4. Scienter and What Defendants Thought Was Material

Plaintiffs are required to prove scienter as part of a '34 Act fraud claim.\textsuperscript{216} When a company speaks, it has a duty not to misrepresent information likely to be material or omit information that would materially affect the interpretation of the stated information. The fraud-on-the-market doctrine helped make material information mean essentially the same thing as information that was likely to change the market price. In terms of giving management guidance on what to say, this meant that management could omit details that would not affect the price of its stock. One problem with this rule is that there is an expected, or \textit{ex ante} effect versus an \textit{ex post} effect. Management may legitimately believe that information it did not report would have no effect on their employer's stock price only to be surprised by a price decline upon its disclosure. For example, changes in accounting policy that have no effect on operating cash flows (such as some details of inventory accounting policy) should have no effect on firm value. Occasionally, however, an unexpected decline in noncash earnings from such an accounting event causes a significant price drop. Such episodes, though rare, are violations of fundamental efficiency. If management made the correct \textit{a priori} estimate that making an announcement of the accounting policy earlier than they did would have no effect on stock price, it is difficult to assess them with liability under those fraud statutes that require a showing of scienter.

Once one considers the implications of behavioral finance, where the presumption that prices reflect fundamental value is no longer correct, the \textit{ex ante} determination of just what affects prices becomes much more complex. For example, suppose that a company is convinced that the market is generally unconcerned with the operating results in one of its divisions, instead focusing on the parts of the company that have grabbed the attention of the public. During the Internet bubble, this would be the equivalent of focusing on the Internet part of a company like 3Com (i.e., Palm), while basically downplaying changes in the value of the remainder of the company. Under those circumstances, what are the scienter issues with respect to the remainder of the company?

In some ways, there is still a broad similarity between the analyses under the efficient market hypothesis and behavioral finance theory: if material information is information that affects the stock price, then all that is needed for scienter is what previously had happened when similar information was provided to the market (an \textit{ex ante} analysis), or what types

\textsuperscript{216}There is currently a split between the circuits on what is required to plead scienter. This is not of great consequence to the point made below.
of information the market, such as through analyst reports, was focusing on at the time (also a form of an *ex ante* analysis). The difference comes from the fact that when various behavioral finance theories come into play, what the market was focusing on at one point in time is much less likely to be representative of what it was considering at another. Thus, if defendants omit some information in January, the fact that a disclosure of that information later in December of that year caused, or did not cause, a price movement in December may or may not tell us about the value of the information in January. While this can be true under the efficient market hypothesis, the expectation for the value of the information to change is much greater when there are competing theories of how the market is reacting to information.

**D. Loss Causation and Foreseeability**

In circuits where loss causation is based on the notion of proximate cause—i.e., the decline in the stock price at the end of the class period was a foreseeable consequence of defendants’ misstatements—the absence of an efficient market creates a new set of complications. The standard analysis is to use an event study to show that a stock price declined upon a disclosure, thereby causing a statistically significant loss to investors holding the stock. As described above, however, when a market is not efficient, it becomes harder to show how the price effect of a disclosure relates to the overpayment on purchase. Again, because the market is potentially not valuing the stock on its fundamentals, the effects at one point in time are not necessarily indicative of what those effects would have been at another. Under such circumstances, an omission at the beginning of the class period that would not be expected to affect share price at that time could unforeseeably cause a severe reaction at the end of the class period.

The asset pricing theories that allow this to happen are those where a bubble builds up in a stock over time and a modest announcement causes a crash in the price disproportionate to the news about the fundamentals of the company. In a rational bubble, for example, there is always a chance that the price will crash to its fundamental value. The triggering event may be a news item that would have been of little consequence, or even one that had been previously reported. In these circumstances, management could not reasonably foresee that a bubble would form over the class period or what piece of random news would cause the price to tumble.
E. Damages: After the Fall

One of the expected characteristics of a stock with a bubble component will be a crash in the price out of proportion to the news that is the precipitating event. Traditionally, plaintiffs use such a price decline as a measure of the inflation per share during the class period. Because the price decline is not related to the true value of the news, however, such an analysis leads to an overestimate of damages. This, then, creates the additional problem of how damages can be measured in the presence of market inefficiencies.

