potentially inducing settlements, or it prevents individual claimants who obtain earlier judgments from obtaining a disproportionate share of the defendant's possibly limited assets. *Id.* at 904.

Individual action of this sort is especially likely to be worthwhile, and therefore more likely to occur, if the individual class members can achieve and benefit from broader systemic sources of gain from these activities. In particular, by improving the process in individual cases, even through actions that might not be cost-justified by looking at that case in isolation, repeat players can generate positive externalities that lessen these costs over time. Again, the incentive to undertake such individual actions will be increased if the large claimant can develop low-cost strategies that generate costs commensurate with the likely benefits for individual actors.

Employing strategies that utilize this window of opportunity for individual monitoring or other actions has the added benefit of not requiring or depending on any reform of class action procedures. While there may be no objections in theory to auctioning off plaintiffs' claims to the highest bidder, such an alteration of the judicial process would likely face significant opposition and would be unlikely to be enacted.[96] By contrast, encouraging monitoring or active participation by those who may already possess sufficient financial incentives to do so requires little more than educating those claimants about the benefits of undertaking such efforts, designing strategies for those claimants, and assisting those claimants in implementing the agreed upon strategies. Indeed, it was the belief that significant and meaningful securities reform legislation was unlikely that formed the impetus for creating the Institutional Investor Forum at Stanford Law School. Although that belief ultimately turned out to be mistaken, an examination of the principles underlying the Forum and its activities provides a useful benchmark for evaluating the overall potential for successful institutional activism as well as for assessing the possible effect that the 1995 Reform Act may have on such activism.

III. THE FORMATION OF THE INSTITUTIONAL INVESTORS' FORUM AT STANFORD LAW SCHOOL

A. Theory

Underlying the formation of the Institutional Investors' Forum at Stanford Law School (the "Forum") was the recognition that at least some shareholder class actions might fall in a window far enough toward the right side of the continuum described in Figure 1 to make individual action economically viable. The later publication of the Weiss/Beckerman data[97] documented and reinforced the observation that institutional investors may have large enough stakes in class actions to support some type of individual action, even though those stakes may be too small to justify opting out of the class and pursuing individual actions.

Moreover, there is more than just the mere size of the potential recoveries involved to prompt institutional shareholder action. Institutional investors should also be in a position to recognize broader systemic sources of gain from activism. Like all shareholders, institutional investors are harmed by fraud and have incentives to reduce the incidence of fraudulent activities in the

96. Indeed, as will be more fully explored below, even the reforms contained in the 1995 Reform Act may have been unnecessary. *See infra* Section VII.

97. Weiss & Beckerman, *supra* note 2, at 2088–94.

securities markets.[98] At the same time, institutional investors' large presence in the market over time means that they will tend to bear a greater portion of the costs imposed by inefficiencies in class action litigation.[99] For example, when plaintiffs' class action attorneys are able to obtain a settlement in a case that may have little substantive merit simply because they have an ability to impose substantial litigation costs on defendants, institutional investors bear a large share of the inefficiency costs generated by this litigation through their shareholdings. Inefficiencies of this sort will essentially impose a tax on capital formation that will be reflected in higher capital costs or insufficient capital formation as too many resources are spent on litigation costs and litigation avoidance.[100] If the institutions that bear a large share of these costs can undertake initiatives in individual class litigation to make class actions generally more efficient, they may be able to enhance sufficiently their portfolio values to justify the expense of the individual initiatives. Indeed, this is the same type of analysis that has led some institutional investors to become active in corporate governance issues.[101]

Because they bear the costs associated with both the presence of fraud and of inefficiencies in class action litigation, institutions have natural incentives to seek a balanced resolution of the problems presented by securities class litigation. Those incentives closely reflect society's aggregate interests.[102] Institutional investors may therefore represent the best, although clearly an imperfect, proxy for the public interest in shareholder litigation, rather than the individual investor who one more often thinks of in this context. Indeed, the interests of the individual investor and the institution may be adverse, or at least may not be coterminous, in a given class action. This dissonance is not necessarily a signal that the institution's position should be ignored because it may be that the institution's position, rather than that of the individual investor, is more harmonious with society's larger interests. An individual investor is likely to have a comparatively small stake in a given class action, as well as comparatively small equity holdings in general. Such a shareholder may not rationally care about inefficiencies in the class action system. By contrast, the size of institutional investors' holdings and the fact that they collect a disproportionately large percentage of class action recoveries should lead institutions to balance their interests against being victims of fraud with their interests in minimizing the costs imposed by shareholder class litigation.

While it is important to recognize these differences between the institutional investor and the average shareholder, it is also important to recognize that the larger institutions are in many cases aggregations of small investors. Collective action problems and the difficulty of focusing on larger

98. Grundfest, *supra* note 43, at 732; H.R. CONF. REP. NO. 369, *supra* note 7, at 34, *reprinted in* 1995 U.S.C.C.A.N. 679, 734.

99. *See* Grundfest, *supra* note 43, at 732.

100. *See id.* Of course, the presence of fraud will have similar effects because the corporation's shareholders will bear these costs through employment agreements or through the costs of directors' and officers' insurance policies. Dunbar et al., *supra* note 47, at 12 n.22; Thomas M. Jones, *An Empirical Examination of the Resolution of Shareholder Derivative and Class Action Law Suits*, 60 B.U. L. REV. 542, 568 (1980).

101. *See generally* Grundfest, *supra* note 12 (discussing institutional action in a corporate governance context).

102. H.R. CONF. REP. NO. 369, *supra* note 7, at 34, *reprinted in* 1995 U.S.C.C.A.N. 679, 733.

systemic concerns mean that the individual investor has little incentive to focus on the big picture.[103] A major mutual or pension fund, which in reality comprises the holdings of many smaller investors, can take that broader view. Thus, politically and socially, the institutional investor represents much the same constituency as the individual investor.[104] Focusing on the needs of institutional investors, however, causes that constituency to consider its entire portfolio and the full consequences of its actions.

The formation of the Forum was also premised on the belief, which ultimately turned out to be mistaken, that securities reform legislation was unlikely to be enacted. Under that assumption, it was believed that large institutional investors had available to them techniques for overcoming collective action problems and for influencing the conduct of litigation without the need for any legislative reform. Intriguingly, the 1995 Reform Act does in fact provide a concrete role for institutional investors.[105] The experience of the Forum's participants to date, however, raises concerns with respect to this legislative initiative, particularly the provisions regarding the appointment of lead plaintiffs. The Act's emphasis on encouraging institutions to play that role may represent a higher cost strategy than may be necessary to achieve positive benefits in shareholder class litigation and, in fact, may make institutional initiatives too costly in all but the rare case. These concerns are more fully discussed later in the paper.[106]

B. Practice

The Forum is a loose and informal gathering of institutional investors which seeks to act as a vehicle for responding in a textured way to challenges posed by the lack of policing of shareholder and securities litigation. Its closest model is the coffee klatch. The Forum makes no decisions, can bind none of its participants, and leaves all decision making to the independent judgment of each participating institutional investor.[107] The Forum is a vehicle for discussion, not a decision making body.

The Forum began with a series of three informational meetings. The first meeting was among representatives of institutions with total assets in excess of $500 billion. At this first meeting, institutional representatives shared information and concerns about class action and other shareholder litigation and the role that institutions might play in those cases. These representatives were encouraged to speak broadly about possible strategies for the Forum. The primary goal of this session was to "test the waters" by searching for common interests, concerns, and uncertainties so as to construct a future agenda that might provide a foundation for collective action in litigation.

The second preparatory meeting brought together leading plaintiffs lawyers, defense lawyers, the General Counsel of the Securities and Exchange Commission, and judges. This meeting was a full day session the goal of which

103. *See supra* notes 16–78 and accompanying text.

104. The legislative history to the 1995 Reform Act recognizes that institutional investors are really just conglomerations of smaller investors. H.R. CONF. REP. NO. 369, *supra* note 7, at 34, *reprinted in* 1995 U.S.C.C.A.N. 679, 733.

105. *See supra* notes 5–9 and accompanying text.

106. *See infra* Section VII.

107. Needless to say, under these circumstances, the Forum does not represent the views of Stanford Law School or any of its faculty.

was to talk through problems and opportunities in the field of shareholder litigation.

A third meeting was then held to discuss strategies in light of the information garnered from the first two meetings and from additional research. At that time, some general themes evolved. Participants perceived the Forum as an experiment that would involve a great deal of learning by doing. To bring structure to that process participants observed that they would prefer to start with low-cost approaches before experimenting with more costly strategies. In addition, it was observed—in keeping with the notion that institutions have incentives to reduce the costs associated with fraud as well as the costs associated with inefficient class actions—that the Forum participants should strive for a balanced approach to institutional investor activism. In other words, there should be no predisposition in support of either the defense or the plaintiff side, and Forum participants should search for opportunities to participate from varying perspectives.

The desire to stress a balanced approach to class actions resulted in the decision to focus on three different kinds of problems that may exist as a result of collective action problems. First, the Forum would search for opportunities for institutional participation in those class actions that appeared to lack merit. These cases would include those which might have been brought even though the negative portfolio effects on shareholders in general were greater than any expected benefit in the litigation.[108]

Second, the Forum would search for opportunities for institutional action in cases where it determined that proposed settlements were too easy on defendants. Among such situations, the Forum participants were interested in finding cases where settlements were structured so that the corporate entity paid while the culpable individuals were let off.[109] These situations represent another agency problem inherent in class actions. The plaintiffs' class action attorney has an incentive to maximize the total settlement amount, so that its own fee is increased.[110] That attorney cares little, if at all, about the deterrent effect of any settlement.[111] So too, the individual shareholder with narrow holdings who does not bear the brunt of the costs associated with class action inefficiencies will rationally care about the total size of the settlement, with little regard for deterrence. While an institution also cares about the total settlement amount, its broader presence in the securities markets creates incentives to maximize the

108. *See supra* notes 44–48 and accompanying text.

109. Jones, *supra* note 100, at 568. Studies conducted by National Economic Research Associates have found that director and officer defendants contribute personally to settlements in only a small number of cases and in those cases their contribution is often only a small portion of the total settlement payments. Dunbar et al., *supra* note 47, at 12.

110. This is certainly true if the attorney is paid on a contingency basis. It is also true if the attorney's fee is calculated under the lodestar method. The higher the settlement amount, the greater the support the attorney can expect from the plaintiff class. The size of the fund created for investors is also a factor in a court's determination of the appropriate fee. *See, e.g.*, Johnson v. Georgia Highway Express, Inc., 488 F.2d 714, 718 (5th Cir. 1974) (noting that result obtained is factor in determining award of attorneys' fees). Finally, it is possible that executives or directors who also may be defendants in the class action will agree to a higher settlement, or will undertake not to oppose any fee request, if the defendant corporation pays the settlement amount.

111. Indeed, it may be against the best interests of a plaintiffs' attorney to maximize deterrence because this may cause a net decrease in the number of securities frauds in the future, thereby decreasing the number of opportunities for filing shareholder class litigation.

deterrent effect of settlements so that the overall costs of fraud are reduced because these benefits may exceed the potential for an excessive recovery in any given case. This alternative view means that the institution may, in a particular case, care more about where the money comes from (i.e., the structure of the settlement) rather than the total amount paid. For example, an institution could rationally prefer a $5 million payment that comes directly from the culpable officers and directors over a $10 million payment by the corporation or its insurance carrier. Such a settlement may have a greater positive benefit for institutions over time because it may do more to deter future fraudulent conduct. At that same time, the institutions recognized that care was necessary in this area so that capable people are not deterred from becoming officers and directors of corporations by the prospect that judicial error could expose them to potentially large damage awards even if they engaged in no violative conduct.

A third opportunity identified by Forum participants was composed of situations where it appeared that litigation would be worthwhile but was not being pursued. In these situations, the institutions' stakes may have been sufficiently large that it would have been worthwhile to commence an individual or class action. The group, however, was not optimistic that it would be able to find many such potential cases.

In addition to identifying these general areas for activity, in the first set of meetings the Forum participants also focused on four strategies the institutions generally found worthy of further consideration. First, the institutions sought to supply an investor voice with respect to litigation that appeared to lack merit. Such a voice could be provided through, for example, a letter to class counsel to the effect that the signatories represent a significant portion of the purported class and believe the action to be without merit and costly to their investment. Such a letter would ask that the litigation be dismissed or that class counsel respond to their concerns. Second, the Forum participants were generally in favor of proposals to promote competition among counsel for the right to represent the class, in the direction of Judge Vaughn Walker's competitive bidding approach for the selection of lead counsel, as a method for reducing the costs of litigation.[112]

Third, the Forum participants observed that it could be beneficial to oppose requests for attorneys' fees where those fees appeared too high, even where the Forum supported the substance of a proposed settlement. Finally, the Forum participants observed that it may be worthwhile, in appropriate cases, to object to a settlement itself to attempt to force plaintiffs' lawyers to try the case when there was a concern that a meritorious action was being settled too cheaply, or that culpable parties were not being held individually responsible, thereby lessening the deterrent effect of the law.

The Forum's approach is quite different from the lead plaintiff model proposed by Weiss and Beckerman and adopted in the 1995 Reform Act.[113] Indeed, Professors Weiss and Beckerman suggest that any role other than the lead plaintiff role would be largely ineffective, both because the institution

112. *See, e.g., In re* Oracle Sec. Litig., 132 F.R.D. 538 (N.D. Cal. 1990); *In re* Oracle Sec. Litig., 131 F.R.D. 688 (N.D. Cal. 1990). In these cases, Judge Walker recognized many of the collective action problems and the misalignment of incentives discussed in this paper.

113. *See supra* notes 2–9 and accompanying text.

"would have less influence over plaintiffs' attorneys" and because the institution would have to pay its own attorneys' fees and a share of the fees payable to lead counsel.[114] While it is true that institutions that do not choose to pursue the lead plaintiff role will lose the opportunity of appointing lead counsel, this does not mean that they will entirely lose their influence over class counsel. As a practical matter, the mere fact that an institution is a large, sophisticated claimant that possesses a significant portion of the alleged claims in the class action should lend significant credence to the views it expresses. Moreover, Professors Weiss' and Beckerman's discounting of the costs associated with serving as lead plaintiff seems overly optimistic. They fail to consider adequately the costs associated with, for example, identifying in a timely fashion the class actions where becoming lead plaintiff will be cost effective and the opportunity and other costs related to discovery, such as the significant expenditure of time necessary for identifying and producing documents and testifying at depositions.[115] Although some, but probably not all, of these costs can be recovered under the 1995 Reform Act,[116] that recovery is contingent upon a favorable outcome and may only come after a significant time lag. It seems likely that institutions will also consider significant the less quantifiable costs associated with the greater scrutiny of their investment decisions, philosophy, and practices and of their actions as lead plaintiff that should come with assuming the lead plaintiff's spot.[117] Indeed, the historical reluctance of institutions to participate actively in class actions may be driven in large part by their unwillingness to undergo such scrutiny.

Taken together, these factors suggest that an institution may only be willing to seek to become lead plaintiff where it expects a very large return from taking on that role. These cases may be quite rare, thereby limiting the opportunities for institutional activism. This analysis is similar to the one that led the Forum participants to favor lower cost/lower visibility approaches. Such approaches do not require as significant an increase in recoveries in order to be cost effective, nor do they expose the institution to the same scrutiny as would becoming lead plaintiff. A real world demonstration of the potential effectiveness of these low-cost strategies—the Forum participants' participation in the Pentium litigation—is discussed below.

IV. THE FIRST TEST FOR THE FORUM: THE PENTIUM FLAW AND THE ENSUING LITIGATION

Contemporaneous with the Forum's third meeting in January 1995, a number of the individual institutional investors discussed taking action in class action and related litigation that had recently been brought against Intel Corporation and certain of its officers and directors as a result of flaws in Intel's Pentium chip. The California Public Employees' Retirement System, the College Retirement Equities Fund, the Stanford Management Company, and Wells Fargo Institutional Trust Company, were members of the shareholder class as pleaded in the complaints and were also current Intel shareholders.

114. Weiss & Beckerman, *supra* note 2, at 2096.

115. 1933 Act, § 27(a)(2)(A)(iii), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(2)(A)(iii), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

116. 1933 Act, § 27(a)(4), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(4), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

117. *See infra* Section VII.

These four institutional investors agreed that if the data and underlying analysis supported the conclusion that these cases appeared to lack merit, they would support a letter to counsel explaining the basis for their concerns and asking counsel to respond with further information in support of plaintiffs' claims.

The decision to write a letter to class counsel, instead of pursuing some other strategy, was based on a number of strategic observations. First, the strategy was inexpensive. When experimenting with a new approach of uncertain effectiveness, institutional investors are reasonably interested in minimizing the cost of their participation so that a failed effort does not impose a burden on their funds. Strategies that can be described as "least cost" approaches to the resolution of collection action problems therefore have a particular appeal, especially as starting points for practical action.

Second, the institutional investors determined that they did not want to prepare a formal court filing if alternative, effective modes of communication were available. The informality of the proposed communication meant that the institutions would not have to retain counsel or obtain internal approvals that might otherwise be necessary as a precondition to a formal appearance.

Third, the strategy was reversible and did not commit the institutions to any particular position. Because the letter posed detailed questions to class counsel, counsel was always free to explain that the institutional investors had misperceived the claim or failed to consider all relevant information. In that event, the institutions remained free to change the position suggested by the initial analysis supporting the letter.

Fourth, the approach was consistent with the investors' fiduciary obligations to their beneficiaries. By seeking further information designed to help them evaluate the merits of a claim, the institutions were clearly acting in a manner consistent with their fiduciary obligations. If plaintiffs' counsel were unable to respond cogently to concerns raised in the letter, the institutions would gain information valuable for any further decisions regarding the exercise of their claims.

Fifth, the institutional investors recognized that if this low-cost strategy was to have a reasonable chance of success, it was necessary for the letter to contain a significant degree of detail and substance. If the correspondence lacked analytic heft, it could either be marginalized by plaintiffs' counsel or produce a highly subjective or idiosyncratic response that would not address the substance of the investors' concerns. As a result, the institutional investors authorized a careful study of the class and derivative actions as well as a detailed statistical analysis of Intel's stock price movements during the relevant period. A substantive, thoughtful, and detached response to such a letter would be necessary for purposes of plaintiffs' credibility.

