NAVIGANT CONSULTING

The Economic Reality of Securities Class Action Litigation

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ABSTRACT

Unlike conventional fraud claims, which seek to disgorge wrongful gains from the perpetrator of the fraud, securities class action claims usually entail situations in which the supposed illicit gains are received by innocent investors, who sold securities at allegedly inflated prices, rather than by the company officials who allegedly committed the fraud.[1] Consequently, diversified investors – such as large institutional investors – who "lose" on one transaction (*i.e.*, from buying a security at what is alleged to be an artificially inflated price) are eligible to recover damages under the law while they are, at the same time, permitted to keep gains received from separate "winning" transactions (*i.e.*, from selling a security at what is alleged to be an artificially inflated price). This paper empirically demonstrates that:

(1) Diversified investors, such as large institutional investors, generally break even from their investments in common stocks impacted by fraud allegations even prior to considering any recoveries through litigation.[2]

(2) Large institutional investors are, in fact, often *overcompensated* as a result of litigation.

(3) The net trading losses realized by large institutional investors from alleged fraud pale in comparison to claimed (gross) losses.

(4) To the extent net trading losses do result from alleged securities fraud, they arise primarily from the issuance of new common shares while the alleged fraud is ongoing.

(5) Individuals who do not have diversified holdings are exposed to greater risk from securities fraud because they lack the natural "hedge" that exists within large, diversified portfolios.

[1] Exceptions include instances of insider trading when company managers can earn profits due to an asymmetrical information advantage they have over other investors.

[2] Throughout this paper, we focus on the gains and losses that are implied when investors sell or buy securities at what are purported to be artificially inflated prices as a consequence of alleged fraud. Terms like "break even" and references to trading gains and losses are used in that context and do not refer to overall investment returns.

I. INTRODUCTION

The following narrative chronicles the investment activity of ABC Investment Co., a hypothetical institutional investor, and highlights the paradoxical economic effects that are the focus of this study.[3]

On Friday, July 17, 1998, Diversified Energy Incorporated (DEI) roiled the investor community when it announced, among other bad news, that it would take a charge against earnings of $160 million.[4] The markets reacted harshly, causing the price of DEI's common stock to plummet from $30.50 per share on Thursday, July 16th, to $20.0625 per share by the time the markets closed on Monday, July 20th. Shareholder class action litigation soon followed, alleging that during a period of more than three months spanning from March 30th through July 17, 1998, DEI had misled investors regarding the financial condition and prospects of the company, thus causing the price of its common stock to be artificially inflated.[5]

Among the investors left reeling from DEI's surprise announcement was ABC Investment Co., a large institutional investor, which had recently acquired 100,000 shares of DEI's common stock, paying an average price of $30.50 per share. Following DEI's disclosure, ABC Investment Co. concluded it had paid too much for the shares. Had it purchased the same 100,000 shares *after* the bad news had been revealed, it might have paid only $2,006,250 (100,000 shares x $20.0625 per share) rather than the $3.05 million it did pay (100,000 shares x $30.50 per share), reflecting a potential overpayment of approximately $1,043,750.[6]

The investment firm was not without some recourse, however. Under the prevailing securities laws, ABC Investment Co. was eligible to participate in the class action litigation in hopes of recovering at least part of its alleged overpayment. With respect to this particular matter, the parties reached settlement during 2002, with the defendants agreeing to pay up to $49.5 million in cash. The estimated per share recovery to the class was $2.50 prior to attorney fees amounting to $0.77 per share (*i.e.*, approximately 30 percent of the gross settlement), implying a net potential recovery of $1.73 per share. From the perspective of ABC Investment Co., the potential recovery of its alleged overpayment would total $173,000 (100,000 shares x $1.73 per share), or approximately 17 cents for each dollar of investment capital purportedly lost due to the alleged fraud.

At first blush, the remedy offered via class action litigation appears to have provided a measure of relief to a wronged investor. It also carried significant costs. Transaction costs (*i.e.*, attorney fees) ate up 30 percent of the gross settlement, causing the ultimate recovery to be approximately

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[3] While ABC Investment Co. is a hypothetical institutional investor used for the purpose of illustration, information regarding the firms in whose securities it traded is factual.

[4] Diversified Energy Incorporated is a fictitious company name; however, the information presented reflects that of an actual company. That is, all the data pertaining to stock prices, settlement amounts, attorney fees, etc. are factual.

[5] More specifically, plaintiffs alleged that DEI violated Section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5 promulgated thereunder.

[6] The implied overpayment per share in this example is $10.4375 ($30.50 - $20.0625). In actuality, plaintiffs alleged that DEI's shares were overpriced by amounts ranging from $9.152 to $16.629 during the period of the alleged fraud.

one-fifth of the alleged loss. This, however, is only part of the story. If one examines ABC Investment Co.'s situation more carefully, a very different picture emerges.

Recall that ABC Investment Co. is a large institutional investor that may hold hundreds or even thousands of securities at any one time. Its portfolio will fluctuate as it adds shares of one company and sells shares of another. Suppose that prior to its purchase of the 100,000 shares of DEI, it had sold 100,000 shares of Specialty Products, Inc. (SPI).[7] Further assume this sale took place on Friday, April 18, 1997. Under these circumstances, ABC Investment Co. would have experienced a different side of an alleged fraud, this time as an unwitting beneficiary.

On the very next trading day, Monday, April 21st, SPI surprised the financial markets by announcing, among other bad news, that it had not met its expected earnings target for the quarter ended March 31, 1997. Similar to the reaction caused by DEI's unexpected announcement, the price of SPI's common stock declined from $21.50 per share on Friday, April 18th to $9.875 by the end of trading on Tuesday, April 22nd. Again, class action litigation ensued, alleging that SPI's bad news should have been disclosed approximately seven months earlier.[8]

This time, however, ABC Investment Co. was in a very different situation. As a matter of serendipity, it sold its 100,000 shares of SPI when the share price was allegedly higher than what, had the truth been known, the company's fundamentals would arguably support. Thus, ABC Investment Co. pocketed a windfall by selling its shares at an allegedly inflated price. Had it sold the same 100,000 shares after the bad news had been revealed, it might have received only $987,500 (100,000 shares x $9.875 per share) rather than the $2.15 million it did receive (100,000 shares x $21.50 per share), reflecting a difference of $1,162,500. This time, because ABC Investment Co. was a beneficiary of the alleged fraud, it would not be eligible to join the shareholder class action litigation (though the party to whom it sold the shares would be). However, because it came by its gain innocently, the investment firm is also under no obligation to disgorge its windfall, even though the loss in share price would have presumably been absorbed by ABC Investment Co. had SPI's bad news been disclosed in the more timely fashion suggested by the class action complaint.

When considering ABC Investment Co.'s trades in both of the affected securities (and accepting the respective allegations and inflation estimates to be valid), it is no longer the story of an aggrieved investor. With regard to its purchase of DEI common stock, ABC Investment Co. lost $1,043,750, prior to considering any recovery through litigation. However, as it relates to its sale of SPI common stock, it gained $1,162,500, reflecting a net *benefit* of $118,750. In this example, not only was ABC Investment Co. not "victimized" by alleged securities fraud, it was eligible to collect an *additional* $173,000 under the terms of the DEI settlement.[9]

While ABC Investment Co. is a hypothetical investor, this example is repeated over and over again in what has become one of America's cottage industries – securities litigation. This paper

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[7] Again, Specialty Products, Inc. is a fictitious company name; however, the information presented reflects that of an actual company.

[8] More specifically, plaintiffs alleged that SPI violated Sections 11 and 12(a)(2) of the Securities Act of 1933, as well as Section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5 promulgated thereunder.

[9] For the purposes of this illustrative, we ignore other stocks affected by securities litigation in which ABC Investment Co. may have traded.

investigates empirically how diversified investors – specifically large institutional investors – fare from trading in securities impacted by class action litigation.

II. THE UNIQUE ATTRIBUTES OF SECURITIES LITIGATION AND OUR INQUIRY

How does the situation illustrated by the example of ABC Investment Co. arise? At its core, the paradox traces back to an important difference between claims arising under securities class action litigation versus conventional fraud claims. Conventional fraud claims developed out of relatively straightforward situations in which a victim is parted from his or her money by another's bad act. For example, assume Ms. Smith, the seller, falsely stated that a cow was capable of bearing offspring and therefore received an inflated price for the cow from Mr. Jones, the purchaser. When Mr. Jones discovered the deception, he decided to sue Ms. Smith in hopes of recovering his out-of-pocket loss. Assuming swift justice, Ms. Smith would pay compensatory damages with the money that she had improperly induced Mr. Jones to pay.

Now let's juxtapose the simple conventional fraud example with a typical securities class action matter in which a company, its officers, and perhaps some of its advisors (*i.e.*, the defendants), are accused of making false statements about the company's business performance and prospects, generally statements that represent the company's financial condition to be stronger than is warranted by the underlying reality. As a consequence, the plaintiffs claim that the prices at which they purchased the company's securities were artificially inflated as a result of the false statements.[10] Unlike the typical common law situation, however, the defendants in the securities lawsuit oftentimes are not the recipients of the inflated price – *i.e.*, the real financial gain from the fraud. That illicit gain is received by whoever sold the shares to the plaintiffs. And those sellers virtually always are permitted to keep that gain, even though it was the product of an alleged fraud (an important exception exists when it is company insiders selling shares). Thus, a notable peculiarity of the prevailing securities laws is that the parties who actually "profit" – albeit innocently – from the alleged fraud are not required to disgorge their ill-begotten gains.

This peculiarity has very real economic consequences. For the reasons described above, the permissible recovery to plaintiffs under the prevailing securities laws must be funded from sources *other than* the actual gains generated by the alleged fraud. In a bottom line sense, these compensatory payments reflect a transfer payment from previously "undamaged" shareholders (*i.e.*, those who held their securities through the period of the alleged fraud) to "damaged" shareholders (*i.e.*, those who acquired securities during the period of the alleged fraud).[11] Contrast that outcome with the simple, conventional fraud example provided above: the wrongful gain was received under false pretenses by Ms. Smith at Mr. Jones's expense; once remedied, it was returned from Ms. Smith's pocket to Mr. Jones's.

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[10] Such assertions typically rely on fraud-on-the-market doctrine, which generally holds that because public information is immediately and efficiently impounded in firms' stock prices, an investor's reliance on any public material misrepresentation may be presumed when he or she relies upon the market price for that stock. See *Basic Inc. v. Levinson*, 485 U.S. at 244.

[11] The question of which specific parties fund awards or settlements from securities class action litigation, while beyond the scope of this paper, is addressed more fully in Thakor (2005). See also Langevoort (1996), Cooper Alexander (1996), Cooper Alexander (1994).

In determining whether an investor has a legitimate claim for damages, the prevailing securities laws generally require that investor to offset fraud-related losses with gains that result from separate transactions *relating to the same security*. However, under the current system, there is no attempt to determine whether compensable losses incurred by diversified investors, such as large institutional investors, are being offset by fraud-related gains realized from transactions in other securities. Indeed, the current one-dimensional approach to determining recompense in these matters creates a situation in which litigation can potentially *overcompensate* such investors, as demonstrated in the opening example. The current system fails to account for the fact that large institutional investors are essentially *repeat players* when it comes to trades involving securities whose prices are allegedly affected by fraud; they incur losses on some transactions and gains on others.

The asymmetrical approach to remediation prescribed under the prevailing securities laws gives rise to several important questions, which are the focus of this paper:

(1) Do diversified investors, such as large institutional investors, generally lose, gain, or break even from investments in common stocks that are the subject of alleged securities fraud?

(2) How do recoveries through class action litigation impact large institutional investors?

(3) How do the net losses incurred by large institutional investors from alleged fraud, if any, compare to their claimed (gross) losses?

(4) To the extent net losses are incurred as a result of alleged securities fraud, which factors give rise to those losses?

(5) How does the analysis differ for individuals who do not hold sufficiently diversified portfolios?

In order to address these questions, we have, at the request of the U.S. Chamber Institute for Legal Reform,[12] undertaken an extensive empirical analysis. First, we identified 482 securities class action matters that were filed subsequent to the Private Securities Litigation Reform Act of 1995 (PSLRA) through August 2005 that have reached final settlement.[13] Second, we identified 2,596 large institutional investors that bought or sold the common stocks that were the subject of those settlements and tracked their relevant holdings and portfolio activity during the 11-year period stretching from 1994 through 2004. Third, we incorporated and tracked daily stock price, share, and trading volume data for each of the subject securities during that same 11-year period.

Once these data were accumulated and related, we estimated the implied fraud-related gains / (losses) to large institutional investors from buying or selling any of the subject securities during the period of the alleged fraud (*i.e.*, the class period). In sum, our analysis indicates that:

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[12] The U.S. Chamber Institute for Legal Reform is a not-for-profit affiliate of the U.S. Chamber of Commerce.

[13] Our sample of securities class action settlements was limited by certain objective criteria described more fully in Appendix I, as well as by the availability and integrity of data necessary for our calculations.

(1) Diversified investors, such as large institutional investors, generally break even from their investments in common stocks impacted by fraud allegations even prior to considering any recoveries through litigation.

(2) Large institutional investors are, in fact, often *overcompensated* as a result of litigation.