1. Reasonably Certain Damage Estimates:
Using Data at One Point in Time
to Measure Inflation at Another

The most common procedure for measuring damages in a shareholder class action begins by examining the change in the stock price at the times of the corrective disclosures. Once an expert has accounted for market and industry effects and for any timely or otherwise nonactionable company-specific news, the remaining price decline is assumed to be the value of the disclosed information. Within the framework of an efficient market, this information equals the value of the change in expected cash flows resulting from that disclosure. To determine the value of the information at earlier points in the class period, one asks how the information would have affected expected cash flows at an earlier point in time. If the information is on a certain amount of lost cash flows, such as the cancellation of a one million dollar contract, then the effect on the stock price would be the same at any point in time. More complicated information may have different effects on expected cash flows, and thus on the stock price, but the framework of an efficient market offers sensible guidelines as to how to calculate these effects.

When the market is not efficient, however, the relationship between information and stock price movements is not so predictable. For example, if noise traders are present in large enough numbers that arbitrageurs are unwilling to push the stock price to the expected lower value of future cash flows, then it is possible that information about those cash flows does not affect the stock price at all. An extreme view of this would be if the noise

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217 Here we assume that all of the information revealed in the disclosure could have been revealed at the earlier point in time; to the extent that some of the information in the disclosure could not have been revealed earlier, the measure of inflation would have to exclude the effects of that information until it was knowable.
traders were technical traders, basing their buys and sells on past stock price movements in the proverbial darkened room where they shut out all information except the stock ticker. If those noise traders frightened off arbitrageurs, then changes in the underlying value of the company would not be reflected in the stock price at all. More realistically, there would be some effect of information on the stock price, though changes in the stock price would not necessarily fully reflect any new information. Moreover, the degree to which a stock price reflected new information could vary over time.

2. Determining Which Portion of the Price Decline Is Caused by Plaintiffs Versus Defendants

As noted earlier, bubbles are one of the anomalies that may exist if the efficient market hypothesis does not hold, and rational bubbles can be present even if only the no-arbitrage formulation of the hypothesis holds. The crucial question becomes whether one can disentangle the price component that can be attributed to the fundamentals from the component that is attributed to beliefs that are not based on fundamentals? Some of the asset pricing theories in which bubbles emerge suggest that this dichotomy works well. One can easily imagine a situation where a stock price is composed of some floor based on the expected future cash flows of the corporation on top of which there is a bubble. Clearly then, changes in the value of the expected cash flows will impact the stock price as they should in an efficient market, except to the extent that they serve as a catalyst for expanding, shrinking, or even bursting the bubble.218

The second challenge in assessing the impact of a disclosure arises from the possibility that a bubble may be pierced when there is some form of coordination signal to investors. The class period often ends with an announcement not just about a change in the future prospects of a company, but with news that the public may have been receiving false or incomplete information about the company's past performance. Thus, such announcements could serve as signals to reduce investment in a given stock, thereby bursting the bubble.

The result of this is that the price decline could incorporate the effects of any news in the disclosure (including both any actionable and any nonactionable news) and the effects of the bubble bursting. Bubbles are often enhanced by plaintiffs entering the market for the stock in question

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218 We are not addressing anomalies such as overreaction and underreaction that can mean the short-run impact on the stock price of material information is a biased estimate of its fundamental value of its content.
and through their purchasing pressure raising the value of the stock above its fundamental levels. As the surveys of investors during the recent technology bubble suggest, many members of a class may have perceived a bubble and still invested even knowing that the price of that stock did not reflect its fundamental value.

3. Alternative (Empirical) Estimates of Inflation and Damages

If the price movement at one point in time cannot be assumed to represent how much the stock would have moved at a different point in time, a reasonable alternative would be to try to estimate the relationship between news and stock price movements empirically on a different sample. The goal would be to use data that are independent of any theory of investor behavior to estimate the impact of the alleged fraud.

One methodology that has gained some acceptance applies to the usual case where the corrective disclosure causes a revision in analysts' earnings estimates. In such an instance, one can estimate an earnings response coefficient—the amount by which the stock price moves in response to an unexpected change in future earnings per share. For example, an earnings response coefficient of four would imply that if there was a one dollar decline in expected annual earnings, the stock price would decline by four dollars.\textsuperscript{219} There is an academic literature on measuring earnings response coefficients that one can draw upon for methodological assistance. One benefit of such an empirical analysis is that it does not assume a structural model of market behavior. However, it does assume that whatever causes the price to change as a reaction to the change in earnings remains constant over time.