The institutional investors ultimately determined, based on the outcome of the analysis they authorized, to pursue the proposed strategy of sending a letter to counsel in the class and derivative actions that questioned the merits of those actions. Before discussing the specific concerns raised in the letter, however, it is first necessary to provide some background on the Pentium flaw, Intel's response to that flaw, and a description of the litigation that ensued.

A. The Pentium Flaw and Intel's Response

Intel introduced the Pentium Processor in May 1993.[118] As an integral part of its strategy to maintain market share as rival companies began to market copies of Intel's earlier 386 and 486 chips, and as margins on these earlier product lines began to decline.[119] Intel also sought to attract more users from the scientific and engineering communities by improving the Pentium chip's mathematical performance in comparison to the performance of predecessor 386 and 486 chips.[120] Unknown to Intel when it first began production of the microprocessor, however, was that there was a software flaw embedded in the Pentium that would affect the chip's performance in certain applications.

The flaw involved the application of an algorithm to certain floating point calculations.[121] The algorithm the Pentium chip employs uses a look-up table (i.e., a matrix of precomputed values) to calculate intermediate quotients for iterative floating point divisions.[122] In essence, the microprocessor estimates successive digits in the answer by looking up numbers in the table.[123] The Pentium flaw resulted from an error in downloading a look-up table from the previous generation 486 chip into the Pentium. As a consequence of this error, five of the entries that were supposed to be contained in the table were missing.[124] Those five cells, which were supposed to contain the constant +2, instead were empty and were read by the computer as zeros, thereby skewing certain computations.[125] This flaw was sufficiently subtle that it was apparently not discovered in the approximately 10 billion tests Intel performed on the Pentium prior to its release,[126] and Intel did not become aware of the problem until June 1994 when additional testing disclosed it after the chip was already in production.[127]

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118. Peter H. Lewis, *I.B.M. Halts Sales of its Computers with Flawed Chip*, N.Y. TIMES, Dec. 13, 1994, at C6.

119. *See* Don Clark, *Intel Is Embarking on Big Campaign to Buoy Pentium*, WALL ST. J., Apr. 27, 1994, at B4.

120. Linley Gwennap, *How Bad Is the Pentium FPU Bug?*, MICROPROCESSOR REP., Dec. 26, 1994, at 11.

121. The size of numbers that a CPU, like the Pentium, can handle in a single calculation is limited by the computer's word length. A computer using an 8-bit word cannot simultaneously process numbers larger than 255 (2^8–1). To eliminate this problem, computers use floating point notation, a system where large numbers are represented as fractions multiplied by a power of ten. For example, the number 597 can be written as 5.97×10^2. The advantage of such a system is "the ability to represent the significant digits of data with values spanning a large dynamic range limited only by the capacity of the exponent field." JONAR C. NADER, PRENTICE HALL'S DICTIONARY OF COMPUTING 176–77 (1992). The disadvantage of the system is that only the significant digits can be represented. Thus, in a system limited to five significant digits, there is no difference between 123451 and 123452, both are represented as 1.2345×10^5. *Id.*

122. Tom R. Halfhill, *The Truth Behind the Pentium Bug*, BYTE, Mar. 1995, at 163.

123. Gwennap, *supra* note 120, at 11; David Stipp, *What Do You Really Need to Know About the Floating Point?*, WALL ST. J., Dec. 14, 1994, at B6.

124. Gwennap, *supra* note 120, at 11.

125. Halfhill, *supra* note 122, at 163. This was not the only flaw in the Pentium chip, as subsequent disclosures revealed. Linley Gwennap, *Intel Releases Pentium Errata List*, MICROPROCESSOR REP., Mar. 6, 1995, at 15. However, these flaws were not unusual for a new microprocessor. *Id.*

126. Sebastian Rupley, *When Good Chips Go Bad*, PC MAG., Feb. 7, 1995, at 32; *see also* Tom Abate, *Chip Flaw Not Intel's Only Error*, S.F. EXAMINER, Dec. 18. 1994, at B–1.

127. INTEL CORP., STATISTICAL ANALYSIS OF FLOATING POINT FLAW IN THE PENTIUM(TM) PROCESSOR (1994) 1 (Nov. 30, 1994) [hereinafter STATISTICAL ANALYSIS];

Similar flaws are not uncommon in the computer industry. Problems appear on a fairly regular basis in new hardware (including Intel's earlier 386 and 486 microprocessors) and software. These problems are often remedied with "software patches"—simple programs designed to work around the problem or otherwise remedy it—or "upgrades" that correct prior errors while adding new features.[128] In this case, Intel determined that it would not notify purchasers of the flaw because, in its view, the problem was unlikely to affect ordinary users.[129] Instead, the company planned to remedy the problem during the course of its regularly scheduled product updates.[130]

The Pentium flaw was disclosed publicly for the first time on October 30, 1994, through a posting on the Internet. A mathematician at Lynchburg College in Virginia, Thomas Nicely, discovered the flaw when he used his Pentium-based computer to perform a long series of calculations in an ongoing number theory project.[131] When the computer generated solutions that Nicely knew were incorrect, he spent four months determining that the flaw lay within the Pentium chip itself. Nicely notified Intel of the problem and when he received responses from the company that he deemed inadequate, he sent an electronic mail over the Internet soliciting others to reproduce his results.[132]

After the flaw surfaced, various claims were made concerning how often the problem might affect Pentium users. Intel claimed that wrong quotients would be arrived at "in less than one in nine billion random divisions involving floating point integers" and that the "flaw [could] affect only digits beyond the thousandths place in numbers expressed in scientific notation".[133] Based on these figures, Intel claimed that a typical spreadsheet user might come up with wrong answers once every 27,000 years.[134] Intel concluded that "the flaw [was] of no concern to the vast majority of users of Pentium processor based systems."[135] Because typical users had no or few occasions to employ floating point calculations, Intel concluded that the Pentium flaw was insignificant. However, "[a] few users of applications in the scientific/engineering and financial engineering fields who require unusual precision and invoke millions

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Barry Cipra, *How Number Theory Got the Best of the Pentium Chip*, SCIENCE, Jan. 13, 1995, at 175; Gwennap, *supra* note 120, at 11.

128. Don Clark, *Fixed Pentiums Won't Be Available Soon*, WALL ST. J., Dec. 1, 1994, at B7; Joan E. Rigdon, *Frequent Glitches in New Software Bug Users*, WALL ST. J., Jan. 18, 1995, at B1; Stephen K. Yoder, *The Pentium Proposition: To Buy or Not to Buy*, WALL ST. J., Dec. 14, 1994, at B1; *see also* Joan E. Rigdon, *Hewlett–Packard Discloses Chip Flaw in Some of Its Workstations, Servers*, WALL ST. J., Apr. 27, 1995, at B5; *Intuit Confirms a Bug In Quicken Software Tied to Capital Gains*, WALL ST. J., Mar. 6, 1995, *available in* Westlaw; Bart Ziegler, *IBM Temporarily Halts Production of OS/2 Warp Software Because of Bug*, WALL ST. J., Oct. 27, 1994, at B8.

129. Cipra, *supra* note 127, at 175.

130. Don Clark, *Intel Balks at Replacing Pentium Chip Without Asking Owners Any Questions*, WALL ST. J., Dec. 14, 1994, at A3.

131. Cipra, *supra* note 127, at 175.

132. *Id.*

133. STATISTICAL ANALYSIS, *supra* note 127, at 1; Stipp, *supra* note 123, at B6.

134. Halfhill, *supra* note 122, at 164.

135. STATISTICAL ANALYSIS, *supra* note 127, at 1. Intel reasoned that:

> The significance of the flaw depends upon (a) the rate of use of specific [floating point] instructions in the Pentium CPU, (b) the data fed to them, (c) the way in which the results of these instructions are propagated into further computation in the application; and (d) the way in which the final results of the application are interpreted.

of divides per day may need to employ either an updated Pentium processor without the flaw or a software workaround."[136]

Although initially confined to the Internet, discussion and criticism of the Pentium flaw soon made its way into both the industry press and popular news accounts.[137] On November 22, 1994, CNN reported on the existence of the flaw. Although Intel continued to downplay the flaw's significance, other reports challenged Intel's analysis and contributed to a heightening public relations problem for Intel. Publicity concerning the flaw intensified on December 12, 1994, when IBM suggested that Intel had significantly underestimated the potential frequency of Pentium errors. IBM also claimed that more frequent errors could arise, not only in complex mathematical calculations, but also in widely used spreadsheet applications.[138] IBM claimed an error rate of one in every 100 million, a rate that was approximately ninety times greater than that claimed by Intel.[139] As a result, IBM announced that it would temporarily cease shipments of all Pentium-based personal computers.[140] IBM, it should be noted, was then selling relatively few Pentium-based machines and had the bulk of its sales in 486-based processors.[141] As some industry observers noted, IBM's commercial interests could be enhanced by slowing the Pentium adoption rate.[142]

These different conclusions were not surprising because Intel and IBM used widely different assumptions concerning the number of floating point divisions a user would execute per day and the number of those calculations that would involve the mistakenly empty cells in the algorithm. Perhaps the best that could be said without conducting detailed studies was that the applicable error rate would vary significantly depending on the particular application and would be unlikely to affect most users.[143] Indeed, this was the thrust of Intel's own

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136. *Id.*

137. Don Clark, *Some Scientists Are Angry Over Flaw in Pentium Chip, and Intel's Response*, WALL ST. J., Nov. 25, 1994, at B4; Gwennap, *supra* note 120, at 11.

138. Lewis, *supra* note 118, at A1; Bart Ziegler & Don Clark, *Computer Giants' War Over Flaw in Pentium Jolts the PC Industry*, WALL ST. J., Dec. 13, 1994, at A1.

139. Gwennap, *supra* note 120, at 11. Some observers considered IBM's estimate to be "an extreme upper bound on the actual probability." *Id.* Based on this estimate, IBM asserted that an error could arise once every 24 days. *Id.* This estimate of one failure per 24 days has been challenged as "transparently fallacious." *Id. See also* M.L. BARTON & R.A. PASSOV, ANALYSIS OF FLOATING POINT DIVIDE CALCULATIONS IN SPREADSHEET APPLICATIONS IN THE COMMERCIAL PC MARKETPLACE (undated) (challenging IBM's analysis and conclusions); INTEL CORP., INTEL'S REVIEW OF IBM'S CLAIMS, Dec. 16, 1994 (same); Thomas R. Nicely, *A Complex Problem, A Simple Solution*, S.F. EXAMINER, Dec. 18, 1994, at B–5.

140. Ziegler & Clark, *supra* note 138, at A1.

141. IBM's competitors in the personal computer market relied on Pentium-based models for a higher portion of their sales than IBM, and thus would be affected to a greater extent by doubts concerning the chip. *Id.* at A1.

142. Indeed, speculation abounded that IBM's response to the Pentium controversy was actually the result of market rivalry. IBM was trying to challenge Intel in the market for microprocessors with the PowerPC chip, a microprocessor it had developed with Motorola Inc. and Apple Computer Inc. Ira Sager, *Bare Knuckles at Big Blue*, BUS. WK., Dec. 26, 1994, at 60, 62. Indeed, when a similar problem surfaced in 1989 in Intel's 486 microprocessor, IBM characterized the flaw as a minor problem. Stephen K. Yoder, *Chip by Intel Contains Flaw in Calculating*, WALL ST. J., Oct. 27, 1989, at A4.

143. David F. Salisbury, *Problems With Pentium Found to Vary Depending on Application Being Run*, STAN. REP., Jan. 11, 1995, at 5; *see also* Halfhill, *supra* note 122, at 163.

white paper on the problem.[144] Other observers studying the problem arrived at similar conclusions, although there was some questioning of Intel's exact error rate figures as well as certain portions of IBM's analysis.

According to Vaughn Pratt, a Stanford computer science professor, the error rate could "range from as low as one in 40 billion for mathematical operations using perfectly random numbers, to one in a few thousand for applications that are particularly vulnerable to the bug."[145] Professor Pratt's study demonstrated that certain users, especially those employing financial, technological or graphics applications, might find higher levels of error rates than those Intel arrived at by assuming random data.[146] But even in these applications, the practical effect of the errors might vary. On the one hand, in financial spreadsheet applications the inaccurate result was likely to appear in insignificant decimal places.[147] In graphics programs or three-dimensional computer games, an inaccurate calculation might cause a single pixel error that was not likely to be noticeable.[148] On the other hand, some engineering applications or users engaged in econometric modeling might notice errors, particularly when those errors were compounded as a consequence of the algorithms used in these applications.

As news of the flaw spread, Intel's response was shaped by its engineering assessment that the flaw would have a practical effect only for a small percentage of Pentium users. In accordance with industry practice, Intel began to develop a "software patch" to alleviate the problem.[149] Intel also established a telephone line for all users to request replacement chips. But Intel's response to those requests varied depending on the nature of the particular caller's use of the Pentium chip. Customers who called Intel were asked a series of questions concerning how they used their computer system and were given detailed explanations about the flaw and the infrequency of errors.[150] Those users who were engaged in a great deal of floating point work would be provided a free replacement chip. However, Intel evaluated replacement requests on a case-by-case basis,[151] and the company's policy was to convince callers who used ordinary business and consumer software that they did not need a replacement part.[152] Informally, however, Intel seemed to have adopted a policy that they would replace the flawed Pentium chip if the customer continued to demand replacement, regardless of the applications used.[153]

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144. STATISTICAL ANALYSIS, *supra* note 127, at 1.

145. Salisbury, *supra* note 143, at 5. Others opined that users who performed a large number of floating point divisions were "virtually guaranteed to have the problem occur at least once during the lifetime of their machines." Gwennap, *supra* note 120, at 11.

146. *See* Salisbury, *supra* note 143, at 5.

147. *Id.*

148. *Id.*

149. *Intel is Developing Code to Fix Pentium Chip Flaw*, WALL ST. J., Dec. 12, 1994, at B6; *'Patch' Planned to Bypass Flaw in Pentium*, N.Y. TIMES, Dec. 13, 1994, at D6 [hereinafter *'Patch' Planned*].

150. Clark, *supra* note 137, at A3.

151. *'Patch' Planned*, *supra* note 149, at D6.

152. Gwennap, *supra* note 120, at 11.

153. Clark, *supra* note 137, at A3; Jim Carlton, *Pentium–PC Sales Hold Up Despite Flaw*, WALL ST. J., Dec. 20, 1994, at B7.

Intel's "need-based" replacement program was highly criticized.[154] The essence of the criticism was that Intel's focus on the infrequency of error caused by the Pentium flaw did not address the real problem: a loss of customer confidence among a retail, non-technical consumer base that was quite different from the sophisticated technical user groups affected by previous bugs. Purchasers of Pentium-based personal computers, no matter what they used the computers for, had understood (based in large part on Intel's own extensive advertising campaign) that they were buying the most technologically advanced microprocessor available.[155] When they learned of the flaw in their chip, some customers questioned whether Intel was a quality manufacturer, especially because at that time most customers were home and small business users who had not been conditioned through previous purchases to expect small flaws in new hardware and software.[156] Intel compounded that problem of perception and confidence, first, by not immediately disclosing the flaw, and, second, by not offering to replace all defective chips.[157] Indeed, by telling customers that their particular uses did not warrant a correctly operating chip, Intel created a perception that it was not concerned with the expectations and anxieties of the majority of its customers who did not run highly technical applications.[158] As Intel's subsequent press release acknowledged: "'To some people, this [replacement] policy seemed arrogant and uncaring.'"[159]

The publicity concerning the Pentium flaw and Intel's response to that flaw temporarily affected Intel's stock price. On October 28, 1994, the last trading day before Professor Nicely's Internet posting disclosing the Pentium flaw, Intel's stock closed at $62.250 per share.[160] On November 21, 1994, the day before CNN announced the Pentium flaw, Intel's stock had risen to $66.125. The next day, however, it dropped to $64.750. Shortly thereafter the stock price began to decline again; on December 12, 1994, the day IBM announced that it would cease shipments of Pentium-based computers, Intel's stock closed at $60.375, and trading in the stock was temporarily halted.[161] By December 19, 1994, Intel's closing stock price had fallen to $57.813.

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154. *See* Laurianne McLaughlin, *Pentium Flaw: A Wake-Up Call?*, PC WORLD, Mar. 1995, at 50.

155. *Intel's Chip of Worms*, ECONOMIST, Dec. 17, 1994, at 65; Ross Goldstein & Bob Kenney, *Intel Learned the Hard Way, Consumers Rule*, S.F. EXAMINER, Dec. 25, 1994, at B-2; Jaikumar Vijayan, *Intel Should Ride Out Chip Storm*, COMPUTERWORLD, Dec. 12, 1994, at 33.

156. . Lawrence M. Fisher, *Pentium Flaw Creates Confusion for PC Buyers*, N.Y. TIMES, Dec. 14, 1994, at C1; McLaughlin, *supra* note 154, at 50; Anthony Ramirez, *Doubts About the Pentium Chip Give Intel a Marketing Problem with Few Precedents*, N.Y. TIMES, Dec. 14, 1994, at D18.

157. Abate, *supra* note 126, at B-14.

158. *See* Jim Carlton & Stephen K. Yoder, *Humble Pie: Intel to Replace its Pentium Chips*, WALL ST. J., Dec. 21, 1994, at B1; John Markoff, *In About-Face, Intel Will Swap Flawed Pentium Chip for Buyers*, N.Y. TIMES, Dec. 21, 1994, at C6; Ziegler & Clark, *supra* note 138, at A11.

159. INTEL CORP., INTEL ADOPTS UPON-REQUEST REPLACEMENT POLICY ON PENTIUM(TM) PROCESSORS WITH FLOATING POINT FLAW; WILL TAKE Q4 CHARGE AGAINST EARNINGS 1 (Dec. 20, 1994) [hereinafter INTEL ADOPTS] (quoting Dr. Andrew S. Grove, Intel's President and Chief Executive Officer).

160. These prices reflect the prices of Intel's stock prior to its announcement in April 1995 that it would split Intel's shares 2-1 on June 16, 1995 for stockholders of record as of May 19, 1995. INTEL CORP., FORM 10-Q (Filed Aug. 15, 1995); *Intel is Planning a 2-for-1 Stock Split*, N.Y. TIMES, Apr. 29, 1995, at 37.