(3) The net trading losses realized by large institutional investors from alleged fraud pale in comparison to claimed (gross) losses.

(4) To the extent net trading losses do result from alleged securities fraud, they arise primarily from the issuance of new common shares while the alleged fraud is ongoing.

(5) Individuals who do not have diversified holdings are exposed to greater risk from securities fraud because they lack the natural "hedge" that exists within large, diversified portfolios.

The rest of this paper is structured as follows. Section III summarizes the existing literature and provides additional context for our analysis. Section IV provides an overview of the data that were utilized as well as the specific methodologies employed. Section V sets forth the results of our analysis and discusses our specific findings. Section VI distinguishes the undiversified investor. Section VII briefly addresses suggested policy implications, and Section VIII concludes.

III. EXISTING LITERATURE

A number of scholars have posited that securities fraud is a zero-sum game to diversified investors. Easterbrook and Fischel (1985) famously asserted that, for reasonably diversified investors, there is almost no net harm resulting from securities fraud. They state:

> Recall the example of the manager who announces good news for the firm and two days later takes it all back. Here the investors who sold during the two days gained; those who bought during the two days lost what the sellers gained; those who neither bought nor sold were unaffected; and there was almost no net harm… Over the long run, any reasonably diversified investor will be a buyer half the time and a seller half the time. Such an investor perceives little good in a legal rule that forces his winning self to compensate his losing self over and over.[14]

Cooper Alexander (1996) articulates Easterbrook and Fischel's argument in even more specific terms, identifying large institutional investors as being the most diversified of investors and, thus, the least in need of compensation through litigation. She states:

> An investor who is completely diversified will be fully compensated for its trading losses that are due to securities fraud by windfalls on other

[14] Strictly speaking, it is not the winning self that compensates the losing self per se; rather, Easterbrook and Fischel's hypothetical investor is taking turns being a winner and a loser. The related question of who specifically funds the sums paid through litigation is addressed in Thakor (2005).

> transactions. Such investors have no need for further compensation obtained through litigation. The investors who are the most likely to be compensated through class action litigation – large institutional investors – are precisely those who are most diversified and thus are the least in need of compensation.[] From this perspective, recoveries from class action litigation represent a windfall to large investors.

The author also makes plain the disconnect between the two-sided nature of the transactions impacted by alleged fraud versus the one-sided approach to recovery prescribed under the prevailing securities laws. She states:

> [I]n securities class actions the aggregate amount by which class members overpaid does not represent the true social cost of the violation… For every buyer who pays too much, and thereby acquires a cause of action to recover the excess, there is a seller – just as innocent of the fraud – who reaps a windfall in an equal amount.[] We make no effort to recover these windfalls and restore them to the purchasers.

Langevoort (1996) elaborates on these points and provides additional foundation for the empirical research presented in this paper. He states that "the aggregate potential recovery [in open-market securities fraud cases] in all likelihood exceeds the net societal harm of the fraud,[] which may be relatively small" and that the "direct net harm to investors as a group may well be zero." He also touches on the related idea of overcompensation through litigation, especially for large institutional investors, stating:

> [T]here will be systematic overcompensation over time to many investors. At least active traders with large, diversified portfolios have roughly the same chance of being winners as losers from securities fraud, and over time these gains and losses will tend to net out toward zero even in the absence of litigation. Therefore, compensating for the losses while ignoring the gains leads to excess returns over the course of a trading career.

The author states that "[t]his netting out will not be perfect" and that "[t]he people most likely to fall outside the netting phenomenon are the relatively more inactive individual investors."

More recently, Booth (2005) suggests that diversification provides a natural "hedge" against economic loss from securities fraud and asserts that securities fraud is, by its nature, a zero-sum event. He states:

> [M]ost investors are diversified and as a result are [already] effectively protected against securities fraud. Securities fraud is a zero-sum event. For every buyer-loser there is a seller-winner. Buyers and sellers *in the aggregate* neither gain nor lose.

The author's statement, however, is not without qualification. For example, he notes that, "[t]he market loses to the extent that insiders have extracted wealth" and that "[i]n the case of an offering, it is the company that has effectively traded on inside information." Consequently, he concludes that only "simple securities fraud is a zero sum game."

In this paper, we focus on a specific class of diversified investors – *i.e.*, large institutional investors – in an effort to determine, as an empirical matter, the extent to which implied fraud-related gains realized by such investors offset the losses that give rise to a cause of action under the law. To our knowledge, this is the first empirical study of this issue.

IV. DATA USED / METHODOLOGIES EMPLOYED

A. Data Sources

In performing our analysis, we made use of three separate major data sets. First, we obtained from Securities Class Action Services (SCAS) comprehensive data for 3,029 separate cases / settlement events filed from December 22, 1995 (*i.e.*, the effective date of the PSLRA) through August 25, 2005 as potential candidates for our study. From there, we performed an extensive review that resulted in a study population comprised of 755 final settlements that involved allegations that the target companies' common stocks were inflated due to fraud and/or untimely disclosures. The related settlements amount to approximately $25.4 billion in the aggregate.

Second, we identified 752 distinct common stock securities[15] that were the subject of the 755 settlements and linked them to the security-specific holdings of large institutional investors as reported on Form 13F filed with the Securities and Exchange Commission (SEC)[16] and compiled by Thomson Financial. The types of institutional investors required to file Form 13F generally include: (1) banks and bank trust departments, (2) insurance companies, (3) mutual fund families, (4) independent investment advisors, and (5) pension funds, among other entities. Our period of interest covered the 11 years from December 31, 1993 to December 31, 2004. Third, we obtained daily closing stock prices, shares outstanding, and trading volume for each of the subject securities, to the extent data were available, for the period from 1994 through 2005. We relied upon a variety of sources in gathering these data, including The Center for Research on Securities Prices (CRSP) and Bloomberg.

Out of the 755 settlements that comprise our study population, we ultimately performed gain / (loss) calculations for 482 settlements (64 percent), representing $19.8 billion in total settlement dollars (78 percent of our total population), based on the availability and integrity of the data. The reasons for excluding a number of the 755 settlements, as well as additional detail on our data sources, are provided in Appendix I. These 482 settlements involved 476 distinct securities that were traded by 2,596 distinct institutional investors during the class periods. Figure 1 below shows how the 482 settlements are distributed across time based on the year in which the

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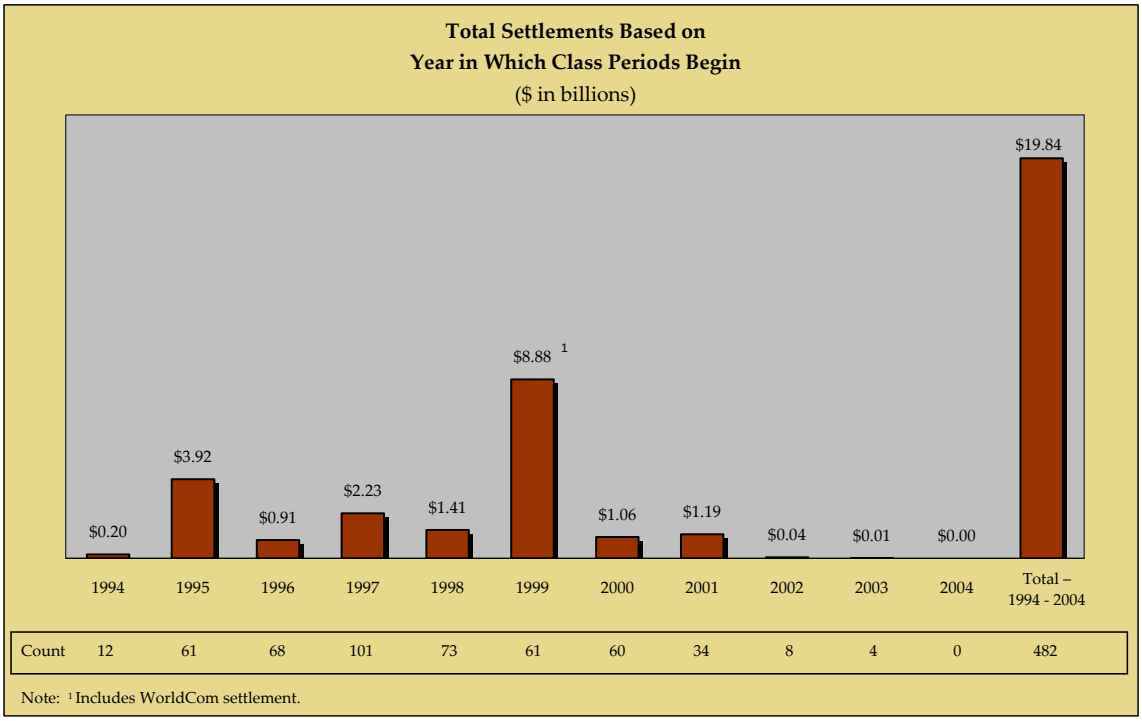
[15] Some settlements involve more than one common stock security (*e.g.*, Class A and B shares) while other issuers were named as a defendant in more than one action.

[16] Section 13f of the Securities Exchange Act of 1934, along with Rule 13f-1 thereunder, requires all institutional investment managers with greater than $100 million of securities under discretionary management to report their holdings to the SEC on a quarterly basis.

respective class periods begin. Both the number of settlements as well as aggregate settlement amounts are presented.

FIGURE 1



The preponderance of settlements with class periods beginning during the years 1995 to 2000 reflects both the fact that our sample is limited to post-PSLRA filings and that numerous cases with class periods beginning during 2001 to 2004 are still ongoing.

B. Methodology for calculating investor trading gains / (losses)

Conventional damage claims in securities litigation matters, specifically matters alleging violations of Rule 10b-5, are normally calculated as the product of the "damages per share" and the "number of shares damaged." Estimates of the damages per share seek to quantify the amount of "inflation"[17] embedded in the defendant company's shares while the alleged fraud is ongoing. Several different methods for measuring the amount of inflation impounded in the stock price during the class period have been used, including the constant inflation ribbon, the comparable index approach, and event study methodologies. See Cooper Alexander (1994), Cornell and Morgan (1990).

In determining the number of shares damaged, plaintiff and defendant experts typically use various trading models that usually differ in the choice of assumptions – *e.g.*, the number of distinct trading propensities assumed (representing the fact that different types of investors may

[17] In this context, "inflation" refers to the extent to which the price of a security exceeds its actual economic value due to alleged fraud rather than its customary meaning, which refers to a generalized rise in the monetary or nominal price of goods or services over time.

be more or less likely to trade). See Finnerty and Pushner (2002-03), Barclay and Torchio (2001). The frequency at which trades occur during the class period is an important consideration because if a particular share is both bought and sold at an inflated price ("in-and-out" trades), generally speaking no damages result. The trading models employed by the parties' experts share an important feature, however – the models consider only the buy-side of each trade.[18] They ignore altogether the selling party who is essential to complete the other side of the transaction. To the extent the share price is fraudulently inflated, the seller gains to an equal and opposite extent that the buyer is damaged.

Contrary to the damage models typically employed in securities litigation, we seek to measure both the losses *and* gains that result from the trades occurring during the class period. The determination of investor trading gains / (losses) can similarly be broken down into two components: (1) the amount of inflation per share, and (2) the number of inflated shares bought or sold. The challenge of measuring the amount of inflation per share is a formidable one, which is identical to that present in conventional securities litigation cases. For our purposes, we make use of the constant inflation ribbon method, which is typically attributed to plaintiff experts[19] and is among the simplest of the various methods employed. The use of a constant inflation ribbon generally assumes that the drop in the defendant company's stock price that is observed once the bad news is disclosed represents the extent to which the previous suppression of the bad news had artificially inflated the share price. It further assumes that this measure of inflation, stated in dollars, was constant during the class period.

We recognize that the constant inflation ribbon method may not reliably measure the extent to which a defendant company's share price may have been inflated due to alleged fraud immediately prior to the significant disclosure, let alone during earlier (sometimes much earlier) periods. Nevertheless, because we seek to calculate *both* gains and losses resulting from such inflation, it suits our purpose.[20] To the extent the constant inflation ribbon method exaggerates (understates) losses, it also exaggerates (understates) gains.[21]

In determining the number of supposedly inflated shares bought and sold, our methodology deviates from the trading models usually employed in securities litigation matters. The reason is that our inquiry focuses on the alleged fraud-related effects of trades made by specific investors whereas the litigation-related trading models typically consider trades in a highly generalized, anonymous form. Consequently, we rely extensively on the detailed institutional holdings data reported on Forms 13F. While the trading models typically used in litigation may consider the 13F data in certain limited respects, those models generally imply trading activity that does not reconcile with the actual, quarterly net purchases and sales reflected among large institutional

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[18] An exception relates to the netting out of the type of in-and-out trades described above.

[19] See Finnerty and Pushner (2002-2003), Cooper Alexander (1994).

[20] It is worth noting that more sophisticated methods of estimating the amount of inflation per share, such as the use of event studies, are subject to their own limitations. See, for example, Cornell and Morgan (1990). In any event, determining the amount of inflation per share, if any, is a highly fact-specific and intensely analytic inquiry. We do not purport to have calculated direct or indirect measures of damages with respect to any particular case.