Although the use of earnings response coefficients solves some problems in estimating damages, they cannot be applied naively when the market is inefficient. In particular, the assumption that the estimated value of the earnings response coefficient is constant over the class period may be violated. When the market is efficient, then investors care about the level of expected future cash flows. To the extent that current earnings provide information about future cash flows, a relatively constant relationship between earnings surprises and price movements would be reasonable. As noted in the previous subsection, however, when the market is not behaving efficiently, the impact of news may be significantly different at different points in time.\textsuperscript{220} For example, if the investors' degree

\textsuperscript{219}Empirical research shows that the typical earnings response coefficient is lower than the typical price/earnings ratio.

\textsuperscript{220}See supra Part IV.E.1.
of loss aversion depends on whether the stock has experienced a recent sequence of gains or a recent sequence of losses, their investment behavior in response to the same piece of fundamental information is likely to be different if it follows different return histories.\textsuperscript{221} Also, as was described in the section on Loss Causation, the price effect of fundamental information (other than when there is a crash) is less than its fundamental value by the probability that the bubble will continue.\textsuperscript{222} Therefore, when implementing such a procedure, one should be concerned with the stability of the estimated relationship.

F. Testing Which Market Theory Applies

The current tests for market efficiency used by courts are called the Cammer factors and primarily test for liquidity in the market for the security.\textsuperscript{223} The Cammer factors include, in the majority, features of the market on which the security itself trades that show whether it is highly developed.\textsuperscript{224} The factors that are positively related to market development are: trading volume; analyst coverage; and market makers and arbitrageurs.\textsuperscript{225} These tests are inadequate for detecting a market inefficiency of the type described above because bubbles arise in actively traded securities on well-developed markets such as the NASDAQ National Market System. Rather than try to modify the Cammer factors to fit the circumstances of a bubble, it is better to devise tests from first principles regarding asset market failure.

The evidence and theories reviewed earlier in the article lead to the relatively uncontroversial conclusion that a major impediment to market efficiency can be the limited ability to short stocks. The presence of short

\textsuperscript{221}Nicholas Barberis et al., Prospect Theory and Asset Prices, 116 Q. J. ECON. 1, 2 (2001). Barberis, Huang, and Santos present a dynamic asset pricing model based on investors having prospect theory-like preferences—the factor at which losses are overweighed relative to gains (one of the four features of prospect theory) varies over time. \textit{Id.} at 13-16. In particular, losses are relatively less painful after an increase in the price of a security, resulting in gains, than following a sequence of losses. \textit{Id.} at 2. Investors' loss aversion declines and thus it pushes up the price of the stock even further. \textit{Id.} at 3. The authors find they can explain the excess volatility of stock prices relative to what is predicted by standard consumption-based asset pricing models and offer this as an explanation on how bubbles might emerge following a stretch of (actual) positive dividend innovations and why the subsequent downward slope is likely to be steeper than the change in the fundamentals. \textit{Id.} at 4.

\textsuperscript{222}\textit{See supra} Part II.B.3.

\textsuperscript{223}These factors were fashioned by the opinion in Cammer v. Bloom, 711 F. Supp. 1264, 1286-87 (D.N.J. 1989).

\textsuperscript{224}\textit{Id.}

\textsuperscript{225}\textit{See id.} Other factors include eligibility of the firm to file an SEC Form S-3 and speed of response of the company's stock price to unexpected company-specific news. \textit{Id.} at 1287.
sale constraints leads to a disproportionate representation of optimistic investors in the price and also can be associated with substantial mispricing. Recent academic papers find supporting evidence for this theory using different proxies for the degree of divergence of opinions. These proxies range from direct measures, such as measuring the dispersion in analyst forecasts, to indirect measures, such as the fraction of mutual funds holding a particular stock. It follows that at least some tests for the presence of market efficiency for a security should focus on barriers to shorting and the degree to which there are differences of opinions.

1. Barriers to Shorting a Stock

To determine if there are any barriers to shorting a stock, one would wish to know the availability of stocks from lenders and the cost of shorting the stock in question during the class period. The lack of a centralized lending market and the privately negotiated terms of each transaction, including rebate rates/lending fees, however, turn this into a nontrivial task. Short interest figures, which are available on a monthly basis, were shown to be a problematic proxy for either the (unobservable) costs of short sale or the presence of constraints on supply.