161. Ziegler & Clark, *supra* note 138, at A1.

On December 20, however, Intel announced a change in its official chip replacement policy. Instead of requiring customers to demonstrate need in order to obtain a replacement chip, Intel agreed to implement a "no-questions-asked return policy on the current version of the Pentium processor."[162] An Intel press release on that day reiterated Intel's position that "almost no one will ever encounter the flaw"; nonetheless, the company agreed to:

> replace the processor upon request with an updated version that does not have a flaw. This offer will be in effect for the lifetime of a user's PC, which means that users can conclude that they do not currently want a replacement, but still have the option of replacing the chip in the future if they wish. Intel is making a rapid manufacturing transition to the updated version, and expects to be able to ship sufficient replacement parts to meet demand during the next few months.[163]

Intel also disclosed that it would take "an unspecified but material charge against fourth quarter earnings to cover costs associated with the replacement program...."[164]

Intel's stock price reacted immediately to the change in replacement policy. On December 20, Intel's stock price increased 5.9% to $61.25. Intel's stock price continued to rise thereafter on a fairly regular basis. It reached levels in excess of $68.81 on each trading day following Intel's earnings press release on January 17, 1995, in which Intel disclosed that it would take a one-time pre-tax charge of $475 million to cover the costs of its replacement program.[165] The recovery in Intel's stock price mirrored many industry analysts' earlier assessments that the Pentium problem would at most have only a temporary effect on Intel.[166] Stock market analysts also viewed the Pentium problem as a temporary one that would not affect Intel's earnings or market position.[167] Indeed, almost four months after the new replacement program had been announced, estimates were that only one to three percent of consumers (who owned roughly two-thirds of the defective Pentium chips) were seeking replacements.[168] The low rate of returns and the subsequent demand for Pentium-based computers also tend to support the notion that the Pentium controversy was less about the seriousness of the defective chip and more about Intel's perceived lack of responsiveness to its customers.[169] Intel's stock price

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162. INTEL ADOPTS, *supra* note 159, at 1.
163. *Id.*
164. *Id.*; *see infra* note 165.
165. INTEL CORP., FORM 8-K (Filed Jan. 20, 1995). In the letter sent by participants in the Forum, the earnings press release was mistakenly identified as a Form 10-Q. The letter, however, correctly conveyed the substance of the news that was disseminated to the market and correctly described the effect of that news on Intel's stock price.
166. Jim Carlton & Scott McCartney, *Corporations Await More Information; Will Consumers Balk?*, WALL ST. J., Dec. 14, 1994, at B1; Fisher, *supra* note 156, at C1.
167. Carlton & Yoder, *supra* note 158, at B1; Carol Haber, *Pentium Flaw Only Intel Spoiler: Fourth Quarter Charge of $475 Million*, ELECTRONIC NEWS, Jan. 23, 1995, at 1; Robert D. Hof, *Intel Takes a Bullet—And Barely Breaks Stride*, BUS. WK., Jan. 30, 1995, at 38.
168. G. Christian Hill, *Despite Furor, Most Keep Their Pentium Chips*, WALL ST. J., Apr. 13, 1995, at B1. About 25% of corporate users sought replacement. *Id.*
169. *Id.*; Don Clark, *Intel Posts 44% Rise in 1st-Period Profit on Record Revenue From Pentium Chip*, WALL ST. J., Apr. 18, 1995, at A3.

movements supported these assessments and, after disclosure of the Pentium-related reserves, Intel's stock price continued to climb.[170]

In summary, there are six significant points these facts reveal that are necessary for an understanding of the merits of the class action and derivative litigation that the Pentium controversy spawned. First, the Pentium flaw was a relatively minor technical problem that likely had a practical impact on relatively few Pentium users, although reasonable mathematicians could differ over the incidence and import of the flaw. Second, software and hardware flaws have been commonplace in the computer industry for years, yet none of those flaws had apparently ever caused major stock market consequences comparable to those resulting from Pentium-related disclosures. Intel thus had a reasonable basis to be surprised by the consequences of this particular flaw. Third, Intel's initial plan to remedy the flaw in its next round of production was consistent with Intel's past practices and with much industry practice. Fourth, the ensuing furor over the Pentium flaw, although significant, was essentially a public relations problem, rather than a problem that affected Intel's underlying fundamentals or future prospects. Fifth, the Pentium controversy did not cause any permanent decline in Intel's stock price. Rather, the temporary effect on Intel's stock price seemed to be the result of a transitory dissatisfaction with Intel's replacement policy. The stock price effect dissipated as soon as Intel altered its policy. Sixth, and perhaps most significant, there was good reason to believe that Intel had made an honest engineering and customer relations mistake, and mistakes of this sort should not be confused with fraud. Indeed, Intel had run billions of tests in search of errors such as the one that had cropped up. It instituted a corrective policy that was standard for the industry at the time, and that had effectively dealt with prior flaws that were arguably more serious from a technological perspective. The market itself quickly disciplined Intel to change its customer relations policy and, under these circumstances, there was substantial doubt that a legitimate social or investor interest could be vindicated by protracted, complex, and expensive litigation alleging fraud.

Not surprisingly, the widespread publicity surrounding the Pentium flaw resulted in the filing of shareholder class action litigation, as well as a derivative action and consumer class actions. The Pentium flaw was not unique in its ability to generate a "three-ring circus" of this kind. The announcement of adverse news, such as the existence of an investigation or, like Intel, the disclosure of a product defect, will often lead to consumer, antitrust or criminal actions and corresponding securities fraud and derivative claims.[171] In these

170. By July 17, 1995, Intel's stock had climbed to a high closing price of $78.375, on a post-split basis. At that point, Intel's stock price began to decline, finally reaching a closing price of $58.688 on October 4, 1995. After temporarily increasing to $72.875 on November 2, 1995, Intel's stock price dropped, along with most other stocks in the high-technology sector, closing at $51.000 on January 18, 1996. *See infra* App. A; Don Clark, *Intel Confirms Investors' Worries*, WALL ST. J., Jan. 17, 1996, at A3 (noting that company's earnings were below analysts' estimates because company purchased too many memory chips, not from any continuing effects from Pentium problem); Charles McCoy & G. Christian Hill, *Sinking Chips: Tech Stocks' Decline May Be Overreaction, But Problems Are Real*, WALL ST. J., Jan. 11, 1996, at A1.

171. An example of this type of proliferating litigation is the situation where a "piggyback" derivative action is filed after a securities class action has been commenced. These derivative actions typically allege, in part, that the company's officers and directors have violated their fiduciary duties by exposing the company to litigation expenses and potential liability in the

situations, a multiplicity of legal theories are typically asserted on behalf of different, but overlapping, constituencies.

B. The Shareholder Class Action Complaint

The first shareholder class litigation based on the Pentium chip flaw, *Whitaker v. Moore*,[172] was filed in the United States District Court for the Northern District of California on December 12, 1994, the same day that IBM announced that it would stop shipping Pentium-based personal computers. The complaint in *Whitaker* asserted class action securities fraud claims against Intel and certain of its senior directors and executives on behalf of all persons who purchased common stock or warrants of Intel Corporation between January 1, 1994, and December 9, 1994. The seven representative plaintiffs in the action each purchased between 100 and 1,000 shares during the class period alleged in the complaint. The *Whitaker* complaint alleged that: (i) Intel deceived investors by failing to disclose a known flaw in certain floating point calculations performed by Intel's Pentium chip; (ii) this deception caused class members to purchase Intel shares at artificially inflated prices; and (iii) certain Intel insiders sold stock at these inflated prices. The shareholder class action also alleged that Intel insiders perpetrated the fraud to protect and enhance their executive positions and prestige, as well as to enhance the value of their Intel stock holdings and options.

C. The Derivative Action

On December 21, 1994, a derivative action entitled *Gunther v. Moore* was commenced in federal court in the Northern District of California.[173] The *Gunther* complaint alleged facts essentially identical to those stated in *Whitaker*, except that it recast the alleged harm as being to the corporation rather than to the shareholders. The *Gunther* complaint alleged that: (i) Intel's directors and officers breached their fiduciary duties owed to the corporation to assure that the Pentium chip was marketed, tested, and developed with the appropriate degree of internal controls; (ii) Intel breached its fiduciary duties by falsely concealing the Pentium flaw; and (iii) Intel's directors and officers had an incentive to conceal the flaw so as to enhance their bonus compensation and to profit from the same stock sales alleged in the *Whitaker* complaint. The *Gunther* complaint relied on the decline in Intel's stock price as evidence of the harm caused by these alleged breaches. The complaint also asserted that the corporation was damaged as a result of the costs imposed by the class action shareholders' litigation and the consumer class action product liability claims, described below. Finally, the complaint alleged harm to Intel's reputation, and further damage as a consequence of the need to establish a reserve to cover the costs of Intel's chip replacement program.

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securities class action. *See, e.g., In re* Oracle Sec. Litig., 852 F. Supp. 1437 (N.D. Cal. 1994); *see also* Weiss & Beckerman, *supra* note 2, at 2072–74 (describing the Oracle litigation); Scott Kilman, *Archer 10–K Filing Shows 28 Lawsuits By Shareholders*, WALL ST. J., Aug. 18, 1995, at B2 (noting that shareholder and derivative actions were filed against Archer–Daniels–Midland Co. in the wake of a grand jury investigation of price-fixing allegations); Scott Kilman, *ADM Faces More Than 85 Suits Linked to Disclosure of Price-Fixing Inquiry*, WALL ST. J., Feb. 15, 1996, at B10.

172. Whitaker v. Moore, Civ. No. 94–20855 (N.D. Cal. filed Dec. 12, 1994).

173. Gunther v. Moore, Civ. No. 94–20878 (N.D. Cal. filed Dec. 21, 1994).

D. The Consumer Class Action

The consumer class actions[174] alleged that from at least June 1994 through November 1994, Intel knowingly manufactured, marketed, and sold more than two million defective Pentium chips.[175] The consolidated complaint in the class action alleged that Intel failed to warn users of the defect during that time period, that Intel extensively advertised the Pentium chip as the most powerful and reliable microprocessor on the market, and that although Intel knew that correction of the flaw would require replacing the defective chip, it improperly concealed the magnitude of the flaw.[176] The consolidated class action complaint also alleged that prior to the initiation of the consumer class actions, Intel "took no effective affirmative action to either correct or replace the defective Pentium® processors it had manufactured, marketed and sold to the general public."[177] Based on these allegations, Intel allegedly committed unlawful, unfair and fraudulent business practices, engaged in false and misleading advertising, and violated the consumer protection acts of various states.[178] Those actions also asserted claims for fraud, breach of warranty, negligence, and products liability.[179]

V. THE PENTIUM LETTER AND ITS CONSEQUENCES IN THE SHAREHOLDER AND DERIVATIVE ACTIONS

In accordance with the strategy agreed to among the four institutional investors who participated in the Pentium initiative, a letter (the "Pentium Letter") was sent to all counsel in the shareholder and derivative actions explaining the basis for the institutional investors' concerns that those actions may have lacked merit.[180]

The Pentium Letter raised three distinct concerns regarding the merits of the *Whitaker* shareholder class action. First, Intel's stock price behavior appeared to be inconsistent with the theory alleged in the complaint.[181] The Pentium Letter noted that the *Whitaker* complaint was premised on the theory that Intel's failure to disclose the Pentium flaw artificially inflated the price of Intel's shares.[182] If the class action theory were correct, then the price of Intel's stock would have suffered a material decline after disclosure of the problem

174. Consumer class actions were filed in federal court in Colorado (Data Technology Servs. v. Intel, No. 94–N–2886 (D. Colo. 1994)), and in the state courts in California, Illinois (Machtinger v. Intel, No. 94–C–7300 (Cook County Cir. Ct. 1994)), Michigan (Representative Elec. Prods. v. Intel, 94–435132CK (Wayne County Super. Ct. 1994)), and New Jersey (Lees v. Intel, No. L 11508 94 (Camden County Super. Ct. 1994)). The California actions were consolidated for pre-trial purposes in the Superior Court for Santa Clara County. *See In re* Intel Pentium Processor Litig., Master File No. CV 745729 [hereinafter *Pentium Processor Litig.*]. A global settlement of the consumer class actions was also entered in the California consolidated actions. *Pentium Processor Litig.*, Notice of Decision on Class Counsel's Application for an Award of Attorneys' Fees, at 2 (Dec. 27, 1995).

175. *Pentium Processor Litig.*, Stipulation of Settlement, Exhibit D, at 6 (Mar. 21, 1995).

176. *Id.*

177. *Id.*

178. *Id.*

179. *Id.*

180. Letter from Joseph A. Grundfest, Professsor of Law, Stanford Law School, and others, to Plaintiff and Defense Counsel, *Whittaker v. Moore* and *Gunther v. Moore* (Feb. 8, 1995) (*see infra* App. A at 605–26) [hereinafter Pentium Letter].

181. *See id.*, *infra* App. A, at 609–11.

182. *See id.*, *infra* App. A, at 609.

and would not have recovered after adoption of a "no-questions-asked" return policy. The data revealed no such permanent decline, and quite inconsistent with the theory of fraud, the data demonstrated that a sharp increase in the stock price occurred after the change in policy. Indeed, the stock price continued to rise on a fairly regular basis through the date on which the Pentium Letter was drafted.[183]

In accordance with the institutional investors' agreed upon strategy, the Pentium Letter demonstrated the basis for this result in significant detail. A table listed the daily closing price of Intel's shares from the beginning of the class period through the most recent date for which data were available.[184] Charts depicted the stock movements for that entire period and the stock movements in response to the first disclosure of the Pentium flaw and other significant disclosures relating to the problem.[185] The Pentium Letter also explained the conclusion the institutional investors drew from this data—that the stock market impact of the Pentium flaw was transitory. This effect was called the "transitory Pentium value gap" and it was apparent only during the period immediately preceding Intel's December 20, 1994 change in its chip replacement policy.[186] The Pentium Letter included a statistical analysis of the significance of Intel's stock price movements that bolstered this conclusion.[187]

As a result, the Pentium Letter concluded that "the transitory nature of the Pentium value gap is consistent with an alternative explanation of Intel's stock price performance that is unrelated to securities fraud."[188] This alternative explanation was tied to Intel's institution of a "need-based" customer return policy which, given the timing of the temporary decline in Intel's stock price, appeared to be a necessary condition for the Pentium-related price decline.[189] Once that policy was changed to a "no-questions asked" policy, Intel's stock price returned to the higher levels that had been prevailing before disclosure of the Pentium flaw. This pattern, the letter concluded, was consistent with the notion that Intel had been truthful throughout and that the market was simply responding to customer's concerns over Intel's customer relations policy.[190] Once the new replacement policy eliminated those concerns, the market effect dissipated. Intel's stock price performance was consequently not necessarily the result of fraud and, at a minimum, plaintiffs' theory suffered from a significant causation problem.[191]

Second, the Pentium Letter questioned whether the insider sales alleged in the complaint supported an inference of fraud. Here, the Pentium Letter simply pointed out that the sales alleged in the *Whitaker* complaint were executed at prices from $57.50 to $63.11 per share, although Intel's stock price had remained above $63.11 per share on every trading day between December 29, 1994, and the date of the letter.[192] These facts, the Pentium Letter noted,

183. *See id.*, *infra* App. A, at 610–11.
184. *See id.*, *infra* App. A, at 616–17 (Tbl. 1).
185. *See id.*, *infra* App. A, at 618–19 (Figs. 1 & 2).
186. *See id.*, *infra* App. A, at 610.
187. *See id.*, *infra* App. A, at 620–22 (Exhibit A).
188. *See id.*, *infra* App. A, at 611.
189. *See id.*, *infra* App. A, at 611.
190. *See id.*, *infra* App. A, at 611.
191. *See id.*, *infra* App. A, at 611.
192. *See id.*, *infra* App. A, at 611.

did not support the conclusion that the Intel insiders thought Intel's price was inflated because each of these sellers would have been better off had they held their Intel shares through the disclosure of the Pentium flaw and through the resolution of the subsequent Pentium-related events.[193]

Finally, the Pentium Letter noted that flaws in computer software and hardware were not unusual and that they had generally been resolved without major stock market consequences.[194] The *Whitaker* complaint failed to allege any basis upon which Intel's officers and directors knew or had reason to know that the Pentium flaw would differ from those earlier cases.[195] Although the *Whitaker* complaint alleged that Intel knew of the Pentium flaw before it was disclosed to the market, the complaint did not allege any facts supporting the inference that Intel knew or had reason to know that disclosure of the Pentium flaw would have a material adverse effect on the price of Intel's stock or on Intel's financial performance.[196] To the contrary, product flaws are not rare in the computer industry, and none, as far as the institutional investors were aware, had caused a market response comparable to news of the Pentium flaw.[197] As a result, the institutional investors questioned whether the market consequences of the Pentium flaw were reasonably foreseeable to Intel's management.[198] If not, then there seemed to be no reason to believe that management knew it was engaged in securities fraud. Rather, under these circumstances, a material concern existed as to whether the *Whitaker* complaint merely alleged "fraud by hindsight."[199]

The Pentium Letter next addressed the *Gunther* derivative complaint.[200] Many of the institutional investors' concerns with respect to the derivative action mirrored the concerns expressed about the shareholder class action. As with the shareholder action, Intel's stock price performance did not support an inference of fraud in the derivative action. Because the Pentium controversy only had a temporary effect on Intel's stock price, the stock price data did not support the inference that the actions of Intel's executives had caused a permanent decline in the value of the corporation's equity. The Pentium Letter also pointed out that the *Gunther* complaint failed to articulate any basis from which one could conclude that Intel's management knew or had reason to know that the Pentium flaw would have such a significant market impact.[201] Without a basis for such foresight, the institutional investors concluded that the *Gunther*

193. *See id.*, *infra* App. A, at 612.
194. *See id.*, *infra* App. A, at 612.
195. *See id.*, *infra* App. A, at 612.
196. The Ninth Circuit had rejected the pleading requirement enunciated in the Second Circuit that required plaintiffs to allege facts giving rise to a strong inference of fraudulent intent, although the Ninth Circuit did require that the complaint allege "with particularity the circumstances constituting fraud." *In re* GlenFed, Inc. Sec. Litig., 42 F.3d 1541, 1545–47 (9th Cir. 1994) (en banc) (refusing to follow O'Brien v. National Property Analysts Partners, 936 F.2d 674 (2d Cir. 1991) and Ross v. A. H. Robins Co., 607 F.2d 545 (2d Cir. 1979), *cert. denied*, 446 U.S. 946 (1980)). The 1995 Reform Act, however, reverses *GlenFed* because it requires the complaint to "state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind." 1934 Act, § 21D(b)(2), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.
197. *See* Pentium Letter, *infra* App. A, at 612.
198. *See id.*, *infra* App. A, at 612.
199. *See id.*, *infra* App. A, at 612.
200. *See id.*, *infra* App. A, at 613–14.
201. *See id.*, *infra* App. A, at 613.

complaint may merely have alleged an insupportable claim for "mismanagement by hindsight."[202]

The institutional investors next addressed the claim in *Gunther* that Intel's management breached their fiduciary duties because their conduct precipitated the filing of various class action suits. The Pentium Letter suggested that this claim was without foundation and constituted a bootstrap because, as previously discussed, the securities class actions themselves lacked merit.[203] Finally, the Pentium Letter suggested that the alleged damage to Intel's reputation was "questionable."[204] No other manufacturer, at least as far as the institutional investors were aware, had demonstrated a willingness or ability to undertake a replacement program of the scope or magnitude of that commenced by Intel, and such a replacement program could only enhance Intel's reputation among consumers. Moreover, Intel's stock price performance following the announcement of the replacement program appeared to contradict any permanent loss of reputation.[205]

The Pentium Letter concluded with the observation that weak private class action securities claims "can impose substantial and unnecessary costs on publicly traded firms that are forced to defend against such actions."[206] Similar concerns were raised with respect to derivative actions that merely "piggyback" on previously filed securities fraud complaints. Those derivative actions "compound the public policy concern over the costs imposed by unwarranted litigation."[207] As a result, the institutional investors requested counsel in the *Gunther* and *Whitaker* actions to "reconsider the prudence of their stated claims."[208] The institutional investors acknowledged that if plaintiff's counsel could allege more substantial facts than currently appeared in the record, then their view of the merits might change. The current record, however, suggested that the actions seemed to be "clear examples of the sort of litigation that can do more harm than good and that do not promote the interests of the very investors on whose behalf the claims are ostensibly filed."[209]

After the Pentium Letter was drafted, the course of the *Gunther* and *Whitaker* actions changed dramatically. In the shareholder class action, plaintiff's lead counsel voluntarily dismissed the action the day before they learned of the Pentium Letter. The institutional investors cannot claim that their letter caused the dismissal. Nonetheless, the dismissal is significant because it demonstrates that institutional investors can identify claims that are so weak that they should be dismissed even by plaintiff counsel's own concession. This result may at least partially blunt any potential criticism that institutions are incapable of identifying weak class actions.