[21] Use of the constant inflation ribbon tends to overstate the amount of inflation preceding the disclosure by attributing the entire price drop to the alleged fraud. However, in situations in which the "truth" is revealed in a series of incremental, partial disclosures, focusing only on the price drop attendant to the final disclosure marking the end of the class period – as we do here – could possibly understate the amount of inflation.

investors per the reported 13F holdings. See Kramer Mayer (2000). In contrast, our reliance on the 13F filings means we are using actual, reported data relating to the holdings of specific investors – we track, quarter by quarter, the itemized holdings of each 13F filer and equate the net increase / (decrease) in shares held for each security with the number of net shares bought / sold during the quarter.[22]

Because the holdings of 13F filers (*i.e.*, large institutional investors) make up only roughly half of the total market capitalization of U.S. common stocks (see Gompers and Metrick (2001), Binay (2005)), we create an aggregate non-13F investor in order to account for the remainder of shares. The holdings of the aggregate non-13F investor, as of a particular point in time, are determined as the difference between the total shares outstanding for a given security and the aggregate 13F (large institutional) holdings. An important difference exists between the sum of 13F holdings and our aggregate non-13F investor: the 13F holdings can be readily disaggregated such that the holdings of each individual 13F filer can be observed (*i.e.*, the whole is equal to the sum of the parts). In contrast, our non-13F investor is simply an aggregation of all other investors who are not required to file Form 13F and provides comparatively de minimus visibility regarding its component parts. Nonetheless, it serves a useful purpose in enabling us to make observations regarding trading patterns of the market as a whole.

While the 13F data provides detailed information on quarterly holdings, we do not know specifically when during the quarter the subject trades occurred. Consequently, we make use of three different trading scenarios to allow for the potential variability regarding intraquarter trades.[23] Our three trading scenarios include the following: (1) assume all trades occur on the last day of the quarter, (2) assume all trades occur in the middle of the quarter, and (3) assume trades occur in a manner proportional to the observed daily trading volume during the quarter. In the following sections, we focus on the results generated from the first of these three trading scenarios (*i.e.*, all trades occur on the last day of the quarter); however, results for all three scenarios are presented in Appendix III. All three trading scenarios produce generally consistent outcomes.

To determine net trading losses or gains, our inflation estimates are multiplied by the net shares bought or sold, respectively, by each investor during the class period. Lastly, we allocate actual net settlement dollars (*i.e.*, after deductions for plaintiff attorney fees) as reported by SCAS to both the 13F and non-13F investor categories in order to estimate the extent to which trading losses in a particular security may have been recovered, in whole or in part, through litigation.[24] Additional detail regarding our methodologies is contained in Appendix II.

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[22] By relying on the net change in the number shares of each security held, as reported by each large institutional investor, we are implicitly netting out in-and-out trades that may have occurred during the quarter.

[23] While the precise timing of the trades carries implications for the specific gain or loss based on the amount of estimated inflation, of significant importance is whether the trades occur inside or outside of the class period. If trades occur outside of the class period, they do not impact the gain / (loss) calculation, as there is (by definition) no inflation in the shares at that time.

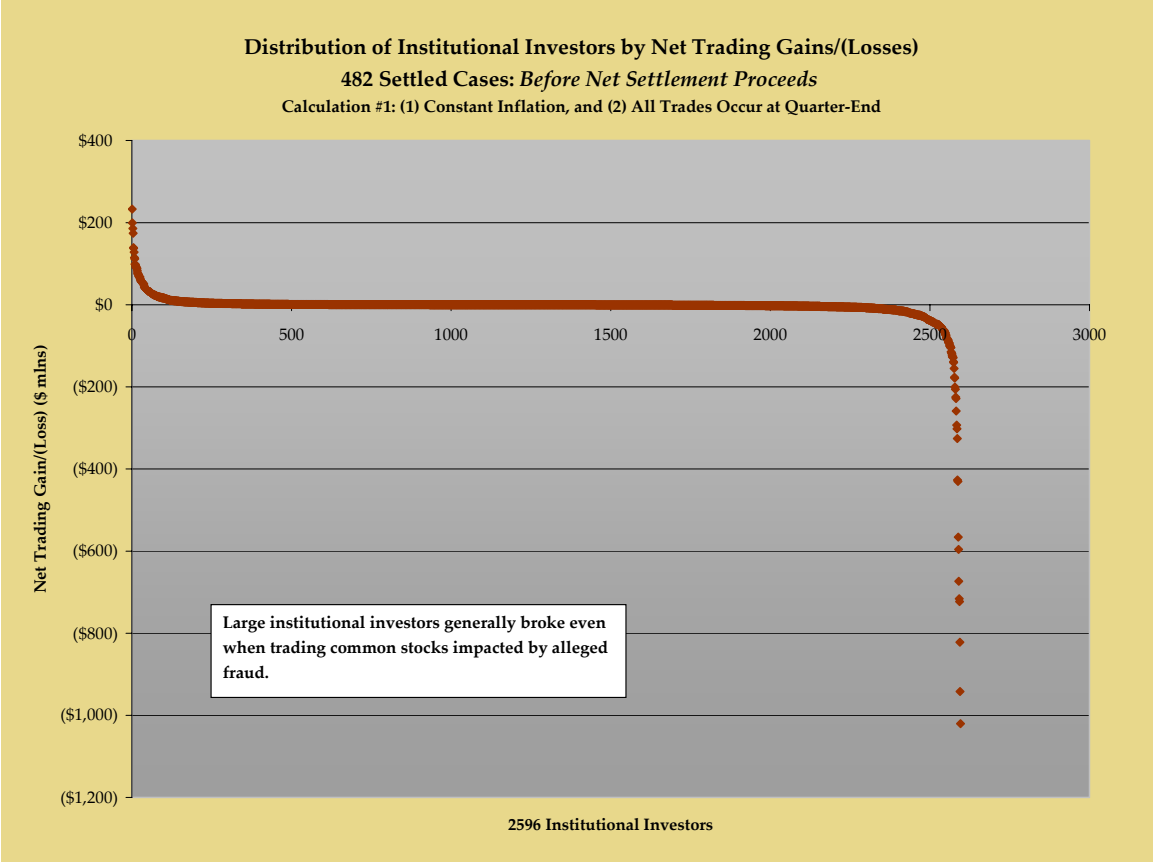
[24] We allocate net settlement proceeds related to a particular security based on the respective average holdings of the 13F and non-13F investor categories. This method effectively assumes that each common share held was equally likely to become a "damaged" share. An exception was made for those rare instances when no 13F filers were shown to have incurred a loss from purchasing the subject security; in those cases, the entire net settlement amount was allocated to the non-13F group. The allocation to the 13F group was further apportioned to individual filers based on the extent to which they were shown to

V. RESULTS OF ANALYSIS

A. Large institutional investors generally break even from their investments in common stocks impacted by fraud allegations.

Over the last decade, large institutional investors that traded in our sample of allegedly inflated common stocks have generally broken even on those trades. This generalization applies to more than 2,500 such investors that traded in common stocks that were the subject of one or more of the 482 settlements examined. See Figure 2, which presents the individual net trading gain / (loss) for each of these more than 2,500 large institutional investors.

FIGURE 2



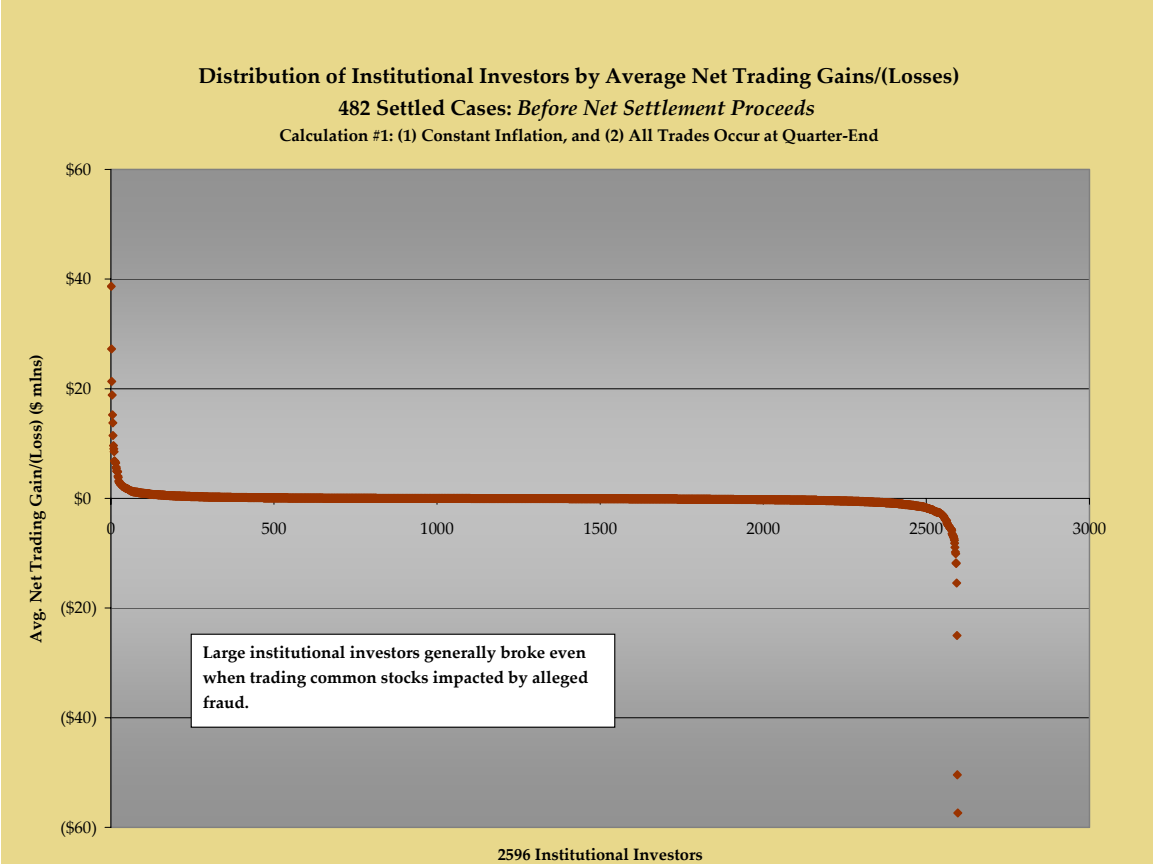
The median net trading loss for the group of large institutional investors – before the distribution of any net settlement proceeds – was $0.25 million. The average net trading loss was $5.0 million. It is important to note, however, that the aggregate net loss figure for this group, and thus the average net loss figure, were influenced by a relatively small number of investors who recorded

have incurred a loss from purchasing the subject security. Both gross settlement amounts and estimated attorney fees are per SCAS.

disproportionately large net trading losses (see Figure 2).[25] In addition, it should be noted that over 35 percent of the large institutional investors actually recorded some amount of net gains from trading in these securities – *i.e.*, before considering any distributions from the settlements to which at least some of them were entitled.[26]

Figure 2a is a very similar presentation as that in Figure 2 above; however, this time we show the average net trading gain / (loss) for the same group of investors.

FIGURE 2a



[25] Even with this skewing, it is important to put these figures in context. The aggregate net trading loss of large institutional investors in our sample was $13.1 billion, which is only 1.5 percent of the aggregate pre-disclosure market value of the related securities (about $880 billion). If one were to assume that institutions held approximately 50 percent of this market capitalization (see Gompers and Metrick (2001), Binay (2005)), the implied loss as a percentage of the market capitalization accounted for by large institutional investors would be approximately 3.0 percent. The 1.5 percent figure (and thus the 3.0 percent figure) reflects our assumption that all trades occur on the last day of each quarter. When our other two trading assumptions are employed – *i.e.*, all trades occur at mid-quarter or all trades occur in proportion to daily trading volume – the comparable percentage to the 1.5 percent is reduced to be less than one percent in both cases. In addition, because each investor within the group of 13-F filers (*i.e.*, large institutional investors) has, by definition, at least $100 million in assets under management, the median net trading loss of $0.25 million is less than 25 basis points of the assets managed by the median large institutional investor.

[26] Gains reflect any amount greater than $0.

These results are consistent with the hypotheses found in the literature relating to large, diversified investors. Losses resulting from ill-timed purchases of inflated shares of one security are, over time, largely or wholly offset by gains generated from well-timed sales of inflated shares of a different security. Overall, these large institutional investors generally break even.

B. Large institutional investors are often overcompensated as a result of litigation.

The above results are particularly notable given the increasingly active roles that many large institutional investors have assumed with respect to participating in class action litigation. See Simmons (2004). It is not far fetched that a large institutional investor could actually benefit from trading in *multiple* allegedly inflated securities and then, in turn, stand to receive additional funds to cover trading losses on *just one of* those securities.

Indeed, this is more than a hypothetical construct. The results of our analysis suggest that out of our population of 2,596 large institutional investors, 2,394 or 92 percent would have been eligible to participate in class action litigation as a result of having incurred a trading loss in one or more securities. Among that group, 31 percent are shown to have realized a net benefit before considering the distribution of any settlement proceeds.[27] That figure increases to 40 percent once the estimated recovery through settlement is taken into account.[28]

It should be pointed out that the settlement amounts reported by SCAS, and adopted herein, sometimes reflect amounts paid to settle claims involving more than just common stock. Consequently, the settlement amounts presented in this study represent an upper bound as it relates to the recovery realized through litigation. In any event, for the 31 percent of large institutional investors that realized a net benefit before considering any settlement distributions, any amount recovered through settlement reflects a marginal improvement in their situation.