Even though direct evidence on the cost of short sale and available supply is hard to come by, academic research using proprietary data from major lenders has found that a number of factors are predictors of whether a stock is "special" (i.e., that it has lending fees—negative rebate rates—of above 1% per annum). D'Avolio finds that the probability of being special decreases with size (measured by market equity) and institutional

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227 There are other tests that rely on statistical analysis of individual stock prices to detect violations of the properties these prices should have in an efficient market. Paul A. Ferrillo et al., The "Less Than" Efficient Capital Markets Hypothesis: Requiring More Proof from Plaintiffs in Fraud-on-the-Market Cases, 78 ST. JOHN'S L. REV. 81, 84 (2004) (describing the tests).

228 D'Avolio, supra note 89, at 288. Empirical findings show that while the stocks in the highest deciles of short interest are the most expensive to short, in the middle deciles observed short interest is uninformative of costs. Id. at 286-88. Short interest and the cost of short sale are equilibrium outcomes. See id. at 272. They are determined by the intersection of the demand for borrowing the stock, as a function of the cost of selling short, and the supply from lenders. See id. In particular, an increase in the cost of going short can result from a positive shock in demand, in which case the quantity of stock that are short increases as well, or from a negative shock to supply, in which case this quantity decreases even though the costs could increase. See id. at 286.
ownership (measured by the fraction of shares held by 13F filing institutional investors) and it increases with turnover.\textsuperscript{229} Moreover, within every size ranking (small, medium, and large), loan fees and the percent of specials decrease monotonically with institutional ownership.\textsuperscript{230} Other indicators—e.g., whether the stock is within one year of its IPO, whether it is a "glamour" stock (low book-to-market ratio), the number of message board authors, and low cash flows—are often statistically significant predictors of a stock being special.\textsuperscript{231}

The turnover factor deserves further mention because the direction of its effect in this instance is exactly the opposite of its signal in Cammer. Virtually in every size ranking, the probability of a stock being special and the mean loan fees increase with the level of turnover. The mean monthly turnover for stocks that are not shorted is about 4%, while it is about 16% for stocks that are shorted.\textsuperscript{232} Also, the mean daily turnover of all stock is 0.70%, while it is 1.6% for shortable stocks and it goes to 3.7% on days following a recall for the stock.\textsuperscript{233}

Another proxy for the presence of short sale constraints and/or high lending fees for a stock is the magnitude (and frequency) of put-call parities.\textsuperscript{234} In an efficient market, a stock that is traded in the options market must satisfy the following relationship between the price of the security and the prices of call and put options: \( S = PV(K) + C - P + EEP \), where \( S \) is the stock price, \( C \) and \( P \) are the call and put prices, respectively, on options with the same strike price \( K \) and the same maturity, and \( PV(K) \) is the present value of the strike price.\textsuperscript{235} Last, \( EEP \) is the early exercise premium on the American put option.\textsuperscript{236} Suppose that the price of the stock is high relative to its inferred price from the option's market. An investor can form a portfolio that yields a higher return on the stock in all possible circumstances. This portfolio is composed on buying a call option, writing an equivalent put option and investing the present value of the strike price in a bond. Therefore, violations of the put-call parity are hard to reconcile with the no-arbitrage condition in an efficient market. Alternatively stated, this violation can be interpreted as indicative of high costs of shorting the

\textsuperscript{229}Id. at 273.
\textsuperscript{230}Id. at 289.
\textsuperscript{231}Id. at 286-87.
\textsuperscript{232}D'Avolio, supra note 89, at 283.
\textsuperscript{233}Id. at 298 tbl. 7.
\textsuperscript{235}Id. at 5.
\textsuperscript{236}Id.
stock. Therefore, this is an indirect test for the presence of limits to arbitrage. Note that the possibility of short sale constraints but no symmetric difficulties to acquire a stock suggests that violations are more likely to be positive, i.e., where the stock price is higher than its inferred price. Ofek, Richardson, and Whitelaw empirically test this prediction. They find that violations are indeed asymmetric in the proposed direction—65.1% of the violations are positive. Moreover, even after accounting for transaction costs (bid ask spreads) and rebate rates, 13.6% of stock prices exceeded the upper bound from the options market while only 4.4% were below the lower bound.