In *Gunther*, the institutional investors learned after drafting the Pentium Letter that counsel in the derivative action had initiated discussions regarding potential dismissal of the derivative claims. Plaintiff's counsel was then contacted, and he maintained that the derivative action alleged viable claims for

202. *See id.*, *infra* App. A, at 613.
203. *See id.*, *infra* App. A, at 613.
204. *See id.*, *infra* App. A, at 614.
205. *See id.*, *infra* App. A, at 614.
206. *See id.*, *infra* App. A, at 614.
207. *See id.*, *infra* App. A, at 614.
208. *See id.*, *infra* App. A, at 614.
209. *See id.*, *infra* App. A, at 614.

relief. A prerelease version of the Pentium Letter was faxed to plaintiff's counsel to explain more fully the institutional investors' concerns about the merits of the *Gunther* action. Ninety minutes later, the institutional investors were informed that plaintiff's counsel had agreed in principle to stipulate to a dismissal of the derivative action as moot. Plaintiff's counsel claimed, however, that the decision to dismiss was not caused by the Pentium Letter.

VI. THE FORUM'S PARTICIPATION IN THE CONSUMER CLASS ACTION

The institutional investor signatories to the Pentium Letter were also purchasers of more than 500 computers with Pentium processors. The institutional investors were thus members of the consumer class actions, as well as members of the shareholder class action.[210] Thus, to the extent that a socially optimal resolution of the Pentium dispute would also take into account the interest of Pentium consumers, the institutional investors were well-situated to express that perspective as well. As noted above, in the Pentium Letter, the institutions opined that they believed the consumer class actions lacked merit because Intel had already determined to replace any customer's Pentium chip on a "no-questions-asked" basis.[211] Despite Intel's agreement, the consumer class actions were not voluntarily dismissed as the *Gunther* and *Whitaker* actions had been; rather, counsel in the consumer cases negotiated a settlement for which they sought court approval.

The terms of the consumer class action settlement were quite similar to the actions Intel had undertaken on its own initiative. The settlement provided that Intel would implement a no-questions-asked replacement program and would issue a written guarantee for all class members who decided to replace their Pentium chips at a later date.[212] Intel agreed to provide a software program that would identify whether a Pentium chip contained the defect, as well as to notify class members of the availability of that program and of the existence of the replacement program.[213] Intel agreed to maintain local service centers (which it had already established) and a toll-free telephone number to assist class members in replacing their chips.[214] Finally, Intel agreed to

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210. The Pentium action was unusual in this sense because it will not often be that institutional investors will have such a direct stake in all of the actions pending against a company that derive out of a common fact pattern. Indeed, with respect to the Pentium consumer class action, the institutions may have had a greater interest than some other class members because they used their computers for some of the high-end functions that were most affected by the flawed Pentium chip. *See supra* note 136 and accompanying text.

211. INTEL ADOPTS, *supra* note 159, at 1 (quoting Dr. Andrew S. Grove, Intel's President and Chief Executive Officer).

212. *Pentium Processor Litig.*, Stipulation of Settlement at Exhibit A, at 2 (Mar. 20, 1995) ("Intel will exchange within a reasonable time the current version of the Pentium® processor for an updated version, in which the FPU Imperfection is corrected, for any Settlement Class Member who requests it, free of charge anytime during the life of their computer.") In comparison, Intel announced on December 21, 1994 that it would: "replace the processor upon request with an updated version that does not have the flaw. This offer will be in effect for the lifetime of a user's PC, which means that users can conclude they do not currently want a replacement, but still have the option of replacing the chip in the future if they wish." INTEL ADOPTS, *supra* note 159, at 1.

213. *Pentium Processor Litig.*, Stipulation of Settlement at Exhibit A, at 1 (Mar. 20, 1995).

214. *Id.* at Exhibit A, at 2.

implement what amounted to an arbitration procedure for resolving possible claims for consequential or economic damages "attributable to the [Floating Point Unit] imperfection" in the Pentium chip.[215] In connection with this settlement, plaintiff's counsel sought an award of attorneys' fees and disbursement of expenses of up to $6 million,[216] which Intel agreed it would not oppose.[217]

After reviewing these terms, the institutional investors who authorized the Pentium Letter determined that they would support the settlement but oppose the attorneys' fees. This determination was based on a number of considerations. First, the institutional investors believed that there was little or no causal link between the terms of the settlement and the effort that plaintiff's counsel expended; rather, it seemed that market forces would have compelled Intel to take the steps it did, or materially equivalent steps, regardless of whether or not the consumer class actions had been filed. Subsequent events tend to support this view. In particular, Intel has now instituted policies (none of which were compelled by the class action settlement) that provide additional safeguards against the presence of flaws in its microprocessors over and above the safeguards mandated by the settlement. For example, Intel prereleased its next generation of microprocessor, the P6, to various computer users who tested it under real-world conditions before Intel shipped the chip in high volumes to customers.[218] Intel continues to disclose flaws and other similar types of problems in other chips, without the compulsion of any court judgment.[219] Although plaintiff's class action attorneys may argue that there is a benefit to being legally bound to undertake certain actions, the marginal benefit of such a requirement seems small when the company has already publicly committed to take the specified actions, and when market forces independently compel such an outcome.

Moreover, the other terms of the settlement, specifically the arbitration procedure for consequential damages, were questionable as justification for an award of $6 million in attorneys' fees. Such a procedure would appear to benefit Intel as much as the class members because it gives Intel the ability to consolidate all such claims and removes the potential for excessive jury awards. Also, because Intel would rationally agree to such a dispute resolution mechanism for all consumers claiming consequential damages, the litigation cannot be said to have effectively induced Intel to accept this dispute resolution mechanism. As a result, the benefit of the settlement for the class is, at best, highly speculative because it is questionable that the consumer class action generated any benefit that would not have been forthcoming in any event.

Despite these concerns, the institutional investors did not file objections to the requested attorneys' fees. This decision was based, in large part, on a

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215. *Id.* at Exhibit B, at 1.

216. *Pentium Processor Litig.*, Notice of Decision on Class Counsel's application for an Award of Attorneys' Fees, at 2 (Dec. 27, 1995).

217. *Pentium Processor Litig.*, Stipulation of Settlement, at 14–15.

218. *Intel Plans to Test New Chip with Users*, N.Y. TIMES, May 17, 1995, at D8.

219. *See* Ralph T. King, Jr., *Intel Confirms It Overstated Speed of Pentium Chips*, WALL ST. J., Jan. 8, 1996, at B2. The idea that these efforts were compelled by market forces rather than the presence of the class action is also supported by the fact that other computer companies have undertaken similar efforts. *See Netscape Awards Bounties to Successful Bug Hunters*, WALL ST. J., Dec. 11, 1995, at B7.

request from senior Intel executives who asked that Intel just be allowed to put the Pentium matter behind it. The institutions deferred to Intel's management on this point because of the institutions' perception that management had operated the company well in the past and that the management of a well-performing, competently governed corporation deserved a degree of deference.[220] Other class members did, however, object to the proposed attorneys' fees.[221]

On June 22, 1995, the court approved the proposed settlement.[222] On December 27, 1995, the court approved a fee award of $4,272,969 to class counsel in the consumer actions.[223] Although this fee award was less than the six million dollars class counsel had requested, the court's analysis of the fee issue still failed to consider some of the concerns the institutions would have raised. In particular, the court applied the lodestar method for determining the class action fee,[224] and adjusted the lodestar amount upward by a factor of three, based in part on its determination that counsel's ability to obtain an early settlement of the action conferred a substantial benefit on the class.[225] This determination seemingly ignores the fact that Intel had already agreed to undertake the majority of the obligations under the settlement. As a result, entering into a settlement to do that which it had already publicly undertaken to do presented no serious impediment to Intel. Rather than serving as a basis for multiplying the fees class action counsel sought, the early settlement in the consumer cases may instead indicate the small benefit that counsel conferred on the class.

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220. Some plaintiffs' class action counsel have suggested that this willingness to accede in one case to management's wishes demonstrates that institutions are "too close" to management to operate as appropriate litigation monitors. As a preliminary matter, this argument seems somewhat disingenuous because if the Forum participants formally objected to the proposed attorneys' fees, then plaintiff's class counsel would have likely opposed these objections as unwarranted, and would likely have criticized the Forum participants as "pro-management" for asserting those objections. In other words, this was a classic "heads-I-win, tails-you-lose" situation in which institutional investors can avoid criticism from plaintiff's counsel only by allowing plaintiff's counsel to have their way without any objections from institutional investors.

More importantly, the conclusion that institutions may be "too close" to management is contradicted by the Forum participants' inclination to pursue, in appropriate cases, settlements structured so that culpable individual officers or directors, rather than the corporation, pay the majority of the settlement. *See supra* notes 109–11 and accompanying text. This approach, which seeks a higher level of deterrence for improper actions, is not indicative of being "too close" to management. Finally, institutions have already demonstrated their independence in corporate governance activism, and there is no reason they cannot be similarly independent in the litigation context. *See generally* Grundfest, *supra* note 12.

221. *See Pentium Processor Litig.*, Notice of Objection and of Intention to Appear Through Counsel at Fairness Hearing to Object to Proposed Settlement and Award of Attorneys' Fees, and Request to Meet and Confer; Declaration of Lawrence W. Schonbrun in Support Thereof (June 22, 1995).

222. *See Pentium Processor Litig.*, Notice of Decision on Class Counsel's Application for an Award of Attorneys' Fees, at 2.

223. *Id.* at 5.

224. *Id.* at 3. *See supra* notes 36–40 and accompanying text for a discussion of the lodestar method.

225. *Pentium Processor Litig.*, Notice of Decision of Class Counsel's Application for an Award of Attorneys' Fees, at 4.

VII. LESSONS LEARNED AND OBSERVATIONS

The activities of the Forum participants to date,[226] although not extensive, suggest some preliminary conclusions concerning the nature of and potential for collective institutional shareholder action in class and derivative actions. First, collective action problems can be addressed without having any investor assume lead plaintiff status, at least in a subset of class action situations. The class actions in which individual initiatives may be successful likely fall

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226. In October 1995, eight institutional investors who have participated in the Forum, and who manage more than $610 billion in assets, sent a letter to Judge Vaughn Walker, who was evaluating a settlement in the *California Micro Devices Securities Litigation*. Those institutions expressed their support for Judge Walker's decisions: (i) to require competitive bidding as a mechanism for selecting class counsel; and (ii) to require counsel urging approval of a settlement to "make a showing that the proposed settlement and accompanying attorney fee award enjoys affirmative support, as opposed to silent toleration, of a significant portion of the prospective class." *In re* California Micro Devices Sec. Litig., No. C–94–2817–VRW, 1995 U.S. Dist. LEXIS 11587, at *18 (N.D. Cal. Aug. 4, 1995). Although the institutions supported these initiatives, they expressed concerns about the exact manner in which counsel solicited the views of the class, about the reliability of the responses received, and about the substantive terms of the settlement. Despite these concerns, the institutions suggested that the most pragmatic course available to the court may be to approve the settlement. The institutions suggested, however, that the court consider modifying the requested attorneys' fee to provide a more modest fee in connection with the settlement, but to allow for the potential of additional future fees as an incentive for the attorneys to pursue parties who may have engaged in culpable conduct.

In response to these concerns, Judge Walker denied preliminary approval of the settlement, refused to appoint as lead plaintiffs' counsel the plaintiffs' law firm that was urging settlement, and appointed instead an institutional investor, the Colorado Public Employees' Retirement Association, as class representative. *In re* California Micro Devices Sec. Litig., No. C–94–2817–VRW, 1996 U.S. Dist. LEXIS 1361, at *3, *4 (N.D. Cal. Feb. 2, 1996). In so holding, Judge Walker praised the institutional investors' "cogent observations and criticisms of both the proposed settlement and the manner in which that settlement was reached." *Id.* at *31. The institutional investors' input was "invaluable in assessing the true value of [the] settlement." *Id.* at *56. Indeed, Judge Walker's opinion closely tracks and quotes extensively from the letter sent by the Forum participants and other institutional investors.

In particular, Judge Walker found that the polling procedure used to survey the class was inadequate based on, among other things, deficiencies in the polling letter that the institutional investors pointed out. *Id.* at *24–*30. Judge Walker found that the settlement had "so many troubling aspects that the court [wa]s forced to conclude that it was negotiated under quasi-collusive circumstances." *Id.* at *34. Again, the inadequacies of the settlement were those the institutional investors highlighted: (i) the small cash component of the settlement, especially in light of the failure of plaintiffs' counsel to assess critically whether the company was on the verge of bankruptcy, as it claimed; (ii) the release of outside directors from liability without requiring them to contribute any consideration to the settlement; (iii) the high level of attorneys' fees; and (iv) the dilutive effects of the settlement structure, which required the company to issue new stock to class members. *Id.* at *32–*53.

From a procedural perspective, Judge Walker's decision was interesting for its use of precedents holding that an attorney may not serve both as class counsel and class representative. *Id.* at *4, *54–*55 (citing Shroder v. Suburban Coastal Corp., 729 F.2d 1371, 1375 (11th Cir. 1984); Lowenschuss v. Bluhdorn, 613 F.2d 18, 20 (2d Cir. 1980); Zylstra v. Safeway Stores, Inc., 578 F.2d 102, 104 (5th Cir. 1978); Susman v. Lincoln American Corp., 561 F.2d 86, 90–92 (7th Cir. 1977); Turoff v. May Co., 531 F.2d 1357, 1360 (6th Cir. 1976)). Instead of merely noting that in most shareholder class litigation representative plaintiffs serve merely as figureheads, Judge Walker used these precedents to hold that "[w]hen class counsel are not effectively monitored by the class representative, the result is indistinguishable from the situation in which an attorney serves" as both counsel and representative plaintiff. *Id.* at *4. Because the named plaintiffs had demonstrated their inability to monitor and control counsel, the court concluded that the plaintiffs did not satisfy the requirements of Rule 23(a)(4). *Id.* at *55. The court found that in the *California Micro Devices* case, the only plaintiff that could provide such effective monitoring would be an institutional investor. *Id.* at *55–*59.

within a window of opportunity in which individual claimants have claims or portfolios sufficiently large to justify individual action or to generate substantial positive portfolio effects as a result of such initiatives. If claims or portfolio effects are too small, then individual action may not be cost effective and collective action problems are likely to predominate. If claims or portfolio effects are too large, then the most cost effective strategy for individuals may be to opt out of the class action.

Second, the Forum's experience in the Pentium litigation strongly suggests that low-cost approaches to institutional shareholder action can be effective, if properly structured. The institutional investors expected, and their later experience demonstrated, that low-cost strategies like writing letters to counsel, as opposed to assuming the role of lead plaintiff or challenging settlements, can work if the institutions' concerns are carefully researched and well-documented. In certain situations, depending on the size of the institutional investor's potential claim or the expected benefits to be derived from positive portfolio effects, such low-cost strategies may be the only cost effective strategies available to address collective action problems. The creation and implementation of effective, low-cost strategies may thereby widen the window of opportunity for addressing collective action problems because these strategies may still be cost effective even where claims or portfolio effects are not as significant.

The prospect for future successes for the Forum or other institutional initiatives is, however, uncertain. The 1995 Reform Act[227] may have an impact on these types of initiatives, although assessing the exact nature of that impact is difficult. On the one hand, the legislation clearly contemplates an increased participatory role for institutional investors. In passing the Act, Congress recognized the presence of agency and collective action problems.[228] Its solution to those problems was the one identified by Professors Weiss and Beckerman—protecting "investors who join class actions against lawyer-driven lawsuits by giving control of the litigation to lead plaintiffs with substantial holdings of the securities of the issuer."[229] Under the proposed statute, any member of the class may seek to be named lead plaintiff, defined to be the member "of the purported plaintiff class that the court determines to be most capable of adequately representing the interests of class members."[230] The Act requires courts to adopt a presumption that the "most adequate plaintiff" is the class member that, among other things, the court determines to have "the largest financial interest in the relief sought by the class."[231] This standard was

227. Act of Dec. 22, 1995, Pub. L. No. 104–67, 1995 U.S.C.C.A.N. (109 Stat) 737.

228. The legislative history indicates that the House and Senate Committees heard evidence concerning "the manipulation by class action lawyers of the clients whom they purportedly represent." H.R. CONF. REP. NO. 369, *supra* note 7, at 31, *reprinted in* 1995 U.S.C.C.A.N. 679, 730.