C. The net trading losses realized by large institutional investors from alleged fraud pale in comparison to claimed (gross) losses.

The damage estimates proffered by plaintiffs' experts in securities class action matters, which are almost as a matter of course vigorously contested by defendants, often suggest staggering out-of-pocket losses to the plaintiff class. As it relates to diversified investors, such as large institutional investors, the losses claimed in litigation can present a distorted view of the economic reality with respect to their portfolios as a whole.

Figure 3 compares the median gross trading loss among our sample of 2,596 large institutional investors to the median net trading loss among that same group. The gross trading loss represents only those investments for which our sample of large institutional investors showed a trading loss (*i.e.*, potentially offsetting gains from trades involving other allegedly inflated

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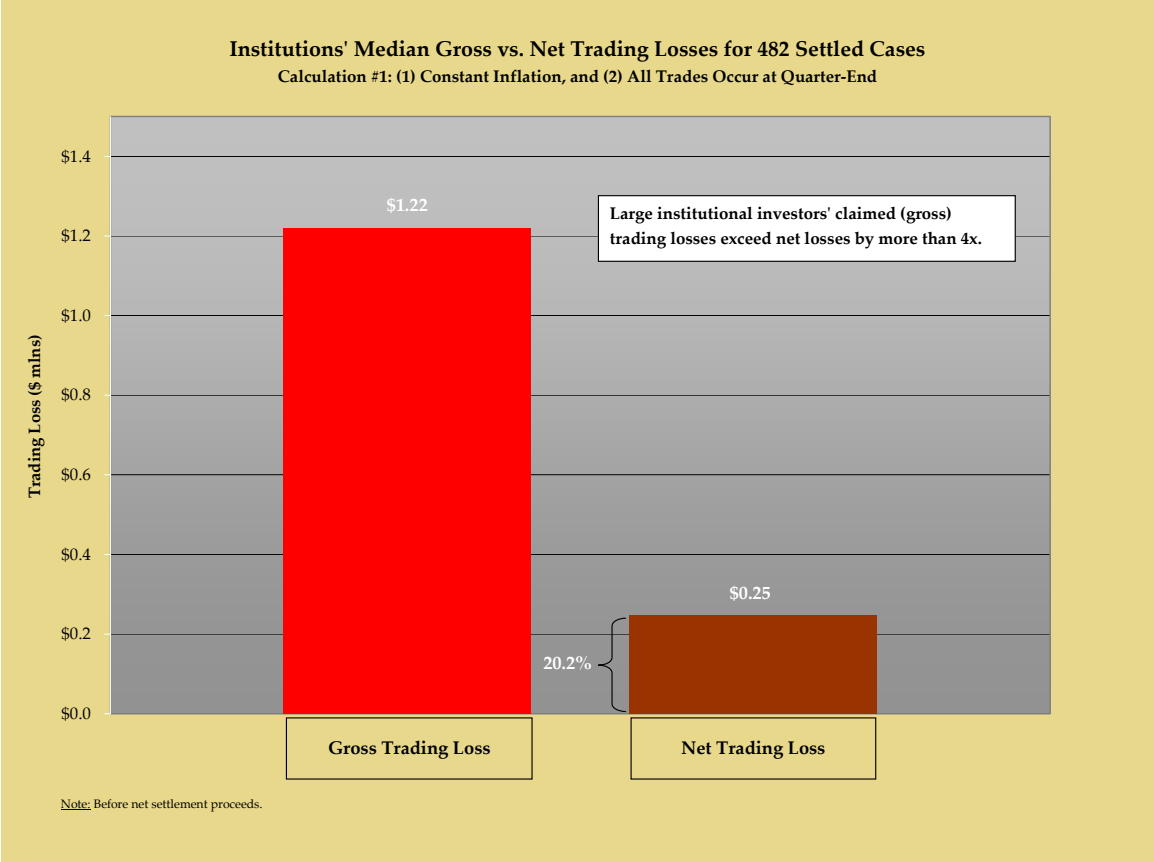
[27] This figure is less than the 35 percent figure referenced earlier because the calculation excludes the 202 institutions (2,596 less 2,394) that do not appear to be candidates to participate as plaintiffs in class action litigation for one or more securities.

[28] The above figures reflect our assumption that all trades occur on the last day of each quarter. When our other two trading assumptions are employed – *i.e.*, all trades occur at mid-quarter or all trades occur in proportion to daily trading volume – the comparable proportions of large institutional investors shown to have realized a net benefit after estimated recoveries through settlement are taken into account increase to 43 percent and 44 percent, respectively.

securities are ignored) and is loosely analogous to claimed losses under the prevailing litigation system. The net trading loss considers the offsetting gains realized when investors profited from trading in affected securities.

FIGURE 3



The median net trading loss of $0.25 million represents only 20.2 percent of the median claimed (gross) trading loss of $1.22 million.[29] The extent of the recovery afforded through settlement appears considerably more robust against this more economic benchmark.

D. The net trading losses that do result from alleged securities fraud arise primarily from the issuance of new common shares while the alleged fraud is ongoing.

As indicated above, when considering the entire investor population (*i.e.*, both the 13F and non-13F groups), some amount of net trading losses still results. At first blush, this may seem a little perplexing given the notion that for every seller there is a buyer and vice versa. This of course is not always the case, at least as it pertains to the investor groups that are of interest here. As long as companies issue new shares, the number of shares purchased by investors will exceed sales. Conversely, while it occurs less frequently, when issuers redeem or repurchase common shares,

[29] The 20.2 percent figure reflects our assumption that all trades occur on the last day of each quarter. When our other two trading assumptions are employed – *i.e.*, all trades occur at mid-quarter or all trades occur in proportion to daily trading volume – the comparable percentages decrease to 12.5 percent and 10.6 percent, respectively.

the number of shares sold by investors will exceed the shares purchased. The implications are rather dramatic: when a company issues no new shares during the class period, there will be no net harm to investors as a whole, no matter how egregious the fraud.[30] Thus, the net harm to investors as a whole is a function of the number of new shares issued during the class period. To be more precise, the net harm to investors is a function of the number of net new shares issued, multiplied by the amount of inflation per share. In other words, not all shares are weighted equally.

Focusing on the 482 settled cases comprising our sample, we have employed simple linear regression to demonstrate this fundamental point. Regression analysis estimates a mathematical model that seeks to explain the relationship between a dependent variable Y and an independent variable X. We denote the independent variable X to be the net change in shares outstanding for each of the defendant companies during the respective class periods and the dependent variable Y to be the net trading gains or losses realized by investors *as a whole* with respect to each of the 482 settlements in our sample. One of the outputs of the regression analysis, R^2 (known as the coefficient of determination), indicates that more than 60 percent of the variance in the trading gains / (losses) is explained by the change in the shares outstanding.[31]

Focusing only on the group of large institutional investors (in the aggregate) produces a generally similar result. However, by partitioning the investor population, we introduce a new dimension – that of discretionary choice. Thus, while we *know* that the gains or losses realized by investors as a whole from trading in the affected securities will be dictated by the change in the number of shares outstanding, that may not necessarily be true for any one segment of the investor population. Even so, the resulting R^2 from our regression analysis indicates that the change in the number of shares outstanding continues to have significant explanatory power relating to the performance of large institutional investors as a group. More than 30 percent of the variance in the trading gains / (losses) is explained by the change in the shares outstanding.[32] The complete output for both regressions is included in Appendix III.

Consequently, the number of common shares issued or redeemed by defendant companies during the class period becomes an important consideration in evaluating both the performance of the investor population as a whole as well as any one component group. Figure 4 depicts the settling defendant companies comprising our population and indicates the extent to which they redeemed or issued new shares during the class periods.

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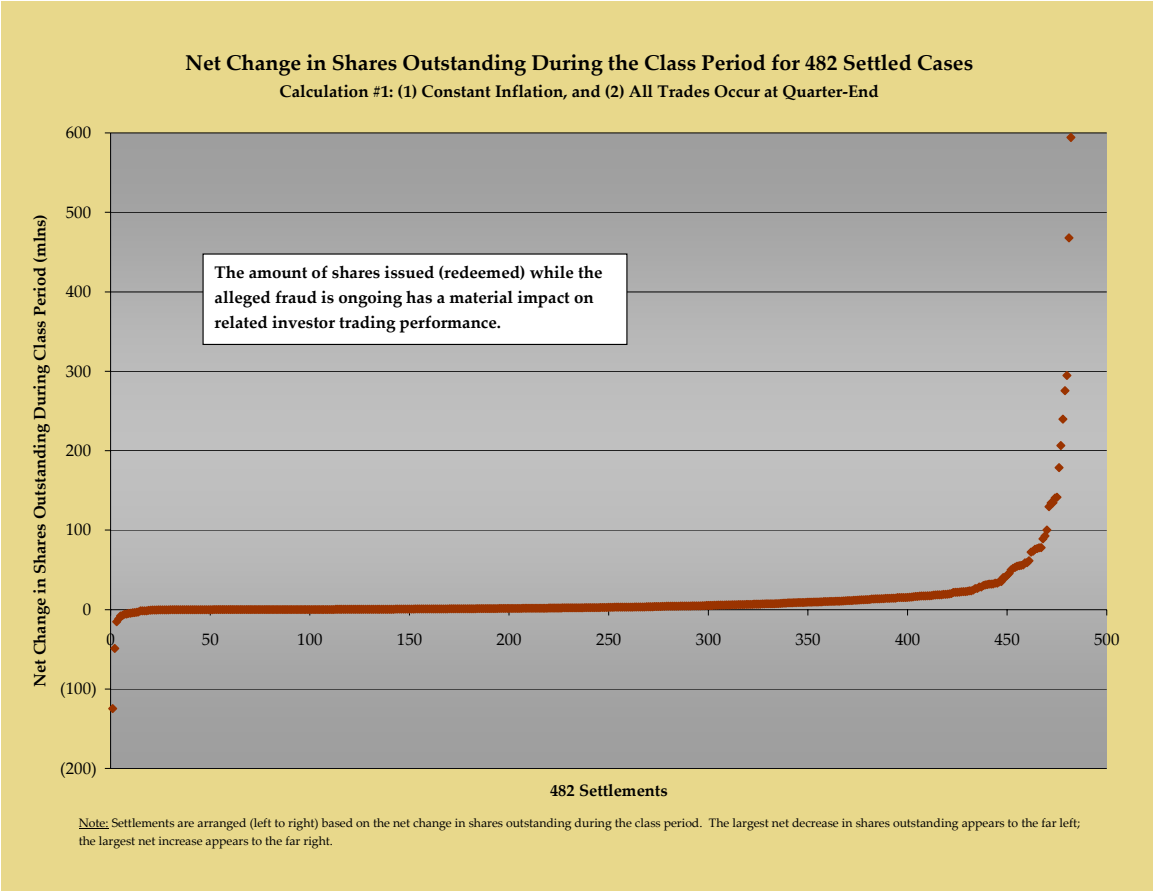
[30] An obvious exception exists with respect to insider trading, in which money is improperly extracted from unwitting investors.

[31] As indicated above, the "unexplained" 40 percent relates to the variance in the amount of alleged inflation per share of stock.

[32] Here, the "unexplained" 70 percent relates to the variance in the amount of alleged inflation per share of stock and the effect of discretionary choice among different investors groups.

FIGURE 4



In Appendix III, we further stratify the performance of the 13F and non-13F investor populations based on whether the companies in whose securities they traded issued new shares during the class periods.[33] Our sample of 482 settlements is broken into three groups: initial public offerings (70), other issuers (206), and non-issuers (206). The last two categorizations are relative rather than literal. Once IPOs were identified, the remaining settled cases were divided in half: those companies that redeemed the most / issued the fewest shares were categorized as non-issuers and those that redeemed the fewest / issued the most new shares were categorized as issuers. Of particular note, when considering the non-issuer group of settlements, approximately 55 percent of those cases generated a net gain for institutional investors (as a class) after considering the distribution of settlement proceeds.

The results above could be construed as presenting a compelling, prima facie case that harm to investors from securities fraud can only result when there is an issuance of new shares during the class period. Such a position may well have merit as it relates to diversified investors, such as large institutions, but one has to be careful in extending the reach of such an argument. Importantly, what may be undeniably true for investors as a whole and what may largely be true

[33] The specific forms of the issuances are varied but include initial public offerings, secondary offerings, shares issued as currency for acquisitions, shares issued as part of an exchange offer (*e.g.*, for debt securities or preferred stock), shares issued upon redemption of securities with convertible features, and shares issued in connection with the awarding of stock options or restricted stock grants, among others.

for large diversified investors does not necessarily apply to undiversified investors, as discussed in more detail below.