2. Investor Composition and Breadth of Ownership

Many of the theories explaining the viability of bubbles in the presence of rational arbitrageurs build on the coupling of divergence of opinions and limitations on short sale. For example, recall the explanation suggested by Miller and discussed earlier in the article. Unable to sell short, the best that the less-optimistic investors can do is to get (or stay) out of the market for the stock. As a result, prices reflect the information held by the more optimistic investors who remain in the market and thus they are likely to be higher than they would have been had they reflected all available information. Holding everything else constant, overpriced stocks are likely to exhibit subsequent lower returns, and so the theory predicts that reductions in breadth of ownership should forecast lower returns.

Chen, Hong, and Stein find supporting evidence for this implication. They found that stocks that experience reductions in breadth of (institutional) ownership, substantially under-perform stocks that experience an increase in the breadth of (institutional) ownership. They also found that changes in breadth are strongly correlated with recent past returns, i.e., a decrease in ownership is correlated with negative past returns and is predictive of future (short-run) negative returns. In light of these
findings, combined with evidence on short sale constraints, declines in breadth of ownership among institutional investors may serve as indicators of potential price inflation.

Focusing on breadth of ownership among institutional investors has its pros and cons. A potential drawback is that changes in breadth of ownership should, theoretically, be found among all investors facing short sale constraints, not only among institutional investors. Because most institutional investors do not take short positions, however, one can infer that by avoiding a long position in the stock they do not incorporate their relative pessimism into the market prices.\textsuperscript{246} It is more questionable when assumed for individual investors without further information on their (lack) of short positions. Additionally, the views of institutional investors can be considered a good proxy for those of rational arbitrageurs as a whole, including those who are not institutionally constrained from taking a short position.\textsuperscript{247} If institutions avoid taking a long position in a stock, then this is more likely to represent informed judgment and a signal of potential deviations from values that fully reflect information. This suggests that it is not just the breadth of ownership among institutional investors that is important to support efficiency, but also the changes in breadth.\textsuperscript{248}

G. Class Certification Through a Behavioral Prism

1. Commonality

Perhaps the most obvious impact of the possibility of different theories of market participant behavior on class certification is in the area of commonality. Under the efficient market hypothesis, unless proven otherwise, investors can be assumed to rely on the market price to incorporate all public information and be willing to trade based upon that price. That is, because rational investors care about the present value of cash flows, if the market price is the proper valuation of those expected cash flows, then investors can all rely on the market price. Even to the extent that an investor has some special aspect to her trading behavior (e.g., wanting to invest in a particular industry or to diversify), she would still generally rely on the market price to correctly show the value of the expected cash flows for the stocks in which she would consider investing unless there were inadequate substitutes. Thus, under the efficient market

\textsuperscript{246}Ibid. at 174.
\textsuperscript{247}Ibid.
\textsuperscript{248}Note that Cammer focuses on the number of market makers and arbitrageurs rather than changes in breadth of ownership. Cammer, 711 F. Supp. at 1286-87.
hypothesis, investors are likely to display similar, or common, behavior, at least in terms of relying on the market price. This likelihood no longer holds if different investors are behaving according to different behavioral rules. The plausible theories of price formation suggest that plaintiffs within the class may be: (1) rational and reacting to cash flows; (2) rational but willing to buy an overpriced security because there are no close substitutes; (3) rationally basing their decision to buy on the probability that a bubble will continue; (4) rationally herding because they weigh more the decisions of others to invest in the same stock than their private information about fundamentals; (5) biased to some extent in processing the information on the market; (6) using simple strategies, e.g., momentum traders; (7) managers of mutual funds having incentives that are different than long-run profit maximization due to career concerns and institutional incentive schemes and are herding rather than trading on information about fundamentals. There are circumstances where either commonality among class members cannot be asserted with regard to reliance or, to the extent it could be asserted, it is a correlated deviation from the rationality assumed in efficient market asset pricing and reliance on the integrity of price is absent.

2. Typicality

Typicality refers to the question of whether lead plaintiffs are typical of the rest of the class. The typicality requirement will be violated if a lead plaintiff is likely to be subject to unique defenses. The efficient market hypothesis assisted plaintiffs in showing typicality for reliance because it was presumed that all investors relied on the integrity of prices fully reflecting the available information.