229. *Id.* at 32, *reprinted in* 1995 U.S.C.C.A.N. 679, 731. The legislative history opines that the interests of plaintiffs with substantial holdings "are more strongly aligned with the class of shareholders." *Id.* It was hoped that these investors would "participate in the litigation and exercise control over the selection and actions of plaintiffs' counsel." *Id.*

230. 1933 Act, § 27(a)(3)(B)(i), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(i), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

231. 1933 Act, § 27(a)(3)(B)(iii)(I), (I)(bb), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(iii)(I), (I)(bb), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744. The other requirements for most adequate plaintiff status are that the person under consideration has filed the complaint or made a motion to be named lead plaintiff and that she otherwise satisfy the

specifically designed to "increase the likelihood that institutional investors will serve as lead plaintiffs."[232] Thus, if institutional investors seek to become lead plaintiffs they should have significant opportunities to do so.[233]

Increasing the presence of institutional investors as lead plaintiffs would likely ameliorate at least some of the problems that currently exist in securities class action litigation. What remains to be seen, however, is whether institutions will be willing to step forward and accept the mantle of lead plaintiff in anything but rare cases. Nothing in the statute requires them to do so, and the rebuttable presumption concerning the most adequate plaintiff applies only to those class members who filed the complaint or who moved to be named lead plaintiff.[234] Thus, if the institutions fail to volunteer to serve as lead plaintiff, the court does not have power under the statute to compel them to become lead plaintiff.

There are a number of reasons why institutions may choose, in the vast majority of cases, neither to file a complaint nor make a motion, thereby eliminating themselves from the competition for the lead plaintiff spot. As earlier suggested, the lead plaintiff role may represent a high cost strategy that institutions may find is unnecessary to achieve the positive benefits associated with institutional activism. Seeking the lead plaintiff spot may entail substantial costs. To the extent that institutions do in fact seek the lead plaintiff spot, considerable funds may be spent and time devoted to litigating who is the most adequate plaintiff, particularly in the early years of the statute's application. This is so because under the 1995 Reform Act, the lead plaintiff, subject to court approval, chooses lead counsel.[235] Currently, the lead counsel position is quite lucrative and the plaintiff's class action counsel have a significant interest in obtaining that spot.[236] There is no reason to believe that the lead counsel position will be any less lucrative under the 1995 Reform Act unless the introduction of lead plaintiffs who assert active monitoring roles also causes increased price competition for the right to represent a class. Therefore it seems likely that competitors will continue to devote considerable effort and make significant expenditures to capture the lead counsel position, particularly in the first cases litigated under the new regime where the exact application of

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requirements of Rule 23. 1933 Act, § 27(a)(3)(B)(iii)(I)(aa), (cc), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(iii)(I)(aa), (cc), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

232. H.R. CONF. REP. NO. 369, *supra* note 7, at 34, *reprinted in* 1995 U.S.C.C.A.N. 679, 733 (citing Weiss & Beckerman, *supra* note 2).

233. *See* Weiss & Beckerman, *supra* note 2, at 2056 nn.9, 10 (referring to studies estimating that institutions own over 50% of public and private equity securities and account for approximately 70% of the daily trading volume on the New York Stock Exchange). Indeed, one example of a possible opportunity that might have been open to institutions interested in becoming lead plaintiffs involves the action commenced against Silicon Graphics and certain of its officers and directors—one of the first class action complaints filed under the terms of the new 1995 Reform Act. Brody v. McCracken, Civ. No. 96–0393 (N.D. Cal. Jan. 26, 1996). Although the exact composition of the class is not entirely clear, some evidence indicates that institutional investors may be among the largest class members. As of June 30, 1995, institutions held 72.8% of Silicon Graphics outstanding stock. CDA/Spectrum, 13(f) Institutional Stock Holdings 1290 (June 30, 1995).

234. 1933 Act, § 27(a)(3)(B)(iii)(I)(aa), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(iii)(I)(aa), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

235. 1933 Act, § 27(a)(3)(B)(v), 1995 U.S.C.C.A.N. (109 Stat.) 737, 740; 1934 Act, § 21D(a)(3)(B)(v), 1995 U.S.C.C.A.N. (109 Stat.) 737, 745.

236. *See In re* Oracle Sec. Litig., 131 F.R.D. 688, 693 n.12 (N.D. Cal. 1990).

the Act will still be unclear. The only thing that is likely to change is the form that this competition takes.

Under the old regime, competition often centered around filing the first class action complaint, because the attorney filing that complaint was perceived to have a comparative advantage in obtaining the lead counsel's role.[237] Congress sought to eliminate this "race to the courthouse" in a number of ways. First, under the Act, the plaintiffs in the first filed action are required to publish a notice "in a widely circulated national business-oriented publication or wire service" that alerts potential class members to the filing of the suit, the claims asserted therein, and that any member of the class, no later than sixty days after the notice, may move to be named lead plaintiff.[238] In a typical contingency case, the attorney will have to bear these costs as an initial matter.[239] Second, the priority in which a complaint was filed was eliminated as a factor in determining the lead plaintiff who will choose the lead counsel.[240] These provisions may actually create a slight first-mover disadvantage because the first to file will have to bear the costs of notice and will receive no benefit for filing first. It is reasonable to expect that these provisions will inhibit, at least somewhat, the race to the courthouse. Preliminary anecdotal evidence supports this conclusion.[241]

Curbing the race to the courthouse, however, does not necessarily mean that the competition for the lead counsel role will also be curbed. Take for example a situation where an institution determines that it will seek the lead plaintiff role but also determines that it will, if named lead plaintiff, select lead counsel from outside the ranks of traditional plaintiff's securities class action firms.[242] Under these circumstances, a traditional plaintiff's class action firm may find it cost effective to contest the appointment of lead plaintiff by attempting to show that the institution will not fairly and adequately protect the interests of the class as a whole or that the institution is subject to unique defenses that render it incapable of adequately representing the class.[243] The prospect of such a dispute may be sufficient to chill an institution's willingness to press to become lead plaintiff.[244]

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237. Weiss & Beckerman, *supra* note 2, at 2062–63.

238. 1933 Act, § 27(a)(3)(A)(i), 1995 U.S.C.C.A.N. (109 Stat.) 737, 738; 1934 Act, § 21D(a)(3)(A)(i), 1995 U.S.C.C.A.N. (109 Stat.) 737, 743.

239. Courts will presumably allow reimbursement of these expenses if the action is successful, but there is obviously no guarantee that these expenses can be recovered. Moreover, recovery may be at a distant date in the future if the action is protracted. Further, a plaintiffs' firm may not find it appealing to prospect for cases only to find them bid away by competitors.

240. 1933 Act, § 27(a)(3)(B)(iii), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(iii), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744.

241. Bill Richards, *Shareholder Law Raises Hurdle for Top Filer of Class Actions*, WALL ST. J., Jan. 4, 1996, at B1.

242. Firms in the traditional defense bar have demonstrated their willingness in certain cases to litigate on the plaintiff's side securities cases using non-traditional fee structures. Stephen Labaton, *For F.D.I.C.'s Top Law Firm, Fees Reaching $600 an Hour*, N.Y. TIMES, Apr. 5, 1991, at A1 (reporting that Cravath, Swaine & Moore agreed to represent the Federal Deposit Insurance Corporation in a suit against Michael Milken and Drexel Burnham Lambert for a minimum fee plus a contingency). There is no reason to believe that these firms would not be willing to represent institutions in class actions.

243. *See* 1933 Act, § 27(a)(3)(B)(iii)(II), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(iii)(II), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744–45.

244. Such reluctance is certainly foreseeable with respect to the first institution that has to step forward to litigate the most adequate plaintiff issue. Indeed, one can foresee that institutions

Assuming that an institution actually secures the lead plaintiff designation, undertaking that role may entail significant opportunity and other costs relating to, among other things, discovery,[245] as well as a heightened level of scrutiny for the institution. Defendants may not want institutions to participate actively in class actions, especially if those institutions pursue strategies like those the Forum participants have designed, such as seeking to deter future violations by requiring payments directly from culpable parties.[246] It is therefore conceivable that these defendants may seek to discourage institutional participation through their discovery practices. In particular, defendants may broaden their discovery to focus on areas that may be sensitive to the institutions, such as the institution's investment and trading practices. If institutions are reluctant to disclose this information, they may avoid becoming lead plaintiffs so as to divert this unwanted scrutiny. Simply put, institutions may find that seeking the lead role is not cost-effective or they may simply be reluctant, as they traditionally have been, to undertake the increased responsibility and scrutiny that comes with the role.

For these reasons, institutions that seek to become active may be more comfortable with initiatives that have both lower costs and lower visibility, like those typified by the Forum's approach to institutional activism. These strategies (which range from writing letters to counsel to formally objecting to settlements or proposed attorneys' fees)[247] allow the institution to take a much more textured approach to activism than the "one-size fit all" model found in the 1995 Reform Act.

Despite enactment of the 1995 Reform Act, there is still room for these kinds of initiatives. Indeed, part of the Forum's success was the result of its plan to utilize the inherent flexibility that continues to exist under Rule 23. Rule 23(d) in particular contemplates a flexible procedure under which parties may voice their concerns during the course of the litigation, even if they are not the lead plaintiff in the action or even without formal intervention.[248] That same flexibility is emphasized in the Manual for Complex Litigation.[249] Indeed, under current practice, the court "must exercise care that the appointment of lead counsel does not deprive the other attorneys and their clients of an

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might want to act together to become co-lead plaintiffs to prevent having to forge ahead alone. The 1995 Reform Act permits the appointment of group lead plaintiffs. *See* 1933 Act, §27(a)(3)(B)(iii)(I), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(iii)(I), 1995 U.S.C.C.A.N. (109 Stat.) 737, 744 (noting that the rebuttable presumption as to who is the most adequate plaintiff may be satisfied by a "person or group of persons").

245. *See* 1933 Act, § 27(a)(2)(A)(iii), 1995 U.S.C.C.A.N. (109 Stat.) 737, 738; 1934 Act, § 21D(a)(2)(A)(iii), 1995 U.S.C.C.A.N. (109 Stat.) 737, 743 (noting that the lead plaintiff must be willing to provide testimony at depositions or trial, if necessary). Although some of these costs may be recoverable as part of any settlement, see 1933 Act, § 27(a)(4), 1995 U.S.C.C.A.N. (109 Stat.) 737, 740; 1934 Act, §21D(a)(4), 1995 U.S.C.C.A.N. (109 Stat.) 737, 745, there may be opportunity or other costs that may not be compensated.

246. *See supra* notes 109–11 and accompanying text.

247. *See supra* Section III.B.

248. Under Rule 23(d), the court has discretion to make appropriate orders to allow for notice to class members of their rights to, among other things, "signify whether they consider the representation fair and adequate, to intervene and present claims or defenses, or otherwise to come into the action." FED. R. CIV. P. 23(d).

249. *See* FEDERAL JUDICIAL CENTER, MANUAL FOR COMPLEX LITIGATION § 30.2 (3d ed. 1995) (noting that methods for communicating with the class are left to the court's judgment).

effective voice in the presentation of the class' case."[250] There is nothing in the 1995 Reform Act to prevent institutions from foregoing Congress' invitation to become lead plaintiffs and to continue to experiment with these other initiatives. The only potential problem with the Act is thus not any prohibition but the possibility that it could chill such initiatives to the extent that it focuses attention on one governance approach, even though other strategies may be better suited to a particular case. To the extent that flexibility is lessened as a result of courts' focusing on Congress' preferred mechanism, the window in which institutions may effectively overcome collective action problems may narrow. Although this result is not inevitable, it may constitute a significant potential negative side-effect of the 1995 Reform Act.

In short, although the 1995 Reform Act creates considerable opportunities for institutional investor activism, it also creates uncertainty over the future course of such action. In light of this uncertainty, it may be appropriate to question whether the 1994 Reform Act prematurely fixed on a legislative solution to a collective action problem before private ordering was allowed to run its course. Indeed, one could take the view that, strictly speaking, the proposals in the bill were unnecessary because there is nothing in the current interpretation of Rule 23 that prevents a court from taking any of the actions contemplated in the new legislation.[251] Nor, as the Forum's experience in the Pentium case demonstrates, is the proposed legislation necessary to permit shareholder activism in litigation. To the contrary, the bill's proposals may actually prove to be detrimental to the extent that they create a new arena for litigation, with the attendant costs, as class action plaintiffs' counsel vie to have their clients appointed as lead plaintiff so they will be named lead counsel.[252] These concerns make it impossible to say at this time whether the legislation will, on the whole, promote or retard future institutional initiatives in the area of shareholder litigation.

250. 7B CHARLES A. WRIGHT ET AL., FEDERAL PRACTICE AND PROCEDURE § 1792 (1986).

251. For example, courts already have sufficient discretionary power to appoint institutions as lead plaintiffs, even in situations where institutions did not file the first complaint against the defendant. *See* MANUAL FOR COMPLEX LITIGATION, *supra* note 249, § 30.16 (noting that the court "has wide discretion" in selecting who should be the representative plaintiff). Indeed, Professors Weiss and Beckerman advocated that courts experiment with this approach; they did not suggest that it be enshrined into law. Weiss & Beckerman, *supra* note 2, at 2127.

252. Significant costs may be incurred in this determination. For example, the proposed legislation contemplates that discovery will be available under certain circumstances concerning whether a member of the purported class is the most adequate plaintiff. 1933 Act, § 27(a)(3)(B)(iv), 1995 U.S.C.C.A.N. (109 Stat.) 737, 739; 1934 Act, § 21D(a)(3)(B)(iv), 1995 U.S.C.C.A.N. (109 Stat.) 737, 745.

APPENDIX A
COVER LETTER TO
THE PENTIUM LETTER

California Public Employees' Retirement System
College Retirement Equities Fund
Stanford Management Company
Wells Fargo Institutional Trust Company

February 22, 1995

Re: Whittaker v. Moore, Civ. No. 94-20855,
N.D. Calif., complaint filed Dec. 12, 1994,
stipulation of dismissal filed and entered, Feb. 9, 1995.

Re: Gunther v. Moore, Civ. No. 94-20878,
N.D. Calif., complaint filed Dec. 21, 1994.

Dear Plaintiff and Defense Counsel:

The accompanying letter, dated February 8, 1995, related to the above captioned proceedings.

On February 10, 1995, we contacted counsel in these proceedings to inform them that the attached letter was forthcoming and to ascertain the status of the litigation. We were thereupon informed that on February 9, a stipulation of dismissal had been filed and entered in the Whittaker class action securities fraud proceedings. Plaintiff counsel in that case were previously unaware of the existence of the accompanying letter, and we concur with counsels' independent decision to stipulate to dismissal.

We were subsequently informed that counsel in the Gunther derivative action had initiated discussions regarding potential dismissal of the derivative claims as well. On Friday, February 17, we contacted plaintiff counsel in the Gunther action and learned of counsel's views regarding the continuing merits of the derivative claims. We thereupon faxed to plaintiff counsel a copy of the attached letter, and later the same day we were notified of an agreement in principle to stipulate to dismissal of the derivative actions on grounds of mootness. The existence of that agreement was confirmed on Tuesday, February 21. We concur with counsels' decision to so stipulate.

The attached letter, dated February 8, is being forwarded to counsel on February 22. A list of counsel in the above-captioned proceedings is appended.

Yours truly,

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APPENDIX A
THE PENTIUM LETTER

California Public Employees' Retirement System
College Retirement Equities Fund
Stanford Management Company
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February 8, 1995

Re: Whittaker v. Moore, Civ. No. 94-20855,
N.D. Calif., complaint filed Dec. 12, 1994.

Re: Gunther v. Moore, Civ. No. 94-20878,
N.D. Calif., complaint filed Dec. 21, 1994.

Dear Plaintiff and Defense Counsel:

Whittaker v. Moore, Civ. No. 94–20855, N.D. Calif., complaint filed Dec. 12, 1994, asserts class action securities fraud claims on behalf of all persons who purchased common stock or warrants of Intel Corporation between January 1, 1994, and December 9, 1994. The seven name plaintiffs in Whittaker each purchased between 100 and 1,000 Intel shares during the class period alleged in the complaint.

Gunther v. Moore, Civ. No. 94–20878, N.D. Calif., complaint filed December 21, 1994, asserts derivative claims on behalf of Intel Corporation. The name plaintiff in Gunther holds an unspecified number of shares of Intel stock.

The Whittaker and Gunther complaints arise from a common fact pattern relating to a flaw in certain floating point calculations performed by Intel's Pentium chip.

The California Public Employees' Retirement System has assets in excess of $80 billion. The college Retirement Equities Fund has assets in excess of $60 billion. Stanford Management Company has assets in excess of $4 billion. Wells Fargo Institutional Trust Company has contractual responsibility for accounts in excess of $160 billion. In the aggregate, these entities have responsibility for assets in excess of $300 billion.

Each of these entities purchased common stock or warrants of Intel Corporation between January 1, 1994, and December 9, 1994. Each entity is thus a member of the class alleged in the Whittaker complaint. Each of these entities is also currently a shareholder of Intel. In the aggregate, these entities purchased hundreds of thousands of Intel shares during the alleged class period and continue to own several million shares of Intel stock.

The Whittaker Complaint

The Whittaker complaint alleges securities fraud by Intel and some of its senior executives and directors. The complaint alleges that: (1) Intel deceived investors by failing to disclose a known flaw in certain floating point calculations performed by Intel's Pentium chip; (2) this deception caused class members to purchase Intel shares at artificially inflated prices; and (3) certain Intel insiders sold stock at these inflated prices. The complaint also alleges that Intel insiders perpetrated the fraud to protect and enhance their executive positions and prestige, as well as to enhance the value of their Intel stock holdings and options.

We question the merits of the Whittaker complaint. Our concerns are based on three distinct considerations.

First, as explained below, the behavior of Intel's stock price appears inconsistent with the theory alleged in the Whittaker complaint. Second, the sales by Intel insiders recited in the complaint fail to support an inference of fraud. Third, bugs are not rare in computer hardware or software. They are generally resolved without major stock market consequences. The Whittaker complaint fails to allege any basis upon which Intel's executives or directors knew or had reason to know that the Pentium flaw would, unlike other hardware or software bugs, have a material market or financial impact.