VI. CONSIDERING UNDIVERSIFIED INVESTORS

The discussion to this point has centered on large institutional investors that, by their very nature, generally trade in and out of a variety of common stocks over time. Such diversification effectively provides a natural "hedge" that protects such investors from catastrophic losses resulting from securities fraud. Undiversified investors – *e.g.*, individuals who hold a relatively modest number of securities – do not enjoy the same level of protection. Consider the following illustrative example, which uses actual data and assumes the hypothetical individual investor did not trade in any other securities impacted by fraud allegations (the pertinent information is also summarized in Figure 5 below):

On Friday, February 23, 2001, an individual investor decides to purchase 250 shares of Interchangeable Parts, Inc. (IPI).[34] IPI's shares are trading at $69.4375, so the total purchase price is $17,359.38 ($69.4375 x 250 shares). On Monday, February 26, 2001, IPI makes a surprise announcement that it will be restating its past financial results. By the end of the following trading day, IPI's shares close at $53.6250, approximately $15.81 less than where they were trading at our assumed time of purchase. Our individual investor's holdings are now worth only $13,406.25, suggesting a loss of $3,953.13 over the three trading days. He is, however, eligible to participate in the class action litigation. Fast forwarding to 2005, a final settlement is reached in which each class member is expected to receive $0.40 per "damaged" share. That recovery is reduced to $0.30 per share once plaintiff attorney fees, equal to 25 percent of the settlement fund, are deducted. The net recovery to the individual investor in our example would be $75.00 ($0.30 x 250 shares), or only 1.9 percent of the $3,953.13 that was lost due to the alleged fraud.

[34] Interchangeable Parts, Inc. is a fictitious company name; however, the information presented reflects that of an actual company. That is, all the data pertaining to stock prices, settlement amounts, attorney fees, etc. are factual.

FIGURE 5

Illustrative Investment in an "Inflated" Security by an Undiversified Individual Investor
Security: Interchangeable Parts, Inc. (IPI)

PURCHASE OF "INFLATED" SECURITY

[A]	Date of Purchase (prior to disclosure of "bad news")	2/23/2001
[B]	Stock Price at Purchase (closing price)	$ 69.4375
[C]	Number of Shares Purchased	250
[D]=[B]*[C]	Total Purchase Price	$ 17,359.38

Difference of $15.81 is alleged "inflation"

EFFECT OF BAD NEWS

[E]	Date "Bad News" Is Belatedly Disclosed (end of class period + 1 day)	2/27/2001
[F]	Stock Price After Disclosure of "Bad News" (closing price)	$ 53.6250
[G]	Number of Shares Still Held	250
[H]=[F]*[G]	Market Value After "Bad News" Is Disclosed	$ 13,406.25
[I]=[H]-[D]	**Net Trading Loss** [(a)]	**$ (3,953.13)**

RECOVERY FROM SETTLEMENT

[J]	Estimated Settlement per Share Before Attorney Fees	$ 0.40
[K]	Less: Attorney Fees (25%)	0.10
[L]=[J]-[K]	Net Recovery from Settlement (per share)	$ 0.30
[M]	Number of Shares "Damaged"	250
[N]=[L]*[M]	**Net Recovery from Settlement**	**$ 75.00**
[O]=[I]+[N]	**Overall Net Loss**	**$ (3,878.13)**
[P]=[N]/[-I]	***Recovery as a % of Net Trading Loss***	***1.9%***

Note:
[(a)] Assumes the individual does not buy or sell other "inflated" securities during the class period.

Of course, there may well be a separate, similarly undiversified individual who reaped a gain from selling her IPI shares at the right time (perhaps she sold the 250 shares to our first hypothetical investor). However, unlike the cases involving large diversified investors, these respective trading gains and losses are not available to offset one another. Unless a system were to exist whereby the undeserved gain is disgorged to reimburse the unwarranted loss, the potential for securities fraud creates a capricious and potentially devastating paradigm for undiversified investors.

VII. POTENTIAL POLICY IMPLICATIONS

The results of our analysis highlight a substantial incongruity between the current litigation rules and the economic consequences to diversified investors such as large institutions from trading in securities whose prices are allegedly inflated. In particular, the existing system frequently provides "compensation" to large institutional investors even when they have suffered no real economic loss -- indeed, they actually may have gained -- from alleged securities fraud. Such situations arise because the prevailing system fails to make meaningful distinctions between diversified and undiversified investors. In addition, today's system places very substantial economic burdens – in the form of financial settlements paid by defendant companies – on continuing shareholders that in all likelihood did not engage in any wrongdoing and may not have received any benefit from selling shares at allegedly inflated prices. See Thakor (2005) for a discussion of some of the unintended economic costs arising from securities litigation.

A litigation system so distanced from economic reality arguably cannot adequately serve the purposes for which it was initially created. Although beyond the scope of this paper, a policy discussion about how to reform the system in order to take account of these economic realities would be a logical next step.

VIII. CONCLUSION

Numerous scholars have posited that, over the long run, diversified investors should break even from trading in securities whose prices are fraudulently inflated. This paper demonstrates that, as an empirical matter: (1) diversified investors, such as large institutional investors, generally break even from their investments in common stocks impacted by fraud allegations even prior to considering any recoveries through litigation; (2) large institutional investors are, in fact, often *overcompensated* as a result of litigation; (3) the net trading losses realized by large institutional investors from alleged fraud pale in comparison to claimed (gross) losses; (4) to the extent net trading losses do result from alleged securities fraud, they arise primarily from the issuance of new common shares while the alleged fraud is ongoing; and (5) individuals who do not have diversified holdings are exposed to greater risk from securities fraud because they lack the natural "hedge" that exists within large, diversified portfolios.

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APPENDIX I: DATA SOURCES

A. Securities class action data

We obtained from Securities Class Action Services (SCAS) comprehensive data for 3,820 separate securities class action cases / partial settlement events[35] contained in their database through August 30, 2005. From this data, we identified 3,029 separate cases / settlement events filed from December 22, 1995 (*i.e.*, the effective date of the PSLRA) through August 25, 2005 as potential candidates for our study. From there, we performed an extensive review in order to limit the population to cases that involved allegations that the target companies' commons stock were inflated due to fraud and / or untimely disclosures. We further limited our selection by excluding cases with class periods beginning before 1994 or extending into 2005 and cases for which SCAS was missing settlement data. We also consolidated separate partial settlements and / or cases related to the same general cause of action. Analyst and IPO cases were excluded. Our final study population is comprised of 755 settlements, representing $25.4 billion in total settlement dollars. The schematic below provides an overview of our process:

		Settlement Events	Settlements	Settlement $ (blns)
Securities Class Action Services (SCAS) data	▪ Cases filed in federal or state court from 12/22/95 – 8/25/05. →	3,029		$44.2
Limit to cases that have settled	▪ Exclude active cases, dismissed cases, and tentative settlements. →	1,211		$29.8
Limit to cases alleging inflation of common stock price	▪ Exclude cases with classes that did not include purchasers of common stock or that did not allege inflation due to inadequate disclosure. →	851		$25.4
Limit class periods; exclude missing settlements	▪ Exclude class periods beginning before 1994 or extending into 2005; exclude cases for which SCAS is missing settlement data. →	831		$25.4
Consolidate related settlements	▪ Consolidate settlements pertaining to same target and class period. →		755	$25.4

B. Institutional holdings (13F) data

From our study population of 755 securities class action settlements, we identified through SCAS 752 distinct common stock securities[36] that were the subject of each of these settlements and linked them, using a database maintained by Thomson Financial, to the security-specific holdings of large institutional investors as reported on Forms 13F filed with the Securities and Exchange Commission (SEC). Section 13f of the Securities Exchange Act of 1934, along with Rule 13f-1 thereunder, requires all institutional investment managers with greater than $100 million of

[35] Partial settlement events with separate defendants related to the same case are treated by SCAS as distinct settlement events.

[36] Some settlements involve more than one common stock security (*e.g.*, Class A and B shares) while other issuers were named as a defendant in more than one action.

securities under discretionary management to report their holdings to the SEC within 45 days of the end of each quarter. Investment managers are required to report all common stock positions greater than 10,000 shares or $200,000 in market capitalization. Only long positions are reported.

There are a number of recognized limitations to the 13F filings. First, 13F filers report their holdings at a high level of aggregation. For example, families of funds are required to file only a single form. Second, to the extent certain institutional investors (*e.g.*, pension funds) have ceded investment discretion to third-party investment managers, those securities will be reported on the Form 13F filed by the third-party investment manager. Third, 13F filers can under certain circumstances request confidential treatment for a period up to one year, subject to potential extension. Fourth, despite SEC filing requirements designed to prevent duplicative reporting, some instances of double-counting have been observed. Gompers and Metrick (2001) report such occurrences to be rare. Our findings – as it relates to our sample – are consistent with their conclusion.

We performed extensive cleaning of the Thomson 13F data. In so doing, we adopted techniques developed by Kovtunenko and Sosner (2003) to systematically resolve quarter-to-quarter inconsistencies (including those resulting from stock splits) and fill in missing data. All share data were split-adjusted.

Our period of interest for the quarterly 13F data covered the 11 years from December 31, 1993 to December 31, 2004.

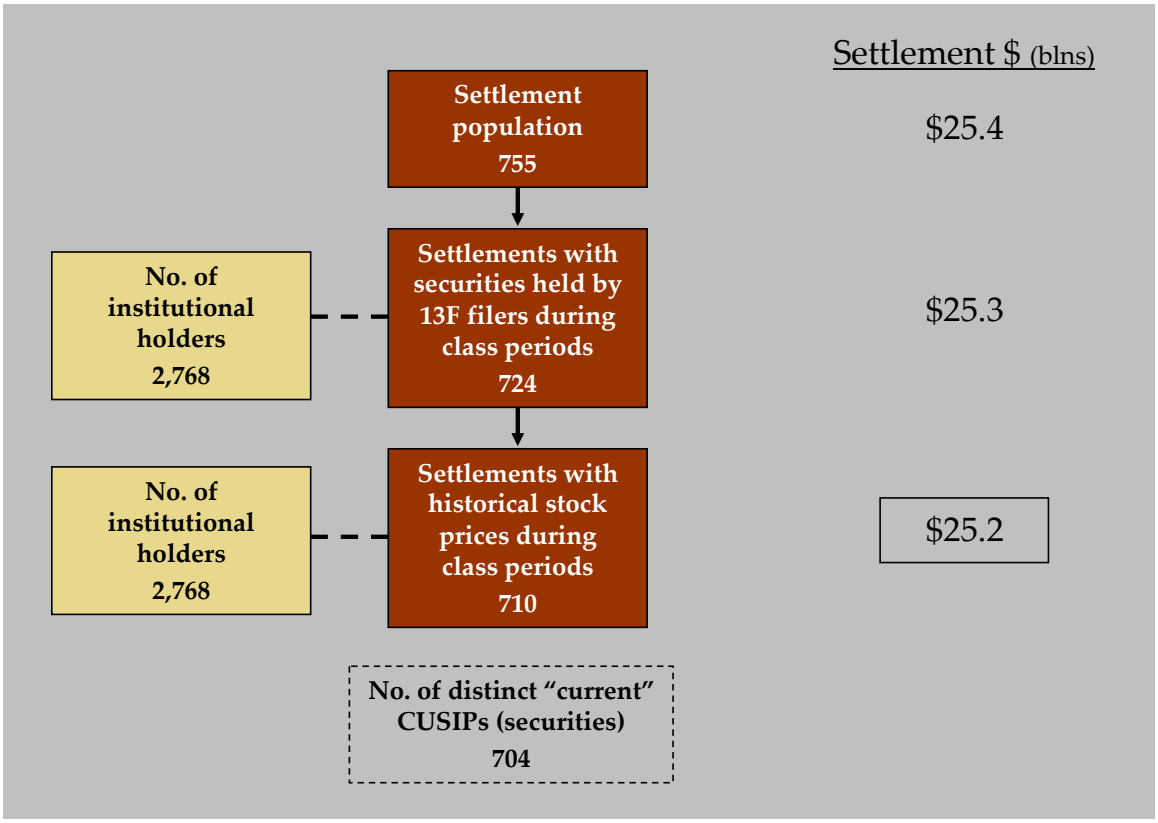
C. Common stock data

We obtained daily stock information (*e.g.*, closing prices, shares outstanding, trading volume, etc.) for each of the subject securities, to the extent data were available, for the period from 1994 through 2005. We relied upon a variety of sources in gathering these data, including The Center for Research on Securities Prices (CRSP) and Bloomberg. All price, share and volume data were split-adjusted.

D. Combining the data sets

Out of the 755 settlements that comprised our study population, we identified 752 distinct securities[37] that were the subject of the settlements and linked them to the security-specific holdings of large institutional investors as reported on Forms 13F filed with the SEC. There were 704 distinct securities that were held by more than 2,700 distinct institutional investors during the class period for which both institutional holdings and historical stock data were available. These 704 distinct securities represent 710 settlements and $25.2 billion in total settlement dollars. The schematic below provides an overview of our process, which resulted in our database of more than 40 million records.

[37] Some settlements involve more than one common stock security (*e.g.*, Class A and B shares) while other issuers were named as a defendant in more than one action.