When price deviates from fundamental value because investors have different trading behaviors, then the lead plaintiffs may be subject to defense attacks that do not apply to others in the class. A lead plaintiff will rarely admit to trading for reasons other than integrity of the stock price because then they are not trading in reliance on the alleged fraud. Momentum traders and others base their trades on signals from prices and other traders that may not be materially affected by any claimed fraud. To make a case there is an advantage to finding lead plaintiffs who will claim that they thought that the price reflected fundamental value when they bought at the height of a bubble. That someone who bought in a bubble would assert such a claim may be the result of what could charitably be

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249 There may be other areas in which investors have noncommon interests, such as the manner in which the litigation should be prosecuted.
called hindsight bias, another cognitive issue studied by behavioral psychologists. Consider the following example from White's dissent in *Basic*:

The *Abrams* decision illustrates the particular pliability of the fraud-on-the-market presumption. In *Abrams*, the plaintiff represented a class of purchasers of defendant's stock who were allegedly misled by defendant's misrepresentations in annual reports. But in a deposition taken shortly after the plaintiff filed suit, she testified that she had bought defendant's stock primarily because she thought that favorable changes in the Federal Tax Code would boost sales of its product (insulation).

Two years later, after the defendant moved for summary judgment based on the plaintiff's failure to prove reliance on the alleged misrepresentations, the plaintiff resuscitated her case by executing an affidavit which stated that she "certainly [had] assumed that the market price of Johns-Manville stock was an accurate reflection of the worth of the company" and would not have paid the then-going price if she had known otherwise. Based on this affidavit, the District Court permitted the plaintiff to proceed on her fraud-on-the-market theory.

Thus, *Abrams* demonstrates how easily a *post hoc* statement will enable a plaintiff to bring a fraud-on-the-market action—even in the rare case where a plaintiff is frank or foolhardy enough to admit initially that a factor other than price led her to the decision to purchase a particular stock.\(^{250}\)

However plausible the court would find such testimony, it could not be true that such a plaintiff would be typical of others in the class if there was a bubble in the stock price. At least some substantial fraction of the class would fall into another category such as momentum traders, or herd followers. Other plaintiffs in the class would have invested even knowing about the inflation in the price because they believed that this particular stock had unusually good prospects that could not be found in any other stock; in other words, they believed that due to the mispricing in the

\(^{250}\textit{Basic}, 485\ U.S. at 251 n.3 (White, J., dissenting) (internal citations omitted).
market, there was no alternative stock in which they could get as good a return.

V. IS WEAKENING THE FRAUD-ON-THE-MARKET PRESUMPTION BAD POLICY?

Having made the case that the presumption of market efficiency is not valid during certain periods for some actively traded stocks, it would be natural to think that courts will refuse to certify classes when the requirements laid down by the Court in Basic are not met. The case for rebutting the presumption of market efficiency (and, by extension, the presumption of reliance) on the grounds of a price bubble is enhanced by another factor: whether a security is incorrectly priced because of limits to arbitrage and/or correlated behavior of (perhaps temporarily irrational) investors. This is no more difficult to determine than whether a security is incorrectly priced because of lack of liquidity. Inasmuch as courts have already made the case for decertifying classes in illiquid markets, it would be a logical extension to deny class certification in other cases where the presumption of market efficiency does not accord with the observed facts.

A barrier, as we mentioned in the beginning, is that there appears to be a felt need for courts to find a way to nurture shareholder class actions as a matter of policy. Indeed, one of the reasons it is believed that the Supreme Court accepted the fraud-on-the-market doctrine was that it was looking for a way to make securities class action litigation more feasible, believing that it is an essential instrument to deter fraud and ensure efficient revelation of information to the market. While there were doubts about the theory at the time, and even the different measures of market efficiency were not necessarily clear, the efficient market hypothesis seemed to have been the right theory at the right time for the purposes that the Court was attempting to address. It was easy to administer the class certification phase and it had fairly clear implications on calculating damages.