1. Intel's Stock Price Performance.

Whittaker alleges that Intel's failure to disclose the Pentium flaw artificially inflated the price of Intel's shares. If that theory is correct then the price of Intel's stock should have suffered a material and permanent decline subsequent to disclosure of the flaw. The data do not appear to support that conclusion.

Table 1 lists the closing price of Intel's shares on a daily basis from January 2, 1994, the first trading day within the alleged class period, to February 3, 1995, the most recent date for which data are available in connection with the preparation of this letter. Figure 1 plots these data.

The Pentium flaw was publicly disclosed for the first time on Sunday, October 30, 1994, through a posting on the Internet. Figure 2 focuses on Intel's stock price performance since that disclosure and notes the dates on which certain events related to the Pentium flaw were disclosed.

The price patterns displayed in Figures 1 and 2 suggest that the stock market impact of the Pentium flaw was transitory. This "transitory Pentium value gap" is most clearly apparent after IBM's announcement on December 12, 1994, that it disputed Intel's estimate of the frequency with which the Pentium flaw would affect chip operations and that it would cease shipping Pentium-based PCs. This gap appears to be most pronounced on December 19 when Intel stock closed at $57.813.

On December 20, 1994, Intel announced a change in its chip replacement policy. Instead of requiring that customers demonstrate cause in order to obtain a replacement chip, Intel agreed to offer replacement chips on a "no-questions-asked" basis. On that day, and in response to that announcement, the value gap closed substantially as Intel's stock price increased by 5.9 percent to $61.25.

Intel's stock price thereafter continued to rise on a fairly regular basis. It reached levels in excess of $68.81 on each and every trading day following the filing of Intel's Form 10–Q on January 18, 1995. That filing disclosed Pentium-related reserves of $475 million.

Visual inspection of Figures 1 and 2 thus suggest that the Pentium-related decline in Intel's share price was temporary and was apparent only during the period immediately preceding Intel's December 20 change in its replacement policy. Visual inspection of Intel's stock price since December 20 also suggests that there has not been a permanent decline in value attributable to the Pentium flaw.

We recognize that this analysis of Intel's stock price does not adjust for broader fluctuations in the market as a whole or for fluctuations specific to the semiconductor industry. It also does not test for the statistical significance of changes in Intel's stock price. Exhibit A addresses these concerns and reports the results of a variety of tests of statistical significance. The statistical analyses reported in Exhibit A are consistent with the conclusion reached by simple visual inspection of Figures 1 and 2, and reaffirm that there appears to be no permanent decline in Intel's share price attributable to Pentium-related events.

The transitory nature of this value gap raises serious questions regarding the damage theory underlying the Whittaker complaint. More fundamentally, the transitory nature of the Pentium value gap is consistent with an alternative explanation of Intel's stock price performance that is unrelated to securities fraud.

Intel's stock price declined in response to Pentium-related events only during the time that Intel required customers to make a showing of need in order to obtain a replacement chip. The presence of a "need-based" customer returns policy thus seems to be a necessary condition for the Pentium-related price decline. Once Intel adopted a "no-questions-asked" policy, its stock price rose to levels higher than those prevailing immediately before disclosure of the Pentium flaw. Such a price pattern would result if Intel had not engaged in any fraud and the market was responding to customer concern over the incidence of the flaw in the Pentium chip. The cause for such concern would be eliminated by the new replacement policy. Accordingly, the observed stock price pattern is consistent with the hypothesis that Intel was truthful throughout.

2. Stock Sales by Intel Officers and Directors.

The insider sales alleged in the Whittaker complaint were executed at prices ranging from $57.50 to $63.11 a share. The price of Intel stock has, however, remained above $63.11 on every trading day since December 29, 1994, and the date of this letter.

Every selling insider would therefore have been better off had he continued to hold his shares through the disclosure of the Pentium flaw and through the resolution of subsequent Pentium-related events. It is difficult to suggest that insiders who suffered foregone profits by selling too soon at a price that would now be considered too low were selling because they believed that Intel's stock price was inflated. The more detailed analysis contained in Exhibit A supports these conclusions.

3. Did Management Have Reason to Believe that the Pentium Flaw Would Have a Material Effect?

The Whittaker complaint alleges that Intel knew of the Pentium flaw well before it was disclosed to the market. The complaint does not, however, allege any facts supporting the inference that Intel, its officers, or its directors, knew or had reason to know that disclosure of the Pentium flaw would have a material adverse effect on the price of Intel's stock or on Intel's financial performance.

Hardware and software bugs are common in the computer industry. None of these bugs, to the best of our knowledge, have caused a market response comparable to that observed in connection with news of the Pentium flaw. The magnitude of the market's response to disclosure of the Pentium flaw appears to be without precedent.

Under those circumstances it is natural to question whether the market consequences of the Pentium flaw were reasonably foreseeable to Intel's management. Unless there is reason to believe that management knew or had reason to know that the market's response to the Pentium flaw would be materially different than its response to disclosures of flaws in other microprocessors or software programs, there is no reason to believe that management knew or should have known that it was engaged in securities fraud. The absence of any allegations that would support such an inference raises a material concern that the Whittaker complaint simply alleges fraud by hindsight.

The Gunther Complaint

The Gunther complaint alleges that Intel's directors and officers breached their fiduciary obligations owed to the corporation to assure that the Pentium chip was marketed, tested, and developed with the appropriate degree of internal controls. It also alleges a breach arising from false concealment of the Pentium flaw. The complaint further alleges that Intel's directors and officers had an incentive to conceal the flaw so as to enhance their bonus compensation and to profit from the same stock sales alleged in the Whittaker action.

The Gunther complaint relies on the decline in Intel's stock price as evidence of harm caused by these alleged breaches. It further complains of the costs imposed by the Whittaker action and by class action product liability claims. In addition, it alleges harm to Intel's reputation, and further damage as a consequence of the need to establish a reserve to cover the costs of Intel's chip replacement program.

The merits of the Gunther complaint are subject to question for the same reasons discussed above in connection with the Whittaker action. The derivative nature of the Gunther suit also raises additional and distinct concerns.

As already explained, Intel's stock price performance does not support an inference of fraud. The stock price data also fail to support the inference that Intel's management has engaged in any action that has permanently reduced the value of Intel's shares. The allegations of insider sales in Gunther fail to support an inference of breach of duty for the same reasons that they fail to support an inference of fraud in Whittaker.

The Gunther complaint also fails to articulate any basis on which Intel's management knew or had reason to know that the Pentium flaw would have an unprecedented market impact. Absent such foresight on the part of Intel's management, the Gunther complaint merely alleges mismanagement by hindsight. Such claims suffer the same deficiencies as claims of fraud by hindsight.

The derivative claim that Intel's management breached fiduciary duties because their conduct precipitated the filing of various class actions lawsuits also appears to be without foundation because, as already explained, those securities fraud class actions suits appear themselves to be without merit. The consumer class action suits appear themselves to be without merit. The consumer class actions also appear to lack merit in light of Intel's decision to replace Pentium chips on a "no-questions-asked" basis.

The allegation that Intel has suffered because of a loss of reputation also seems questionable. No other microprocessor manufacturer has, to our knowledge, demonstrated a willingness or ability to engage in a replacement campaign of the magnitude now being undertaken by Intel. Moreover, the price performances of Intel stock following announcement of the replacement campaign belies any permanent loss of reputation.

For all these reasons, derivative litigation of the sort articulated by the Gunther complaint appears not to promote the corporation's interests or the interests of its shareholders.

Concluding Observations

Simply because a lawsuit can be filed does not mean that it should be filed. As counsel in this action are well aware, there is substantial public concern over private class action securities fraud litigation. This concern is reflected in recent Congressional hearings, statements by the Chairman and Commissioners of the Securities and Exchange Commission, in the academic literature, and elsewhere.

While private class action securities claims have recovered substantial sums for many investors, we share the concern that weak complaints can impose substantial and unnecessary costs on publicly traded firms that are forced to defend against such actions. The imposition of such costs do not promote the investor interests that class action counsel purport to represent.

Derivative actions that piggyback on securities fraud complaints and that restate essentially identical claims as breaches of fiduciary duty raise comparable concerns. Moreover, the multiplication of litigation that results when securities claims spawn parallel derivative actions serves only to compound the public policy concern over the costs imposed by unwarranted litigation.

For the reasons stated above, we respectfully request that counsel in the Whittaker and Gunther actions reconsider the prudence of their stated claims. Needless to say, if counsel are able to allege facts more substantial than those that appear on the record to date our views regarding the merits of either lawsuit may evolve. However, based on currently available information, the Whittaker and Gunther complaints seem to be clear examples of the sort of litigation that can do more harm than good and that do not promote the interests of the very investors on whose behalf the claims are ostensibly filed.

A copy of this letter is being forwarded to the Office of the General Counsel of the United States Securities and Exchange Commission in response to Chairman Arthur Levitt's recent announcement of the creation of a Litigation Analysis Unit that will evaluate private class action claims.

Yours truly,

[Signed by: (1) Professor Joseph A. Grundfest, Stanford Law School; (2) Richard H. Koppes, General Counsel, CalPERS; (3) Laurence R. Hoagland, President and Chief Executive Officer, Stanford Management Company; (4) Charles H. Stamm, Executive Vice President and General Counsel, College Retirement Equities Fund; and (5) Linda S. Selbach, Principal, Wells Fargo Institutional Trust Company.]

Table 1
Intel Closing Price
January 3, 1994 - February 3, 1995

Source: Compuserve

Date	Intel Closing Price	Date	Intel Closing Price	Date	Intel Closing Price
1/3/94	$61.250	3/9/94	$71.625	5/16/94	$57.500
1/4/94	$63.750	3/10/94	$70.125	5/17/94	$58.250
1/5/94	$64.250	3/11/94	$68.625	5/18/94	$58.938
1/6/94	$64.000	3/14/94	$70.000	5/19/94	$60.125
1/7/94	$65.875	3/15/94	$71.250	5/20/94	$59.750
1/10/94	$67.000	3/16/94	$71.875	5/23/94	$59.500
1/11/94	$66.750	3/17/94	$72.250	5/24/94	$61.500
1/12/94	$68.375	3/18/94	$72.000	5/25/94	$61.250
1/13/94	$68.000	3/21/94	$72.250	5/26/94	$60.500
1/14/94	$68.500	3/22/94	$72.000	5/27/94	$61.375
1/17/94	$66.250	3/23/94	$71.500	5/31/94	$62.500
1/18/94	$67.250	3/24/94	$70.250	6/1/94	$64.609
1/19/94	$62.500	3/25/94	$69.750	6/2/94	$64.500
1/20/94	$63.750	3/28/94	$68.625	6/3/94	$63.000
1/21/94	$65.125	3/29/94	$66.250	6/6/94	$61.688
1/24/94	$65.500	3/30/94	$66.250	6/7/94	$61.500
1/25/94	$65.125	3/31/94	$67.500	6/8/94	$59.750
1/26/94	$63.625	4/4/94	$67.250	6/9/94	$59.000
1/27/94	$64.250	4/5/94	$68.750	6/10/94	$59.984
1/28/94	$65.125	4/6/94	$69.625	6/13/94	$59.500
1/31/94	$65.250	4/7/94	$70.625	6/14/94	$61.250
2/1/94	$64.625	4/8/94	$69.375	6/15/94	$60.938
2/2/94	$65.250	4/11/94	$69.188	6/16/94	$60.500
2/3/94	$63.250	4/12/94	$65.750	6/17/94	$60.000
2/4/94	$61.750	4/13/94	$63.750	6/20/94	$58.875
2/7/94	$62.000	4/14/94	$59.875	6/21/94	$58.000
2/8/94	$63.500	4/15/94	$59.750	6/22/94	$59.625
2/9/94	$63.875	4/18/94	$58.500	6/23/94	$58.375
2/10/94	$63.125	4/19/94	$57.500	6/24/94	$58.375
2/11/94	$63.750	4/20/94	$57.500	6/27/94	$59.750
2/14/94	$63.875	4/21/94	$60.250	6/28/94	$60.250
2/15/94	$65.000	4/22/94	$60.375	6/29/94	$59.375
2/16/94	$67.000	4/25/94	$62.875	6/30/94	$58.500
2/17/94	$66.500	4/26/94	$63.250	7/1/94	$59.000
2/18/94	$66.750	4/28/94	$61.688	7/5/94	$57.750
2/22/94	$68.750	4/29/94	$61.000	7/6/94	$56.813
2/23/94	$68.625	5/2/94	$60.500	7/7/94	$57.875
2/24/94	$67.750	5/3/94	$59.375	7/8/94	$59.125
2/25/94	$68.250	5/4/94	$58.563	7/11/94	$60.109
2/28/94	$68.750	5/5/94	$59.063	7/12/94	$60.125
3/1/94	$66.750	5/6/94	$59.688	7/13/94	$61.750
3/2/94	$66.625	5/9/94	$58.625	7/14/94	$61.500
3/3/94	$68.000	5/10/94	$59.500	7/15/94	$59.500
3/4/94	$69.625	5/11/94	$59.500	7/18/94	$58.625
3/7/94	$71.250	5/12/94	$58.563	7/19/94	$57.000
3/8/94	$70.750	5/13/94	$58.375	7/20/94	$56.500

Table 1
Intel Closing Price
January 3, 1994 - February 3, 1995

Source: Compuserve

Date	Intel Closing Price	Date	Intel Closing Price	Date	Intel Closing Price
7/21/94	$58.484	9/26/94	$62.688	11/30/94	$63.125
7/22/94	$57.875	9/27/94	$62.500	12/1/94	$62.625
7/25/94	$57.813	9/28/94	$61.500	12/2/94	$62.875
7/26/94	$57.313	9/29/94	$61.625	12/5/94	$64.125
7/27/94	$56.813	9/30/94	$61.500	12/6/94	$64.500
7/28/94	$57.875	10/3/94	$60.250	12/7/94	$64.750
7/29/94	$59.250	10/4/94	$58.000	12/8/94	$62.750
8/1/94	$59.625	10/5/94	$58.750	12/9/94	$62.750
8/2/94	$59.500	10/6/94	$58.938	12/12/94	$60.375
8/3/94	$59.000	10/7/94	$59.438	12/13/94	$60.500
8/4/94	$57.250	10/10/94	$60.438	12/14/94	$60.375
8/5/94	$58.125	10/11/94	$60.500	12/15/94	$58.625
8/8/94	$58.000	10/12/94	$59.750	12/16/94	$59.500
8/9/94	$59.250	10/13/94	$58.875	12/19/94	$57.813
8/10/94	$59.750	10/14/94	$58.500	12/20/94	$61.250
8/11/94	$60.375	10/17/94	$58.188	12/21/94	$62.625
8/12/94	$60.188	10/18/94	$58.250	12/22/94	$63.125
8/15/94	$60.750	10/19/94	$60.000	12/23/94	$62.938
8/16/94	$61.563	10/20/94	$60.688	12/27/94	$63.359
8/17/94	$63.750	10/21/94	$60.500	12/28/94	$62.500
8/18/94	$63.563	10/24/94	$59.500	12/29/94	$64.375
8/19/94	$63.438	10/25/94	$58.938	12/30/94	$63.875
8/22/94	$63.656	10/26/94	$60.000	1/3/95	$63.750
8/23/94	$64.250	10/27/94	$60.500	1/4/95	$63.625
8/24/94	$64.188	10/28/94	$62.250	1/5/95	$64.125
8/25/94	$65.125	10/31/94	$62.125	1/6/95	$65.000
8/26/94	$66.000	11/1/94	$61.375	1/9/95	$66.000
8/29/94	$66.125	11/2/94	$62.500	1/10/95	$66.625
8/30/94	$66.406	11/3/94	$61.875	1/11/95	$66.250
8/31/94	$65.750	11/4/94	$60.375	1/12/95	$67.125
9/1/94	$64.250	11/7/94	$60.125	1/13/95	$68.125
9/2/94	$64.234	11/8/94	$60.813	1/16/95	$68.125
9/6/94	$63.984	11/9/94	$61.250	1/17/95	$67.000
9/7/94	$66.375	11/10/94	$61.125	1/18/95	$69.375
9/8/94	$66.875	11/11/94	$60.625	1/19/95	$70.688
9/9/94	$65.750	11/14/94	$62.250	1/20/95	$68.813
9/12/94	$64.500	11/15/94	$61.563	1/23/95	$70.375
9/13/94	$65.250	11/16/94	$61.125	1/24/95	$71.500
9/14/94	$65.375	11/17/94	$62.125	1/25/95	$70.875
9/15/94	$67.000	11/18/94	$63.938	1/26/95	$70.438
9/16/94	$66.875	11/21/94	$66.125	1/27/95	$71.000
9/19/94	$67.250	11/22/94	$64.750	1/30/95	$70.000
9/20/94	$66.000	11/23/94	$65.125	1/31/95	$69.375
9/21/94	$65.375	11/25/94	$63.875	2/1/95	$70.625
9/22/94	$64.500	11/28/94	$65.250	2/2/95	$72.188
9/23/94	$63.250	11/29/94	$65.500	2/3/95	$73.500