We ultimately performed gain / (loss) calculations for 482 settlements (64 percent), representing $19.8 billion in total settlement dollars (78 percent of our total population). These 482 settlements involved 476 distinct securities that were traded by 2,596 distinct institutional investors during the class periods. The reasons for the exclusions from the population of 755 settlements are as follows:

1.	Total settlement population	755
2.	Missing 13F holdings and/or stock data	(46)
3.	Involve mergers[38]	(8)
4.	Missing post-disclosure stock price due to delisting[39]	(82)
5.	Missing immediate pre-disclosure stock price	(1)
6.	Stock price decline at class period end < 5%[40]	(104)
7.	Aggregate 13F holdings > total shares outstanding	(25)
8.	Combination of (4) – (7)	(7)
	Total	**482**

[38] As it relates to mergers and other strategic transactions occurring during the class period, class action matters in which: (1) the subject securities include the common stock of both predecessor and successor entities, or (2) shares issued by an acquirer to fund a merger are excluded from the class, tend to be relatively complex. We have excluded these as a practical consideration.

[39] Stock prices for some companies may be available subsequent to delisting; however, at this time, we have not attempted to gather these additional data.

[40] An end-of-period stock price decline of less than 5.0 percent for a defendant company suggested to us a set of circumstances in which the constant inflation ribbon method would not produce an inflation estimate that was generally consistent with the claims made in the class action litigation.

APPENDIX II: METHODOLOGY

We estimated investor trading gains / (losses) as the product of: (1) the amount of inflation per share, and (2) the number of inflated shares bought or sold. In order to estimate the inflation per share, we made use of the constant inflation ribbon method. The use of a constant inflation ribbon generally assumes that the drop in the defendant company's stock price that is observed once the bad news is disclosed represents the extent to which the previous suppression of the bad news had artificially inflated the share price. It further assumes that this measure of inflation, stated in dollars, was constant during the class period.

We calculated the constant inflation ribbon as the difference, measured in dollars, between the closing price for the first trading day following the last day of the class period and the closing price as of the last trading day preceding the last day of the class period. This amount was assumed to represent the amount of inflation in the share price due to the alleged fraud and was further assumed to remain constant over the class period. A limiting condition was imposed such that the implied hypothetical share price, measured as the difference between the actual share price and the amount of assumed inflation, could never be less than $0. Consequently, the assumed inflation estimate may not always be constant throughout the class period.

We recognize that the constant inflation ribbon method may not reliably measure the extent to which a defendant company's share price may have been inflated due to alleged fraud immediately prior to the significant disclosure, let alone during earlier (sometimes much earlier) periods. Nevertheless, for our purposes, it provides a straightforward and consistent basis for calculating *both* losses and gains. Determining the amount of inflation per share, if any, is a highly fact-specific and intensely analytic inquiry. We do not purport to have calculated direct or indirect measures of damages with respect to any particular case.

In determining the number of inflated shares bought and sold, we track, quarter by quarter, the specific holdings of each 13F filer and equate the net increase / (decrease) in holdings with the number of net shares bought / sold during the quarter.[41] We also created an aggregate non-13F investor in order to account for the remainder of shares. The holdings of the aggregate, non-13F investor, as of a particular point in time, are determined as the difference between the total shares outstanding for a given security less the aggregate 13F (large institutional) holdings.

While the 13F data provides detailed information on quarterly holdings, we do not know specifically when during the quarter the subject trades occurred. Consequently, we make use of three different trading scenarios to allow for potential variability regarding intraquarter trades. Our three trading scenarios include the following: (1) assume all trades occur on the last day of the quarter, (2) assume all trades occur in the middle of the quarter, and (3) assume trades occur in a manner proportional to the observed daily trading volume during the quarter. With respect to scenarios (2) and (3), for instances in which an initial public offering (IPO) was consummated during the first quarter of the class period, we assume – for that first quarter only – that all trades occur on the last day of the quarter. When stocks became delisted during the last quarter of the class period, we assume that no trades occur in that quarter.

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[41] By relying on the net change in the number shares of each security held, as reported by each large institutional investor, we are implicitly netting out in-and-out trades that may have occurred during the quarter.

APPENDIX III: RESULTS OF ANALYSIS

» Exhibit A: **Net Gain/Loss Calculation by Settled Cases**
Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

» Exhibit A-1: **Net Gain/Loss Calculation for Large Institutional Investors**
Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

» Exhibit B: **Net Gain/Loss Calculation by Settled Cases**
Calculation #2: Assumes (1) Constant Inflation, and (2) All Trades Occur at Mid-Quarter

» Exhibit B-1: **Net Gain/Loss Calculation for Large Institutional Investors**
Calculation #2: Assumes (1) Constant Inflation, and (2) All Trades Occur at Mid-Quarter

» Exhibit C: **Net Gain/Loss Calculation by Settled Cases**
Calculation #3: Assumes (1) Constant Inflation, and (2) Shares Trade Proportional to Daily Volume

» Exhibit C-1: **Net Gain/Loss Calculation for Large Institutional Investors**
Calculation #3: Assumes (1) Constant Inflation, and (2) Shares Trade Proportional to Daily Volume

» Exhibit D: **Net Trading Gain/Loss Regressed on Change in Common Shares Outstanding of Defendant Firm - Graph**
482 Settled Cases: All Investors, Before Settlement Proceeds
Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

» Exhibit D-1: **Net Trading Gain/Loss Regressed on Change in Common Shares Outstanding of Defendant Firm - Output**
482 Settled Cases: All Investors, Before Settlement Proceeds
Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

» Exhibit E: **Net Trading Gain/Loss Regressed on Change in Common Shares Outstanding of Defendant Firm - Graph**
482 Settled Cases: Institutional Investors, Before Settlement Proceeds
Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

» Exhibit E-1: **Net Trading Gain/Loss Regressed on Change in Common Shares Outstanding of Defendant Firm - Output**
482 Settled Cases: Institutional Investors, Before Settlement Proceeds
Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

Net Gain/(Loss) Calculation by Settled Cases

Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

($ in billions)

		LARGE INSTITUTIONAL INVESTORS (13F FILERS)							NON-13F FILERS					TOTAL				
		[A]	[B]	[C]=[A]+[B]	[D]	[E]	[F]=[D]+[E]	[G]=[C]+[F]	[H]	[I]	[J]	[K]=[I]+[J]	[L]=[H]+[K]	[M]=[C]+[H]	[N]=[D]+[I]	[O]=[E]+[J]	[P]=[N]+[O]	[Q]=[M]+[P]
Group	No. of Settlements	Losses	Trading Gains	Net	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)	Net Trading Gain/(Loss)	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)	Net Trading Gain/(Loss)	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)
Non-issuers [(a)]	206	($11.5)	$10.5	($1.0)	$1.6	($0.4)	$1.2	$0.2	$1.3	$1.4	($0.4)	$1.0	$2.4	$0.3	$3.0	($0.7)	$2.3	$2.6
IPOs	70	($1.7)	$0.3	($1.5)	$0.3	($0.1)	$0.2	($1.2)	($3.4)	$0.5	($0.2)	$0.3	($3.1)	($4.9)	$0.8	($0.3)	$0.6	($4.3)
Other Equity Issuers	206	($30.6)	$20.0	($10.6)	$9.9	($1.2)	$8.7	($1.9)	($7.0)	$6.1	($0.8)	$5.2	($1.8)	($17.7)	$16.0	($2.1)	$13.9	($3.7)
Total	482	($43.8)	$30.7	($13.1)	$11.9	($1.7)	$10.2	($2.9)	($9.1)	$7.9	($1.4)	$6.6	($2.5)	($22.2)	$19.8	($3.1)	$16.8	($5.5)
Settlement Statistics (in mlns):																		
Non-issuers																		
Mean		($55.8)	$50.9	($4.9)	$7.9	($1.8)	$6.0	$1.1	$6.5	$6.8	($1.8)	$5.0	$11.4	$1.5	$14.6	($3.6)	$11.0	$12.5
Median		($11.4)	$9.2	($0.3)	$1.8	($0.6)	$1.1	$0.2	($0.1)	$2.7	($0.9)	$1.7	$1.8	($0.5)	$4.9	($1.7)	$3.1	$2.0
Maximum		$0.0	$1,238.5	$152.5	$314.0	$0.0	$280.1	$187.1	$396.2	$178.3	$0.0	$169.4	$526.5	$130.7	$460.0	$0.0	$427.5	$491.2
Minimum		($1,623.0)	$0.0	($384.6)	$0.0	($33.9)	$0.0	($188.1)	($149.2)	$0.0	($17.1)	$0.0	($129.6)	($17.3)	$0.0	($49.7)	$0.0	($15.0)
Standard Deviation		$154.5	$129.5	$41.6	$30.0	$3.9	$27.0	$35.5	$42.8	$17.2	$2.5	$15.4	$52.9	$16.2	$46.4	$6.0	$41.9	$48.8
IPOs																		
Mean		($24.9)	$4.1	($20.8)	$4.9	($1.5)	$3.4	($17.5)	($48.9)	$6.9	($2.2)	$4.7	($44.2)	($69.7)	$11.8	($3.8)	$8.1	($61.7)
Median		($7.6)	$0.0	($7.6)	$0.8	($0.3)	$0.6	($6.4)	($24.1)	$3.7	($1.4)	$2.4	($18.1)	($30.6)	$5.1	($1.8)	$3.1	($24.6)
Maximum		$0.0	$275.7	$0.0	$126.0	$0.0	$80.9	$9.9	$0.1	$66.5	($0.0)	$43.0	$15.2	($0.2)	$192.5	($0.0)	$123.6	$25.1
Minimum		($721.8)	$0.0	($446.0)	$0.0	($45.1)	$0.0	($365.1)	($679.4)	$0.1	($23.8)	$0.1	($676.4)	($690.8)	$0.1	($68.9)	$0.1	($687.6)
Standard Deviation		$87.0	$33.0	$55.5	$18.5	$5.8	$12.9	$46.0	$91.5	$11.3	$3.5	$8.0	$91.0	$115.8	$28.8	$9.0	$20.2	$108.7
Other Equity Issuers																		
Mean		($148.5)	$96.9	($51.6)	$48.3	($6.0)	$42.3	($9.3)	($34.1)	$29.4	($4.0)	$25.4	($8.8)	($85.7)	$77.7	($10.0)	$67.6	($18.1)
Median		($46.4)	$24.4	($9.0)	$3.8	($1.3)	$2.5	($4.8)	($5.4)	$4.4	($1.4)	$2.9	($2.9)	($21.5)	$8.9	($2.6)	$5.6	($11.7)
Maximum		$0.0	$968.2	$443.8	$4,178.8	$0.0	$3,966.6	$4,007.1	$758.8	$2,727.3	$0.0	$2,588.8	$2,396.5	($0.3)	$6,906.1	$0.0	$6,555.4	$6,403.7
Minimum		($2,365.6)	$0.0	($2,361.6)	$0.0	($212.2)	$0.0	($2,340.8)	($1,108.5)	$0.1	($138.5)	$0.1	($934.2)	($1,783.9)	$0.2	($350.7)	$0.2	($1,741.7)
Standard Deviation		$279.3	$171.3	$212.2	$336.4	$22.0	$316.3	$365.2	$153.8	$199.1	$11.9	$188.1	$222.3	$201.5	$531.2	$33.1	$500.8	$503.3
Total																		
Mean		($91.0)	$63.8	($27.2)	$24.7	($3.6)	$21.1	($6.1)	($18.9)	$16.5	($2.8)	$13.6	($5.3)	($46.1)	$41.2	($6.4)	$34.8	($11.3)
Median		($17.2)	$9.1	($3.3)	$2.3	($0.8)	$1.5	($1.4)	($2.6)	$3.5	($1.2)	$2.2	($0.2)	($6.5)	$5.8	($2.0)	$3.9	($0.8)
Maximum		$0.0	$1,238.5	$443.8	$4,178.8	$0.0	$3,966.6	$4,007.1	$758.8	$2,727.3	$0.0	$2,588.8	$2,396.5	$130.7	$6,906.1	$0.0	$6,555.4	$6,403.7
Minimum		($2,365.6)	$0.0	($2,361.6)	$0.0	($212.2)	$0.0	($2,340.8)	($1,108.5)	$0.0	($138.5)	$0.0	($934.2)	($1,783.9)	$0.0	($350.7)	$0.0	($1,741.7)
Standard Deviation		$217.0	$144.4	$144.4	$221.5	$14.9	$208.1	$240.3	$112.1	$131.0	$8.1	$123.7	$154.2	$145.2	$349.7	$22.5	$329.4	$333.6

Note:

[(a)] Comprised of the settling companies having issued the fewest number of shares after excluding IPO cases.