But, the Supreme Court's reasoning left the ability for defendants to rebut the presumption of reliance that the fraud-on-the-market doctrine provided, most notably by arguing that the market was not efficient. Suppose that the criticisms of the efficient market theory become more accepted by the judiciary and there is more scrutiny of cases to see whether they meet the criteria of market efficiency. What effect would that have on deterrence? If the past is prologue, courts will be attuned to the bigger issues such as deterrence of financial fraud when attempting to fashion a remedy in individual cases. In doing so, they will find that circumstances are different than when the Court made the decision in Basic. In particular,
more is understood about the issue of deterrence in a regime where the reliance assumption is relaxed.

A. How Often Is the Presumption of Market Efficiency Unwarranted?

The first issue is whether application of alternative theories of price formation would mark the end of shareholder class actions as we know them. If policy concerns are paramount, then courts would be less likely to find for defendants on class certification or reliance if they knew that their precedent was not going to have a domino effect on future meritorious actions.

Courts that might worry about this should take heart that supporters of the efficient markets hypothesis tend to suggest that violations of market efficiency are constrained to pathological cases such as the 1987 stock market crash or the Internet bubble of the late 1990s. Curiously, this seems to be a weaker endorsement of the efficient markets hypothesis than those made by federal courts; we are unaware of any instance when a court has denied or revoked class certification for a stock that was actively traded in a major stock exchange. This judicial result does not appear to be part of an agenda to certify every class action regardless of the merits because there have been several cases where the court has found that security markets can be too illiquid to allow class certification.

It is also not the case that actively traded securities are inefficient so infrequently that we can ignore the issue. The view that inefficient markets are extremely pathological is not without controversy. More importantly, it is not necessary to refute this claim to acknowledge that the fraud-on-the-

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251 Malkiel, supra note 51, at 80 ("Periods such as 1999 where 'bubbles' seem to have existed, at least in certain sectors of the market, are fortunately the exception rather than the rule."). Gilson & Kraakman, supra note 55, at 37-38.

We have argued that the binding constraints on market efficiency arise . . . not from the widespread existence of cognitive biases alone. . . . In pursuing this [behavioral finance] research agenda, the most fruitful topics of investigation are likely to be market frenzies and crashes, such as the 1987 market crash and the recent Internet bubble, rather than well-documented pricing anomalies such as the closed-end fund discount or the underpricing of IPOs.

Id.

252 See supra notes 30-32 and accompanying text.

253 A recent opinion points out that there are, in fact, a number of other times when the market behaved as if there was a bubble, usually involving technology stocks: 1959-1962, when the "glamour" industry was electronics; 1967-1971, around the fast food business and the "space age" technology; and 1979-1983 around the high-technology businesses such as robotics, medical, computers, video material and entertainments. See In re Initial Public Offering Sec. Litig., 241 F. Supp. 2d at 300-06. Also, serious scholars such as Shleifer, Summers, Shilling, and Thaler would dispute the characterization of markets being efficient most of the time.
market presumption fails in an important number of instances. It is precisely because these periods of market pathology are so well recognized that it makes sense to be able to challenge the efficient market presumption when they occur. Moreover, because such pathologies are often associated with extreme market crashes, the number of aggrieved investors seeking restitution and the damages sought are greater than when the market is behaving normally.

A more subtle point is that much of the academic research on the efficient market hypothesis applies to the population of actively traded stocks as a whole whereas a fraud claim usually concerns the securities of a single issuer. The goal of evaluating the performance of the market mechanism, and the combination of immense computational power together with extensive databases of daily, or even more frequent, price data on virtually all actively traded stocks going back many years, directed the academic research to focus on cross-section phenomena in large samples. The reported results are the central tendency of these samples and a measure of dispersion to aid in hypothesis testing. Other research on market efficiency uses the returns on broad-based indices that, of course, are also averages from relatively large samples. Some of the individual securities in a sample, however, could be behaving pathologically even though they are so few as not to influence the sample statistics enough to lead to a rejection of market efficiency.\textsuperscript{254} None of the efficient market research of which we are aware is so robust as to show that such temporary deviant cases do not exist. Nonetheless, if such cases do exist, and if their pathology is a type of frenzy, then shareholder class actions that are driven by investors who suffered a loss are likely to include such outliers beyond their share in the market.

B. Fraud-on-the-Market and Optimal Deterrence

As noted in the beginning of this section, shareholder litigation is one of the few areas where \textit{caveat emptor} does not apply; that is, full information available to all investors was the ideal for securities markets. The social benefit of full disclosure is that prices can be set "correctly," and so no investor is misled into making an ill-informed investment. Shareholder litigation then serves to provide incentives for corporations and their management to provide information, and only correct information.