Figure 1
Intel Closing Price Adjusted for Dividends
1/3/94 - 2/3/95

Source: Compuserve

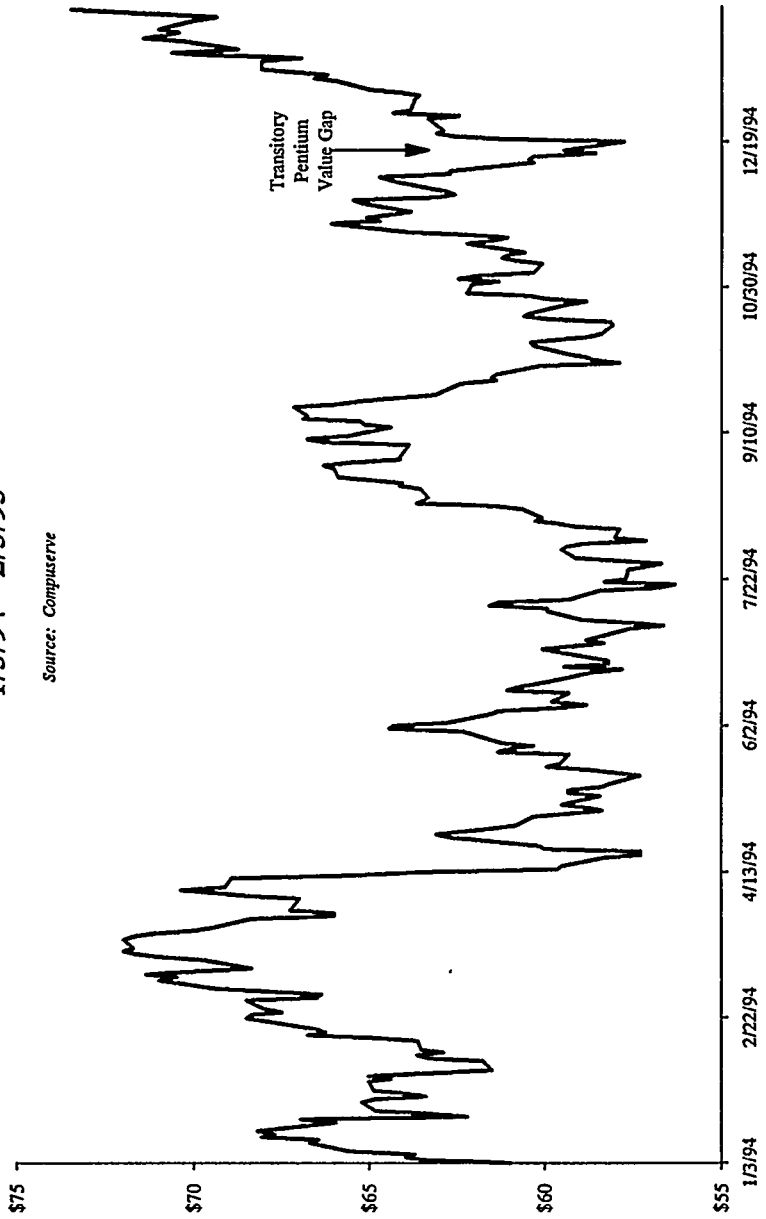

Figure 2
Intel Closing Price Adjusted for Dividends
10/28/94 - 2/3/95

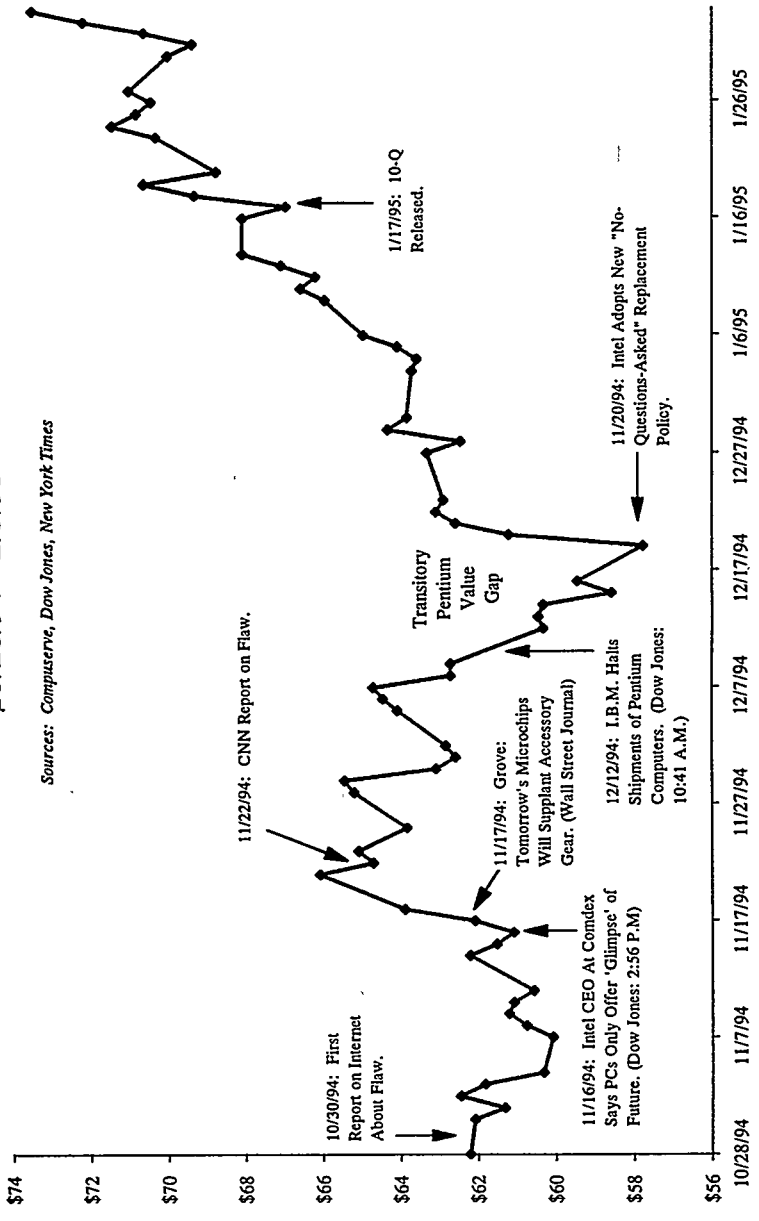

EXHIBIT A

An Analysis of Intel Corporation's
Stock Price Performance from
October 28, 1994, to February 3, 1995

This memorandum reports on the results of a statistical analysis of Intel Corporation's stock price performance from October 28, 1994, to February 3, 1995. To control for the effect of both market-wide and semiconductor industry-specific factors on Intel's stock price, we regressed Intel's daily stock price returns on daily Nasdaq returns and on daily orthogonalized equal-weighted Hambrecht & Quist Semiconductor Industry Index returns (from which Intel's own stock price was first excluded). The regression was estimated using data from October 28, 1993, to October 28, 1994, the year preceding the first Internet disclosure of the Pentium flaw. The results of this regression are reported in Table A–1. As is apparent, the relevant coefficients and the regression itself are highly significant.

These regression results were then used to calculate daily net-of-market returns over the period from October 28, 1994, to February 3, 1995. As Table A–2 reveals, single-day net-of-market returns that are positive and statistically significant at the 95% confidence level are discernible on November 18 and 21, December 19, and January 18 and 23. Negative net-of-market single day returns that are statistically significant at the 95% confidence level are discernible on November 25 and 30, and on December 12 and 15.

To test for the transitory nature of the Pentium price gap, however, it is necessary to determine whether a price decline is followed by a recovery such that, at the end of the transitory gap, there is no discernible, continuing stock price effect. Conducting such a test requires specifying a starting date when the gap begins and then determining if and when that gap disappears.

Table A–2 presents results of such a test using October 28, 1994, as a base date from which to measure the Pentium value gap. October 28 was the last trading day preceding disclosure of the Pentium flaw on the Internet. In Table A–2 the first column under the October 28 Base Date heading describes the cumulative value of a $100 investment in Intel stock made on October 28, 1994, net-of-market and semiconductor index returns. By February 3, 1995, this $100 investment would, on a net of market basis, have grown to $118.20. This return just misses statistical significance at the 90% confidence level. Put another way, Intel outperformed the market over this period, and an investor who bought $100 of Intel would have been $18.20 richer than would be

predicted based on the performance of the Nasdaq market and of the Hambrecht & Quist Semiconductor Index. Even on December 19, 1994, when Intel's stock hit its lowest price during this period, Intel's stock price remained above its predicted performance, if measured from an October 28 base date.

October 28 is not, however, the only date from which it is possible to measure a Pentium value gap. November 21 marks a temporary peak in Intel's stock price during the period following the disclosure of the Pentium flaw. Table A–3 documents tests of statistical significance measured from that peak as the beginning of a value gap in Intel's stock price.

By that measure, the largest degrees of underperformance were apparent on December 15 and December 19 when Intel's cumulative stock price performance was below the market's by 5.31 percent and 4.98, respectively. However, neither of these measures are statistically significant and by December 20 Intel's stock price was back in line with the market, showing a statistically insignificant 0.04 percent performance above predicted price levels. Thus, using November 21 as the starting date suggests that a statistically significant Pentium value gap never emerged at all and that the adverse consequences of the Pentium disclosures, such as they were, had dissipated by December 20. By February 3, Intel had outperformed its predicted price by 8.88%, although this performance is not statistically significant measured from a November 21 base date.

The most powerful statistical support for the existence of a Pentium value gap arises if the gap is measured from December 9, the last trading day prior to the IBM announcement. The results of that analysis are reported in Table A–4.

That analysis indicates underperformance at a 90% confidence level on December 12, and again from December 15 through December 19. The underperformance relative to the market, rather than in absolute terms, peaks on December 15 when Intel's price is 8.08 percent lower than predicted on the basis of historical relationships with Nasdaq and other semiconductor stock prices. The statistical significance of Intel's underperformance disappears, however, on December 20 when Intel's relative underperformance declines to a statistically insignificant 2.89 percent.

Measured from this December 9 base, Intel's stock price thereafter fails to display any statistically significant deviation from historical market relationships. By the end of January, Intel's stock outperforms the comparable market index by statistically insignificant amounts. By February 3, an investment in Intel outperforms the comparable Nasdaq and

semiconductor indexes by 5.69%. These positive performances are, however, statistically insignificant.

Thus, even if a stock price analysis is conducted with the specific intent of finding the starting date from which the evidence of underperformance is most pronounced and without any effort to justify the selection of that starting date, the evidence of statistically significant underperformance quickly dissipates. The value gap in Intel's stock price attributable to Pentium-related events is therefore transitory, even under "worst case" assumptions.

Equivalent statistical analyses have been conducted for the Standard & Poor's 500 Index with and without the orthogonalized Hambrecht & Quist Semiconductor Index (excluding Intel), and for the Nasdaq Index alone. While each of these models generate different patterns of returns and of statistical significance, they all indicate that statistically significant cumulative net of market price effects do not continue beyond December 20, 1994. Intel's underperformance due to Pentium-related events, if such underperformance ever existed in the first instance in a statistically significant sense, ceased to be statistically significant upon the change in Intel's return policy. This conclusion is supported without regard to the model specification employed or to the starting date from which the value gap is measured.

TABLE A-1

Control Period: 10/28/93 to 10/28/94			
INTC_RET vs. NASDAQ Return and Orthogonalized EW H&Q Semiconductor Index			
	Alpha	*Market Beta*	*Ort. Ind. Beta*
Coefficients	-0.000018	1.489991	0.463400
Standard Errors	0.000857	0.116765	0.054094
t-Statistics	-0.020521	12.760646	8.566537
Confidence	1.64%	100.00%	100.00%
R-Squared:	48.4832%		
Adusted R-Squared:	48.0727%		
F-Statistic:	118.1098 (100.00% Confidence)		
Durbin-Watson:	1.9560 (No Serial Correlation at 95% level)		
Annualized Alpha:	-0.44%		
No. of Observations:	254		
Standard Error of Reg.:	0.013654 (±2.676%,±3.517%)		
Reg. Sum of Squares:	0.044040		
Resid. Sum of Squares:	0.046795		

Table A-2: Intel v. Nasdaq and Orthogonalized H&Q Semiconductor Index

							October 28 Base Date			
Date	Intel Close Adjusted for Dividends	Raw Intel Return	Raw Nasdaq Return	Raw EW H&Q Semiconductor Index (Net of Intel)	Estimated Daily Net of Market Return	Statistically Significant at 95% Confidence Level	Cumulative Net of Market POW	Percentage Cumulative Net of Market Return	95% Statistical Significance Boundary	Significance Level
10/28/94	$62.20	2.89%	1.13%	2.54%	0.85%		$100.00	0.00%	2.68%	0.00%
10/31/94	$62.07	-0.20%	0.17%	0.09%	-0.34%		$99.66	-0.34%	3.78%	13.79%
11/1/94	$61.32	-1.21%	-0.68%	-0.06%	-0.58%		$99.08	-0.92%	4.64%	30.12%
11/2/94	$62.45	1.83%	-0.05%	0.93%	1.48%		$100.56	0.56%	5.35%	16.13%
11/3/94	$61.82	-1.00%	0.04%	0.37%	-1.16%		$99.39	-0.61%	5.98%	15.79%
11/4/94	$60.32	-2.42%	-0.78%	-1.73%	-0.95%		$98.45	-1.55%	6.56%	35.66%
11/7/94	$60.07	-0.41%	-0.49%	-1.84%	0.88%		$99.32	-0.68%	7.08%	14.91%
11/8/94	$60.76	1.14%	0.69%	1.56%	-0.09%		$99.23	-0.77%	7.57%	15.75%
11/9/94	$61.20	0.72%	-0.04%	1.19%	0.24%		$99.48	-0.52%	8.03%	10.18%
11/10/94	$61.07	-0.20%	-0.37%	-2.55%	1.33%		$100.80	0.80%	8.46%	14 61%
11/11/94	$60.57	-0.82%	-0.30%	0.10%	-0.58%		$100.21	0.21%	8.88%	3 70%
11/14/94	$62.20	2.68%	0.79%	1.84%	1.23%		$101.45	1.45%	9.27%	24 02%
11/15/94	$61.51	-1.10%	0.11%	0.24%	-1.26%		$100.17	0.17%	9.65%	2.72%
11/16/94	$61.07	-0.71%	0.08%	-0.24%	-0.62%		$99.55	-0.45%	10.01%	7.04%
11/17/94	$62.07	1.64%	-0.49%	1.34%	1.46%		$101 00	1.09%	10.36%	15.00%
11/18/94	$63.88	2.92%	-0.15%	0.15%	3.02%	•	$104.05	4.05%	10.70%	54 15%
11/21/94	$66.07	3.42%	-0.91%	-0.30%	4.34%	•	$108.56	8.56%	11.03%	87.18%
11/22/94	$64.70	-2.08%	-2.18%	-3.69%	1.44%		$110.13	10 13%	11.35%	91 96%
11/23/94	$65.07	0.58%	-0.61%	-0.47%	1.34%		$111.60	11.60%	11.67%	94 87%
11/25/94	$63.82	-1.92%	0.79%	1.38%	-3.15%	•	$108.09	8 09%	11.97%	81 46%
11/28/94	$65.19	2.15%	0.43%	0.02%	1.84%		$110.07	10 07%	12.26%	89 26%
11/29/94	$65.44	0.38%	0.77%	0.70%	-0.52%		$109.50	9.50%	12.55%	86 22%
11/30/94	$63.07	-3.63%	-0.15%	-1.09%	-2.95%	•	$106.27	6.27%	12.83%	66 17%
12/1/94	$62.57	-0.79%	-1.29%	-1.51%	1.00%		$107.33	7.33%	13 11%	72 70%
12/2/94	$62.82	0.40%	0.60%	1.40%	-0.69%		$106 60	6.60%	13.38%	66 60%
12/5/94	$64.07	1.99%	0.09%	0.70%	1.63%		$108.34	8.34%	13.65%	76 88%
12/6/94	$64.45	0.59%	-0.60%	-1.12%	1.63%		$110.11	10.11%	13.91%	84 57%
12/7/94	$64.70	0.39%	-0.94%	-1.76%	2.01%		$112.32	12.32%	14.16%	91 18%
12/8/94	$62.70	-3.09%	-2.06%	-3.85%	0.41%		$112.78	12.78%	14.41%	91.78%
12/9/94	$62.70	0.00%	-0.01%	1.92%	-0.84%		$111.84	11.84%	14.66%	88.65%
12/12/94	$60.32	-3.79%	0.01%	-0.15%	-3.68%	•	$107.72	7.72%	14.90%	69.04%
12/13/94	$60.45	0.21%	0.05%	-0.90%	0.63%		$108.40	8.40%	15.14%	72 33%
12/14/94	$60.32	-0.21%	0.86%	1.41%	-1.51%		$106.77	6.77%	15.37%	61 17%
12/15/94	$58.58	-2.90%	0.69%	0.66%	-3.72%	•	$102.80	2.80%	15.60%	27 46%
12/16/94	$59.45	1.49%	-0.22%	-0.97%	2.17%		$105.02	5.02%	15.83%	46 61%
12/19/94	$57.76	-2.84%	-0.16%	-1.90%	-1.78%		$103.16	3.16%	16.06%	30 00%
12/20/94	$61.20	5.95%	0.09%	1.37%	5.29%	•	$108.61	8 61%	16 28%	70 02%
12/21/94	$62.57	2.25%	1.18%	1.36%	0.71%		$109.38	9.38%	16.50%	73 48%
12/22/94	$63.07	0.80%	0.30%	-0.03%	0.61%		$110 05	10.05%	16.71%	76.14%
12/23/94	$62.88	-0.30%	0.39%	0.52%	-0.81%		$109.16	9.16%	16 93%	71.12%
12/27/94	$63.31	0.67%	0.54%	3.01%	-1.12%		$107.94	7.94%	17.14%	63 63%
12/28/94	$62.45	-1.36%	-0.50%	-0.28%	-0.78%		$107.10	7.10%	17 34%	57.79%
12/29/94	$64.32	3.00%	0.95%	1.54%	1.56%		$108.78	8.78%	17.55%	67.31%
12/30/94	$63.82	-0.78%	0.32%	-0.87%	-0.59%		$108.14	8.14%	17.75%	63.11%
1/3/95	$63.70	-0.20%	-1.11%	-1.02%	1.22%		$109 46	9.46%	17.95%	69.83%
1/4/95	$63.57	-0.20%	0.30%	0.50%	-0.63%		$108.77	8 77%	18.15%	65.66%
1/5/95	$64.07	0.79%	-0.02%	0.17%	0.77%		$109.62	9.62%	18 35%	69.57%
1/6/95	$64.94	1.37%	0.54%	2.67%	-0.26%		$109.33	9.33%	18 54%	67.58%
1/9/95	$65.94	1.54%	0.32%	1.87%	0.46%		$109.83	9 83%	18 73%	69.61%
1/10/95	$66.57	0.95%	0.59%	3.60%	-1.15%		$108.56	8.56%	18.92%	62.47%
1/11/95	$66.19	-0.56%	-0.10%	-1.22%	0.13%		$108.70	8.70%	19.11%	62.79%
1/12/95	$67.07	1.32%	0.10%	4.89%	-0.98%		$107.63	7.63%	19.30%	56.18%
1/13/95	$68.07	1.49%	0.75%	-0.70%	1.26%		$108.99	8.99%	19.48%	63 40%
1/16/95	$68.07	0.00%	0.79%	0.22%	-0.69%		$108.23	8.23%	19 67%	58.79%
1/17/95	$66.94	-1.65%	0.52%	-0.85%	-1.63%		$106.46	6.46%	19 85%	47.68%
1/18/95	$69.32	3.55%	0.03%	1.23%	2.99%	•	$109.65	9.65%	20 03%	65 52%
1/19/95	$70.63	1.89%	-0.50%	-0.32%	2.49%		$112.38	12.38%	20 20%	77.02%
1/20/95	$68.75	-2.65%	-0.85%	-1.59%	-1.19%		$111.05	11.05%	20.38%	71 19%
1/23/95	$70.32	2.27%	-0.33%	-1.29%	3.18%	•	$114.58	14 58%	20.56%	83 55%
1/24/95	$71.44	1.60%	0.49%	1.15%	0.72%		$115.41	15.41%	20.73%	85.48%
1/25/95	$70.82	-0.87%	-0.29%	-2.34%	0.49%		$115.97	15 97%	20.90%	86.58%
1/26/95	$70.44	-0.53%	-0.45%	-1.35%	0.50%		$116.56	16 56%	21 07%	87.64%
1/27/95	$71.00	0.80%	0.18%	1.37%	0.07%		$116 64	16 64%	21.24%	87.52%
1/30/95	$70.00	-1.41%	-0.93%	-2.18%	0.40%		$117.11	17.11%	21.41%	88 27%
1/31/95	$69.38	-0.89%	0.45%	-0.64%	-0.91%		$116.03	16 03%	21 58%	85.48%
2/1/95	$70.63	1.80%	0.41%	2.14%	0.52%		$116.64	16 64%	21.74%	86 65%
2/2/95	$72.19	2.21%	0.70%	1.46%	1.01%		$117.82	17 82%	21.91%	88.92%
2/3/95	$73.50	1.82%	1.10%	1.41%	0.32%		$118.20	18.20%	22.07%	89 40%