Net Gain/(Loss) Calculation for Large Institutional Investors

Calculation #1: Assumes (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

($ in billions)

	2,596 Large Institutional Investors (13F Filers)						
	[A]	[B]	[C]=[A]+[B]	[D]	[E]	[F]=[D]+[E]	[G]=[C]+[F]
		Trading			Plaintiff		
No. of Investors	Losses	Gains	Net	Gross Settlement	Attorney Fees	Net Settlement	Net Gain/(Loss)
2,596	($43.8)	$30.7	($13.1)	$11.9	($1.7)	$10.2	($2.9)

Settlement Statistics (in mlns):

Total							
Mean	($16.9)	$11.8	($5.0)	$4.6	($0.7)	$3.9	($1.1)
Median	($1.2)	$0.6	($0.2)	$0.2	($0.0)	$0.2	($0.1)
Maximum	$0.0	$1,643.6	$232.9	$861.9	$0.0	$786.6	$244.7
Minimum	($1,692.8)	$0.0	($1,020.3)	$0.0	($75.3)	$0.0	($697.3)
Standard Deviation	$84.0	$57.4	$50.5	$30.8	$3.4	$27.7	$35.4

Net Gain/(Loss) Calculation by Settled Cases

Calculation #2: Assumes (1) Constant Inflation, and (2) All Trades Occur at Mid-Quarter

($ in billions)

		LARGE INSTITUTIONAL INVESTORS (13F FILERS)							NON-13F FILERS					TOTAL				
		[A]	[B]	[C]=[A]+[B]	[D]	[E]	[F]=[D]+[E]	[G]=[C]+[F]	[H]	[I]	[J]	[K]=[I]+[J]	[L]=[H]+[K]	[M]=[C]+[H]	[N]=[D]+[I]	[O]=[E]+[J]	[P]=[N]+[O]	[Q]=[M]+[P]
Group	No. of Settlements	Losses	Trading Gains	Net	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)	Net Trading Gain/(Loss)	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)	Net Trading Gain/(Loss)	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)
Non-issuers [(a)]	206	($12.1)	$12.9	$0.8	$1.7	($0.4)	$1.3	$2.1	($0.5)	$1.4	($0.4)	$1.1	$0.6	$0.4	$3.1	($0.8)	$2.3	$2.7
IPOs	70	($1.6)	$0.9	($0.7)	$0.3	($0.1)	$0.2	($0.5)	($4.4)	$0.5	($0.2)	$0.3	($4.1)	($5.2)	$0.8	($0.3)	$0.6	($4.6)
Other Equity Issuers	206	($28.6)	$22.0	($6.6)	$9.9	($1.2)	$8.7	$2.1	($9.1)	$6.0	($0.8)	$5.2	($4.0)	($15.7)	$15.9	($2.0)	$13.9	($1.9)
Total	482	($42.3)	$35.8	($6.5)	$11.9	($1.7)	$10.2	$3.7	($14.0)	$7.9	($1.4)	$6.6	($7.5)	($20.5)	$19.8	($3.1)	$16.8	($3.8)
Settlement Statistics (in mlns):																		
Non-issuers																		
Mean		($58.7)	$62.8	$4.1	$8.1	($1.9)	$6.2	$10.3	($2.2)	$6.9	($1.8)	$5.1	$2.9	$1.9	$15.1	($3.8)	$11.3	$13.2
Median		($12.3)	$13.5	$0.2	$2.1	($0.7)	$1.3	$2.0	($0.7)	$2.7	($0.9)	$1.7	$0.6	($0.4)	$5.0	($1.7)	$3.2	$2.5
Maximum		$0.0	$1,238.5	$432.6	$314.0	$0.0	$280.1	$448.3	$396.2	$178.3	$0.0	$169.4	$526.5	$134.6	$460.0	$0.0	$427.5	$490.4
Minimum		($1,623.0)	$0.0	($384.6)	$0.0	($33.9)	$0.0	($211.6)	($392.9)	$0.0	($17.1)	$0.0	($374.6)	($23.4)	$0.0	($49.7)	$0.0	($22.1)
Standard Deviation		$155.8	$148.9	$54.0	$30.0	$3.9	$27.0	$51.4	$52.8	$17.2	$2.6	$15.4	$60.3	$17.0	$46.4	$6.0	$41.9	$49.2
IPOs																		
Mean		($22.8)	$12.3	($10.6)	$4.9	($1.5)	$3.4	($7.2)	($63.4)	$6.9	($2.2)	$4.7	($58.7)	($74.0)	$11.8	($3.8)	$8.1	($65.9)
Median		($7.1)	$0.0	($6.7)	$0.8	($0.3)	$0.6	($5.5)	($22.9)	$3.7	($1.4)	$2.4	($17.4)	($27.3)	$5.1	($1.8)	$3.1	($24.0)
Maximum		$0.0	$839.5	$177.9	$126.0	$0.0	$80.9	$258.8	$0.1	$66.5	($0.0)	$43.0	$15.0	($0.2)	$192.5	($0.0)	$123.6	$25.1
Minimum		($661.6)	$0.0	($76.7)	$0.0	($45.1)	$0.0	($75.7)	($1,133.1)	$0.1	($23.8)	$0.1	($1,090.4)	($955.2)	$0.1	($68.9)	$0.1	($831.6)
Standard Deviation		$79.8	$100.3	$29.8	$18.5	$5.8	$12.9	$36.7	$158.6	$11.3	$3.5	$8.0	$154.8	$144.5	$28.8	$9.0	$20.2	$134.4
Other Equity Issuers																		
Mean		($138.9)	$106.9	($32.0)	$48.0	($5.9)	$42.1	$10.1	($44.4)	$29.2	($4.0)	$25.2	($19.2)	($76.4)	$77.2	($9.9)	$67.3	($9.1)
Median		($35.4)	$24.3	($2.6)	$3.5	($1.2)	$2.3	($0.5)	($7.2)	$4.1	($1.3)	$2.8	($3.9)	($20.1)	$7.6	($2.5)	$4.8	($9.0)
Maximum		$0.0	$1,227.5	$845.7	$4,178.8	$0.0	$3,966.6	$4,323.6	$743.6	$2,727.3	$0.0	$2,588.8	$2,085.8	$0.0	$6,906.1	$0.0	$6,555.4	$6,409.4
Minimum		($2,365.6)	$0.0	($2,361.6)	$0.0	($212.2)	$0.0	($2,340.8)	($1,338.4)	$0.0	($138.5)	$0.0	($1,131.9)	($1,783.9)	$0.0	($350.7)	$0.0	($1,741.7)
Standard Deviation		$274.9	$199.2	$221.9	$336.4	$22.0	$316.3	$393.4	$182.7	$199.1	$11.9	$188.1	$220.1	$186.4	$531.3	$33.1	$500.8	$498.1
Total																		
Mean		($87.7)	$74.3	($13.4)	$24.7	($3.6)	$21.1	$7.7	($29.1)	$16.4	($2.8)	$13.6	($15.5)	($42.6)	$41.2	($6.4)	$34.8	($7.8)
Median		($15.2)	$10.0	($0.9)	$2.3	($0.8)	$1.5	$0.0	($3.9)	$3.5	($1.2)	$2.2	($1.6)	($5.5)	$5.8	($2.0)	$3.9	($0.4)
Maximum		$0.0	$1,238.5	$845.7	$4,178.8	$0.0	$3,966.6	$4,323.6	$743.6	$2,727.3	$0.0	$2,588.8	$2,085.8	$134.6	$6,906.1	$0.0	$6,555.4	$6,409.4
Minimum		($2,365.6)	$0.0	($2,361.6)	$0.0	($212.2)	$0.0	($2,340.8)	($1,338.4)	$0.0	($138.5)	$0.0	($1,131.9)	($1,783.9)	$0.0	($350.7)	$0.0	($1,741.7)
Standard Deviation		$213.5	$169.9	$150.5	$221.5	$14.9	$208.1	$259.4	$140.0	$131.0	$8.1	$123.7	$161.4	$139.3	$349.7	$22.5	$329.4	$331.8

Note:

[(a)] Comprised of the settling companies having issued the fewest number of shares after excluding IPO cases.

Net Gain/(Loss) Calculation for Large Institutional Investors

Calculation #2: Assumes (1) Constant Inflation, and (2) All Trades Occur at Mid-Quarter

($ in billions)

	2,598 Large Institutional Investors (13F Filers)						
	[A]	[B]	[C]=[A]+[B]	[D]	[E]	[F]=[D]+[E]	[G]=[C]+[F]
		Trading			Plaintiff		
No. of Investors	Losses	Gains	Net	Gross Settlement	Attorney Fees	Net Settlement	Net Gain/(Loss)
2,598	($42.3)	$35.8	($6.5)	$11.9	($1.7)	$10.2	$3.7

Settlement Statistics (in mlns):

Total							
Mean	($16.3)	$13.8	($2.5)	$4.6	($0.7)	$3.9	$1.4
Median	($1.1)	$0.7	($0.1)	$0.2	($0.0)	$0.1	($0.0)
Maximum	$0.0	$1,749.2	$646.2	$1,593.8	$0.0	$1,491.2	$1,159.6
Minimum	($1,862.9)	$0.0	($1,206.2)	$0.0	($102.6)	$0.0	($772.6)
Standard Deviation	$82.4	$67.0	$56.0	$40.4	$3.6	$37.2	$53.2

Net Gain/(Loss) Calculation by Settled Cases

Calculation #3: Assumes (1) Constant Inflation, and (2) Shares Trade Proportional to Daily Volume

($ in billions)

		LARGE INSTITUTIONAL INVESTORS (13F FILERS)							NON-13F FILERS					TOTAL				
		[A]	[B]	[C]=[A]+[B]	[D]	[E]	[F]=[D]+[E]	[G]=[C]+[F]	[H]	[I]	[J]	[K]=[I]+[J]	[L]=[H]+[K]	[M]=[C]+[H]	[N]=[D]+[I]	[O]=[E]+[J]	[P]=[N]+[O]	[Q]=[M]+[P]
Group	No. of Settlements	Losses	Trading Gains	Net	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)	Net Trading Gain/(Loss)	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)	Net Trading Gain/(Loss)	Gross Settlement	Plaintiff Attorney Fees	Net Settlement	Net Gain/(Loss)
Non-issuers [(a)]	206	($11.4)	$12.2	$0.7	$1.7	($0.4)	$1.3	$2.0	($0.4)	$1.4	($0.4)	$1.0	$0.6	$0.4	$3.1	($0.8)	$2.3	$2.7
IPOs	70	($1.4)	$0.3	($1.1)	$0.3	($0.1)	$0.2	($0.8)	($3.8)	$0.5	($0.2)	$0.3	($3.4)	($4.8)	$0.8	($0.3)	$0.6	($4.3)
Other Equity Issuers	206	($26.3)	$19.4	($6.9)	$9.9	($1.2)	$8.7	$1.7	($7.9)	$6.1	($0.8)	$5.2	($2.6)	($14.8)	$16.0	($2.1)	$13.9	($0.9)
Total	482	($39.1)	$31.9	($7.2)	$11.9	($1.7)	$10.2	$2.9	($12.0)	$7.9	($1.4)	$6.6	($5.4)	($19.3)	$19.8	($3.1)	$16.8	($2.5)

Settlement Statistics (in mlns):

Non-issuers																		
Mean	($55.5)	$59.1	$3.6	$8.2	($1.9)	$6.2	$9.8	($1.8)	$6.7	($1.8)	$4.9	$3.1	$1.8	$14.8	($3.7)	$11.1	$12.9	
Median	($10.0)	$11.3	$0.3	$1.9	($0.6)	$1.2	$1.5	($0.9)	$2.6	($0.9)	$1.7	$0.6	($0.6)	$4.9	($1.7)	$3.0	$2.0	
Maximum	($0.0)	$1,260.1	$370.2	$314.0	$0.0	$280.1	$385.9	$313.3	$178.3	$0.0	$169.4	$443.5	$135.7	$460.0	$0.0	$427.5	$490.2	
Minimum	($1,564.5)	$0.0	($304.4)	$0.0	($33.9)	$0.0	($206.8)	($345.0)	$0.0	($15.8)	$0.0	($326.7)	($17.5)	$0.0	($49.7)	$0.0	($14.5)	
Standard Deviation	$155.5	$149.8	$45.4	$30.4	$4.1	$27.3	$45.4	$44.8	$16.9	$2.3	$15.3	$52.3	$16.5	$46.5	$6.0	$42.0	$48.9	
IPOs																		
Mean	($19.8)	$4.6	($15.2)	$4.9	($1.5)	$3.4	($11.8)	($54.0)	$6.9	($2.2)	$4.7	($49.3)	($69.1)	$11.8	($3.8)	$8.1	($61.1)	
Median	($6.5)	$0.0	($6.4)	$0.8	($0.3)	$0.6	($5.4)	($24.2)	$3.7	($1.4)	$2.4	($18.9)	($28.7)	$5.1	($1.8)	$3.1	($24.7)	
Maximum	$0.0	$309.8	$0.0	$126.0	$0.0	$80.9	$10.1	($0.1)	$66.5	($0.0)	$43.0	$15.1	($0.2)	$192.5	($0.0)	$123.6	$25.1	
Minimum	($445.3)	$0.0	($135.5)	$0.0	($45.1)	$0.0	($79.5)	($677.5)	$0.1	($23.8)	$0.1	($674.5)	($691.2)	$0.1	($68.9)	$0.1	($688.0)	
Standard Deviation	$55.1	$37.0	$24.2	$18.5	$5.8	$12.9	$18.3	$102.9	$11.3	$3.5	$8.0	$100.8	$115.7	$28.8	$9.0	$20.2	$108.6	
Other Equity Issuers																		
Mean	($127.6)	$94.0	($33.6)	$48.0	($5.9)	$42.1	$8.4	($38.2)	$29.5	($4.1)	$25.4	($12.8)	($71.8)	$77.4	($10.0)	$67.5	($4.4)	
Median	($36.1)	$25.1	($4.8)	$3.9	($1.3)	$2.5	($1.5)	($6.1)	$4.2	($1.3)	$2.8	($2.9)	($19.9)	$8.9	($2.6)	$5.6	($11.3)	
Maximum	($0.0)	$1,155.4	$572.4	$4,178.8	$0.0	$3,966.6	$4,336.8	$735.7	$2,727.3	$0.0	$2,588.8	$2,072.5	($0.0)	$6,906.1	$0.0	$6,555.4	$6,409.4	
Minimum	($1,567.4)	$0.0	($1,486.6)	$0.0	($212.2)	$0.0	($1,465.8)	($1,229.0)	$0.1	($138.5)	$0.1	($949.6)	($1,098.3)	$0.2	($350.7)	$0.2	($1,056.0)	
Standard Deviation	$235.2	$171.5	$164.8	$336.4	$22.0	$316.3	$361.2	$148.5	$199.1	$12.0	$188.1	$195.9	$157.0	$531.2	$33.1	$500.8	$487.4	
Total																		
Mean	($81.1)	$66.1	($15.0)	$24.7	($3.6)	$21.1	$6.1	($24.9)	$16.5	($2.8)	$13.6	($11.3)	($40.0)	$41.2	($6.4)	$34.8	($5.2)	
Median	($14.6)	$9.9	($0.9)	$2.3	($0.8)	$1.5	$0.1	($3.7)	$3.5	($1.2)	$2.2	($1.4)	($5.6)	$5.8	($2.0)	$3.9	($0.6)	
Maximum	$0.0	$1,260.1	$572.4	$4,178.8	$0.0	$3,966.6	$4,336.8	$735.7	$2,727.3	$0.0	$2,588.8	$2,072.5	$135.7	$6,906.1	$0.0	$6,555.4	$6,409.4	
Minimum	($1,567.4)	$0.0	($1,486.6)	$0.0	($212.2)	$0.0	($1,465.8)	($1,229.0)	$0.0	($138.5)	$0.0	($949.6)	($1,098.3)	$0.0	($350.7)	$0.0	($1,056.0)	
Standard Deviation	$189.9	$152.3	$113.3	$221.5	$14.9	$208.1	$237.9	$110.4	$131.0	$8.1	$123.7	$138.9	$117.7	$349.7	$22.5	$329.4	$323.4	

Note:

[(a)] Comprised of the settling companies having issued the fewest number of shares after excluding IPO cases.

Net Gain/(Loss) Calculation for Large Institutional Investors

Calculation #3: Assumes (1) Constant Inflation, and (2) Shares Trade Proportional to Daily Volume

($ in billions)

	2,739 Large Institutional Investors (13F Filers)						
	[A]	[B]	[C]=[A]+[B]	[D]	[E]	[F]=[D]+[E]	[G]=[C]+[F]
		Trading			Plaintiff		
No. of Investors	Losses	Gains	Net	Gross Settlement	Attorney Fees	Net Settlement	Net Gain/(Loss)
2,739	($39.1)	$31.9	($7.2)	$11.9	($1.7)	$10.2	$2.9

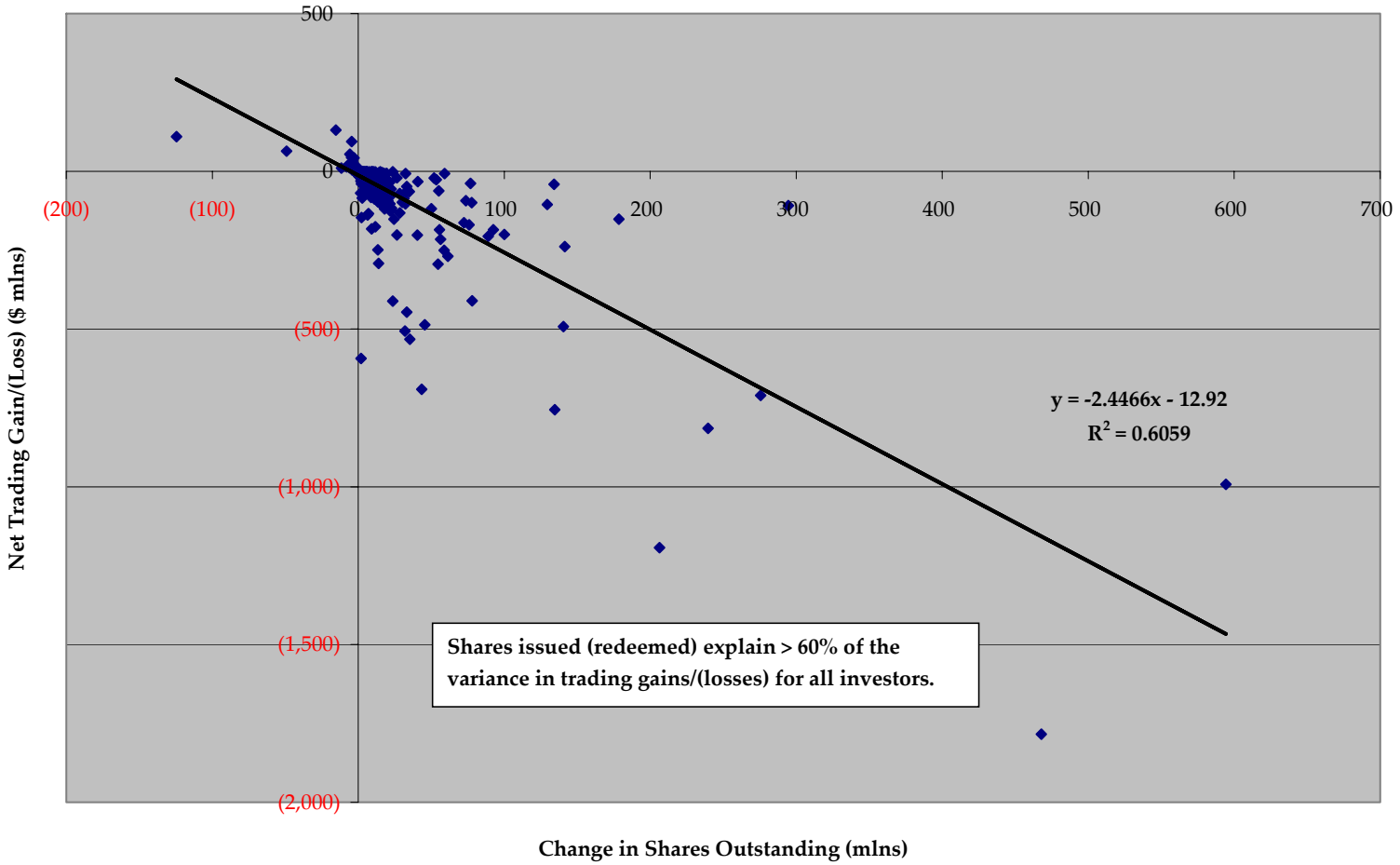
Settlement Statistics (in mlns):

Total							
Mean	($14.3)	$11.6	($2.6)	$4.3	($0.6)	$3.7	$1.1
Median	($1.0)	$0.6	($0.1)	$0.2	($0.0)	$0.1	($0.0)
Maximum	$0.0	$1,644.8	$431.8	$1,611.7	$0.0	$1,508.7	$1,053.6
Minimum	($1,458.6)	$0.0	($1,146.4)	$0.0	($102.9)	$0.0	($742.8)
Standard Deviation	$72.8	$57.9	$50.5	$39.6	$3.5	$36.4	$47.1

Net Trading Gain/(Loss) Regressed on Change in Common Shares Outstanding of Defendant Firm

482 Settled Cases: *All Investors, Before Settlement Proceeds*

Calculation #1: (1) Constant Inflation, and (2) All Trades Occur at Quarter-End



Regression of Investors' Net Trading Gain/(Loss) on Change in Common Shares Outstanding of Defendant Firm

482 Settled Cases: *All Investors, Before Settlement Proceeds*

Calculation #1: (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.778369139
R Square	0.605858516
Adjusted R Square	0.605037388
Standard Error	91.23574154
Observations	482

ANOVA

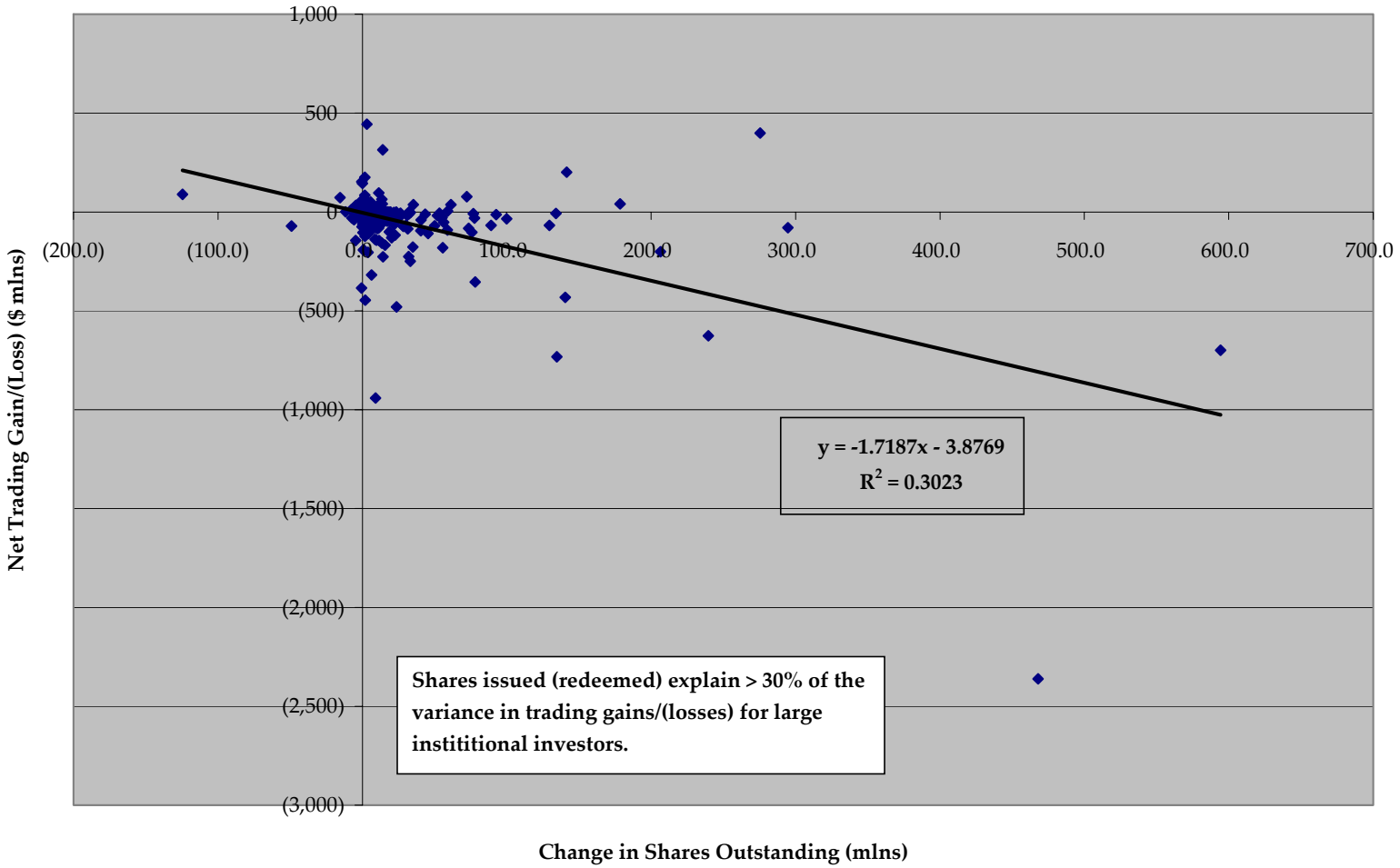
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	6141724.321	6141724.321	737.8367901	4.2251E-99
Residual	480	3995501.056	8323.960534		
Total	481	10137225.38			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 99.0%*	*Upper 99.0%*
Intercept	-12.91844907	4.331586157	-2.982383035	0.003005641	-21.42966244	-4.407235697	-24.12040968	-1.716488462
X Variable 1	-2.446557712	0.090068994	-27.16315133	4.2251E-99	-2.623535936	-2.269579488	-2.679486087	-2.213629338

Net Trading Gain/(Loss) Regressed on Change on Common Shares Outstanding of Defendant Firm

482 Settled Cases: *Institutional Investors, Before Settlement Proceeds*

Calculation #1: (1) Constant Inflation, and (2) All Trades Occur at Quarter-End



Regression of Investors' Net Trading Gain/(Loss) on Change in Common Shares Outstanding of Defendant Firm

482 Settled Cases: *Institutional Investors, Before Settlement Proceeds*

Calculation #1: (1) Constant Inflation, and (2) All Trades Occur at Quarter-End

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.549797373
R Square	0.302277151
Adjusted R Square	0.300823562
Standard Error	120.7296691
Observations	482

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3031039.758	3031039.758	207.9522447	2.0079E-39
Residual	480	6996313.435	14575.65299		
Total	481	10027353.19			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 99.0%*	*Upper 99.0%*
Intercept	-3.876929278	5.731865105	-0.676381807	0.499124046	-15.13957653	7.385717975	-18.70016603	10.94630747
X Variable 1	-1.718723923	0.119185745	-14.42054939	2.0079E-39	-1.952914187	-1.484533659	-2.026951434	-1.410496412