Table A-3: Intel v. Nasdaq and Orthogonalized H&Q Semiconductor Index

							November 21 Base Date			
Date	Intel Close Adjusted for Dividends	Raw Intel Return	Raw Nasdaq Return	Raw EW H&Q Semiconductor Index (Net of Intel)	Estimated Daily Net of Market Return	Statistically Significant at 95% Confidence Level	Cumulative Net of Market POW	Percentage Cumulative Net of Market Return	95% Statistical Significance Boundary	Significance Level
10/28/94	$62.20	2.89%	1.13%	2.54%	0.85%					
10/31/94	$62.07	-0.20%	0.17%	0.09%	-0.34%					
11/1/94	$61.32	-1.21%	-0.68%	-0.06%	-0.58%					
11/2/94	$62.45	1.83%	-0.05%	0.93%	1.48%					
11/3/94	$61.82	-1.00%	0.04%	0.37%	-1.16%					
11/4/94	$60.32	-2.42%	-0.78%	-1.73%	-0.95%					
11/7/94	$60.07	-0.41%	-0.49%	-1.84%	0.88%					
11/8/94	$60.76	1.14%	0.69%	1.56%	-0.09%					
11/9/94	$61.20	0.72%	-0.04%	1.19%	0.24%					
11/10/94	$61.07	-0.20%	-0.37%	-2.55%	1.33%					
11/11/94	$60.57	-0.82%	-0.30%	0.10%	-0.58%					
11/14/94	$62.20	2.68%	0.79%	1.84%	1.23%					
11/15/94	$61.51	-1.10%	0.11%	0.24%	-1.26%					
11/16/94	$61.07	-0.71%	0.08%	-0.24%	-0.62%					
11/17/94	$62.07	1.64%	-0.49%	1.34%	1.46%					
11/18/94	$63.88	2.92%	-0.15%	0.15%	3.02%	*				
11/21/94	$66.07	3.42%	-0.91%	-0.30%	4.34%	*	$100.00	0.00%	2.68%	0.00%
11/22/94	$64.70	-2.08%	-2.18%	-3.69%	1.44%		$101.44	1.44%	3.78%	54.49%
11/23/94	$65.07	0.58%	-0.61%	-0.47%	1.34%		$102.80	2.80%	4.64%	76.33%
11/25/94	$63.82	-1.92%	0.79%	1.38%	-3.15%	*	$99.56	-0.44%	5.35%	12.81%
11/28/94	$65.19	2.15%	0.43%	0.02%	1.84%		$101.39	1.39%	5.98%	35.13%
11/29/94	$65.44	0.38%	0.77%	0.70%	-0.52%		$100.87	0.87%	6.56%	20.43%
11/30/94	$63.07	-3.63%	-0.15%	-1.09%	-2.95%	*	$97.89	-2.11%	7.08%	44.12%
12/1/94	$62.57	-0.79%	-1.29%	-1.51%	1.00%		$98.87	-1.13%	7.57%	23.11%
12/2/94	$62.82	0.40%	0.60%	1.40%	-0.69%		$98.19	-1.81%	8.03%	34.19%
12/5/94	$64.07	1.99%	0.09%	0.70%	1.63%		$99.79	-0.21%	8.46%	3.88%
12/6/94	$64.45	0.59%	-0.60%	-1.12%	1.63%		$101.42	1.42%	8.88%	24.64%
12/7/94	$64.70	0.39%	-0.94%	-1.76%	2.01%		$103.46	3.46%	9.27%	53.54%
12/8/94	$62.70	-3.09%	-2.06%	-3.85%	0.41%		$103.88	3.88%	9.65%	56.98%
12/9/94	$62.70	0.00%	-0.01%	1.92%	-0.84%		$103.02	3.02%	10.01%	44.50%
12/12/94	$60.32	-3.79%	0.01%	-0.15%	-3.68%	*	$99.23	-0.77%	10.36%	11.62%
12/13/94	$60.45	0.21%	0.05%	-0.90%	0.63%		$99.85	-0.15%	10.70%	2.19%
12/14/94	$60.32	-0.21%	0.86%	1.41%	-1.51%		$98.34	-1.66%	11.03%	23.13%
12/15/94	$58.58	-2.90%	0.69%	0.66%	-3.72%	*	$94.69	-5.31%	11.35%	64.08%
12/16/94	$59.45	1.49%	-0.22%	-0.97%	2.17%		$96.74	-3.26%	11.67%	41.61%
12/19/94	$57.76	-2.84%	-0.16%	-1.90%	-1.78%		$95.02	-4.98%	11.97%	58.53%
12/20/94	$61.20	5.95%	0.09%	1.37%	5.29%	*	$100.04	0.04%	12.26%	0.55%
12/21/94	$62.57	2.25%	1.18%	1.36%	0.71%		$100.75	0.75%	12.55%	9.31%
12/22/94	$63.07	0.80%	0.30%	-0.03%	0.61%		$101.37	1.37%	12.83%	16.55%
12/23/94	$62.88	-0.30%	0.39%	0.52%	-0.81%		$100.55	0.55%	13.11%	6.56%
12/27/94	$63.31	0.67%	0.54%	3.01%	-1.12%		$99.43	-0.57%	13.38%	6.69%
12/28/94	$62.45	-1.36%	-0.50%	-0.28%	-0.78%		$98.66	-1.34%	13.65%	15.32%
12/29/94	$64.32	3.00%	0.95%	1.54%	1.56%		$100.20	0.20%	13.91%	2.22%
12/30/94	$63.82	-0.78%	0.32%	-0.87%	-0.59%		$99.61	-0.39%	14.16%	4.33%
1/3/95	$63.70	-0.20%	-1.11%	-1.02%	1.22%		$100.83	0.83%	14.41%	8.94%
1/4/95	$63.57	-0.20%	0.30%	0.50%	-0.63%		$100.19	0.19%	14.66%	2.07%
1/5/95	$64.07	0.79%	-0.02%	0.17%	0.77%		$100.97	0.97%	14.90%	10.14%
1/6/95	$64.94	1.37%	0.54%	2.67%	-0.26%		$100.70	0.70%	15.14%	7.25%
1/9/95	$65.94	1.54%	0.32%	1.87%	0.46%		$101.16	1.16%	15.37%	11.79%
1/10/95	$66.57	0.95%	0.59%	3.60%	-1.15%		$100.00	0.00%	15.60%	0.04%
1/11/95	$66.19	-0.56%	-0.10%	-1.22%	0.13%		$100.13	0.13%	15.83%	1.27%
1/12/95	$67.07	1.32%	0.10%	4.89%	-0.98%		$99.14	-0.86%	16.06%	8.33%
1/13/95	$68.07	1.49%	0.75%	-0.70%	1.26%		$100.39	0.39%	16.28%	3.73%
1/16/95	$68.07	0.00%	0.79%	0.22%	-0.69%		$99.69	-0.31%	16.50%	2.92%
1/17/95	$66.94	-1.65%	0.52%	-0 85%	-1.63%		$98.07	-1.93%	16.71%	17.94%
1/18/95	$69.32	3.55%	0.03%	1.23%	2.99%	*	$101.00	1.00%	16.93%	9.25%
1/19/95	$70.63	1.89%	-0.50%	-0.32%	2.49%		$103.51	3.51%	17.14%	31.23%
1/20/95	$68.75	-2.65%	-0.85%	-1.59%	-1.19%		$102.29	2.29%	17.34%	20.39%
1/23/95	$70.32	2.27%	-0.33%	-1.29%	3.18%	*	$105.54	5.54%	17.55%	46.40%
1/24/95	$71.44	1.60%	0.49%	1.15%	0.72%		$106.30	6.30%	17.75%	51.34%
1/25/95	$70.82	-0.87%	-0.29%	-2.34%	0.49%		$106.83	6.83%	17.95%	54.39%
1/26/95	$70.44	-0.53%	-0.45%	-1.35%	0.50%		$107.36	7.36%	18.15%	57.34%
1/27/95	$71.00	0.80%	0.18%	1.37%	0.07%		$107.43	7.43%	18.35%	57.30%
1/30/95	$70.00	-1.41%	-0.93%	-2.18%	0.40%		$107.87	7.87%	18.54%	59.45%
1/31/95	$69.38	-0.89%	0.45%	-0.64%	-0.91%		$106.88	6.88%	18.73%	52.85%
2/1/95	$70.63	1.80%	0.41%	2.14%	0.52%		$107.44	7.44%	18.92%	55.91%
2/2/95	$72.19	2.21%	0.70%	1.46%	1.01%		$108.53	8.53%	19.11%	61.83%
2/3/95	$73.50	1.82%	1.10%	1.41%	0.32%		$108.88	8.88%	19.30%	63.26%

Table A-4: Intel v. Nasdaq and Orthogonalized H&Q Semiconductor Index

							December 9 Base Date			
Date	Intel Close Adjusted for Dividends	Raw Intel Return	Raw Nasdaq Return	Raw EW H&Q Semiconductor Index (Net of Intel)	Estimated Daily Net of Market Return	Statistically Significant at 95% Confidence Level	Cumulative Net of Market POW	Percentage Cumulative Net of Market Return	95% Statistical Significance Boundary	Significance Level
10/28/94	$62.20	2.89%	1.13%	2.54%	0.85%					
10/31/94	$62.07	-0.20%	0.17%	0.09%	-0.34%					
11/1/94	$61.32	-1.21%	-0.68%	-0.06%	-0.58%					
11/2/94	$62.45	1.83%	-0.05%	0.93%	1.48%					
11/3/94	$61.82	-1.00%	0.04%	0.37%	-1.16%					
11/4/94	$60.32	-2.42%	-0.78%	-1.73%	-0.95%					
11/7/94	$60.07	-0.41%	-0.49%	-1.84%	0.88%					
11/8/94	$60.76	1.14%	0.69%	1.56%	-0.09%					
11/9/94	$61.20	0.72%	-0.04%	1.19%	0.24%					
11/10/94	$61.07	-0.20%	-0.37%	-2.55%	1.33%					
11/11/94	$60.57	-0.82%	-0.30%	0.10%	-0.58%					
11/14/94	$62.20	2.68%	0.79%	1.84%	1.23%					
11/15/94	$61.51	-1.10%	0.11%	0.24%	-1.26%					
11/16/94	$61.07	-0.71%	0.08%	-0.24%	-0.62%					
11/17/94	$62.07	1.64%	-0.49%	1.34%	1.46%					
11/18/94	$63.88	2.92%	-0.15%	0.15%	3.02%	*				
11/21/94	$66.07	3.42%	-0.91%	-0.30%	4.34%	*				
11/22/94	$64.70	-2.08%	-2.18%	-3.69%	1.44%					
11/23/94	$65.07	0.58%	-0.61%	-0.47%	1.34%					
11/25/94	$63.82	-1.92%	0.79%	1.38%	-3.15%	*				
11/28/94	$65.19	2.15%	0.43%	0.02%	1.84%					
11/29/94	$65.44	0.38%	0.77%	0.70%	-0.52%					
11/30/94	$63.07	-3.63%	-0.15%	-1.09%	-2.95%	*				
12/1/94	$62.57	-0.79%	-1.29%	-1.51%	1.00%					
12/2/94	$62.82	0.40%	0.60%	1.40%	-0.69%					
12/5/94	$64.07	1.99%	0.09%	0.70%	1.63%					
12/6/94	$64.45	0.59%	-0.60%	-1.12%	1.63%					
12/7/94	$64.70	0.39%	-0.94%	-1.76%	2.01%					
12/8/94	$62.70	-3.09%	-2.06%	-3.85%	0.41%					
12/9/94	$62.70	0.00%	-0.01%	1.92%	-0.84%		$100.00	0.00%	2.68%	0.00%
12/12/94	$60.32	-3.79%	0.01%	-0.15%	-3.68%	*	$96.32	-3.68%	3.78%	94.31%
12/13/94	$60.45	0.21%	0.05%	-0.90%	0.63%		$96.93	-3.07%	4.64%	80.61%
12/14/94	$60.32	-0.21%	0.86%	1.41%	-1.51%		$95.47	-4.53%	5.35%	90.32%
12/15/94	$58.58	-2.90%	0.69%	0.66%	-3.72%	*	$91.92	-8.08%	5.98%	99.19%
12/16/94	$59.45	1.49%	-0.22%	-0.97%	2.17%		$93.91	-6.09%	6.56%	93.15%
12/19/94	$57.76	-2.84%	-0.16%	-1.90%	-1.78%		$92.24	-7.76%	7.08%	96.83%
12/20/94	$61.20	5.95%	0.09%	1.37%	5.29%	*	$97.11	-2.89%	7.57%	54.50%
12/21/94	$62.57	2.25%	1.18%	1.36%	0.71%		$97.80	-2.20%	8.03%	40.88%
12/22/94	$63.07	0.80%	0.30%	-0.03%	0.61%		$98.40	-1.60%	8.46%	28.89%
12/23/94	$62.88	-0.30%	0.39%	0.52%	-0.81%		$97.61	-2.39%	8.88%	40.28%
12/27/94	$63.31	0.67%	0.54%	3.01%	-1.12%		$96.52	-3.48%	9.27%	53.86%
12/28/94	$62.45	-1.36%	-0.50%	-0.28%	-0.78%		$95.77	-4.23%	9.65%	61.01%
12/29/94	$64.32	3.00%	0.95%	1.54%	1.56%		$97.26	-2.74%	10.01%	40.77%
12/30/94	$63.82	-0.78%	0.32%	-0.87%	-0.59%		$96.69	-3.31%	10.36%	46.84%
1/3/95	$63.70	-0.20%	-1.11%	-1.02%	1.22%		$97.87	-2.13%	10.70%	30.29%
1/4/95	$63.57	-0.20%	0.30%	0.50%	-0.63%		$97.26	-2.74%	11.03%	37.34%
1/5/95	$64.07	0.79%	-0.02%	0.17%	0.77%		$98.01	-1.99%	11.35%	26.84%
1/6/95	$64.94	1.37%	0.54%	2.67%	-0.26%		$97.76	-2.24%	11.67%	29.40%
1/9/95	$65.94	1.54%	0.32%	1.87%	0.46%		$98.20	-1.80%	11.97%	23.16%
1/10/95	$66.57	0.95%	0.59%	3.60%	-1.15%		$97.07	-2.93%	12.26%	36.05%
1/11/95	$66.19	-0.56%	-0.10%	-1.22%	0.13%	•	$97.20	-2.80%	12.55%	33.83%
1/12/95	$67.07	1.32%	0.10%	4.89%	-0.98%		$96.24	-3.76%	12.83%	43.40%
1/13/95	$68.07	1.49%	0.75%	-0.70%	1.26%		$97.45	-2.55%	13.11%	29.70%
1/16/95	$68.07	0.00%	0.79%	0.22%	-0.69%		$96.77	-3.23%	13.38%	36.35%
1/17/95	$66.94	-1.65%	0.52%	-0.85%	-1.63%		$95.20	-4.80%	13.65%	50.98%
1/18/95	$69.32	3.55%	0.03%	1.23%	2.99%	*	$98.05	-1.95%	13.91%	21.69%
1/19/95	$70.63	1.89%	-0.50%	-0.32%	2.49%		$100.48	0.48%	14.16%	5.35%
1/20/95	$68.75	-2.65%	-0.85%	-1.59%	-1.19%		$99.29	-0.71%	14.41%	7.65%
1/23/95	$70.32	2.27%	-0.33%	-1.29%	3.18%	*	$102.45	2.45%	14.66%	25.70%
1/24/95	$71.44	1.60%	0.49%	1.15%	0.72%		$103.19	3.19%	14.90%	32.53%
1/25/95	$70.82	-0.87%	-0.29%	-2.34%	0.49%		$103.70	3.70%	15.14%	36.60%
1/26/95	$70.44	-0.53%	-0.45%	-1.35%	0.50%		$104.22	4.22%	15.37%	40.94%
1/27/95	$71.00	0.80%	0.18%	1.37%	0.07%		$104.29	4.29%	15.60%	41.00%
1/30/95	$70.00	-1.41%	-0.93%	-2.18%	0.40%		$104.71	4.71%	15.83%	44.02%
1/31/95	$69.38	-0.89%	0.45%	-0.64%	-0.91%		$103.75	3.75%	16.06%	35.31%
2/1/95	$70.63	1.80%	0.41%	2.14%	0.52%		$104.30	4.30%	16.28%	39.50%
2/2/95	$72.19	2.21%	0.70%	1.46%	1.01%		$105.35	5.35%	16.50%	47.52%
2/3/95	$73.50	1.82%	1.10%	1.41%	0.32%		$105.69	5.69%	16.71%	49.53%