\textsuperscript{254}An example is the twin stocks identified by Froot and Dabora. The prices of such stocks, e.g., Royal Dutch and Shell Transport, were included, presumably, in a number of samples that were used to verify one or another implication of the efficient market hypothesis. Froot & Dabora, \textit{supra} note 78, at 191.
to the market since they face significant financial penalties if they are caught not doing so. It is hoped that prices that incorporate this information will, consequently, facilitate an efficient distribution of capital and equitable investment opportunities to all members of the public.

Alternatives to the efficient market hypothesis challenge, but do not necessarily overturn, these goals. These theories show that it is possible that, even when provided with the correct information, markets might not set prices correctly, and therefore capital allocation may be inefficient. That said, prices are still more likely to be correct, leading to more accurate capital allocation decisions and better individual investment decisions, when full information is provided to the market.

1. Efficiency and Redistribution in Shareholder Class Actions

Securities laws are designed to enhance adequate disclosure, corporate monitoring and investor confidence, thus supporting efficient capital formation and allocation.\(^{255}\) While the current approach to securities litigation arguably approximates optimal deterrence of IPO fraud, it is likely to induce overdeterrence of fraud involving securities that are traded in the aftermarket.\(^{256}\)

Let us consider first an ideal world where fraud in the aftermarket is perfectly detected and distinguished from negligent omissions. In such a world, the outcome of a class action is primarily a redistribution of wealth. It involves transfers of money from one investor (the one who overpays) to another (the one who unknowingly sells stock at an inflated price). Redistribution of this type, however, has nothing to do with efficiency. Ideally, under the '33 Act the punishment would be paid by the original owners of a corporation who received the excess proceeds. If the corporation itself makes the payment, however, then the payors are all the shareholders. This problem is compounded in the case of a claim under the '34 Act, where there is essentially no thought of making the primary beneficiaries of the fraud (investors who generally unknowingly sold at inflated prices) return their gains to benefit those harmed by the fraud. Instead, under both acts, one set of shareholders is compensating another


\(^{256}\) Id. at 193-95.
generally overlapping set of shareholders for actions committed by management or other parties.\textsuperscript{257}

Moreover, the actual amount of transfer does not correspond to the level of societal harm. The \textit{Basic} Court declined to take on the issue of damages. This omission was correctly found to be problematic by Justice White:

\begin{quote}
For example, Judge Posner in his Economic Analysis of Law submits that the fraud-on-the-market theory produces the "economically correct result" in Rule 10b-5 cases but observes that the question of damages under the theory is quite problematic. Notwithstanding the fact that "[a]t first blush it might seem obvious," the proper calculation of damages when the fraud-on-the-market theory is applied must rest on several "assumptions" about "social costs" which are "difficult to quantify." Of course, answers to the question of the proper measure of damages in a fraud-on-the-market case are essential for proper implementation of the fraud-on-the-market presumption. Not surprisingly, the difficult damages question is one the Court expressly declines to address today.\textsuperscript{258}
\end{quote}

In a less-than-perfect world, this redistribution mechanism may hamper efficiency. For example, it may provide incentives for lawyers to spend resources in trying to achieve a certain allocative outcome. In practice, a significant share of a settlement amount, an average of 21.9\%, is paid as fees to the plaintiffs' lawyers.\textsuperscript{259} Putting aside the question whether this form of redistribution is a desirable goal of securities law, this outcome has implications on the process by which class actions are initiated, litigated, and then settled. In particular, lawyers may be willing to be involved in a costly competition for the position to enjoy this share of

\textsuperscript{257}Justice White's dissent in \textit{Basic} is on the mark: "And who will pay the judgments won in such actions? I suspect that all too often the majority's rule will 'lead to large judgments, payable in the last analysis by innocent investors, for the benefit of speculators and their lawyers.'" \textit{Basic}, 485 U.S. at 262 (White, J., dissenting) (citation omitted).

\textsuperscript{258}Id. at 254 n.5 (White, J., dissenting) (internal citations omitted).

the redistribution. This may also result in a race to find and represent the lead plaintiff, inevitably causing the pursuit of some meritless suits.260

Another set of concerns is associated with informational inefficiencies.261 First, the presumption of reliance dictated by fraud-on-the-market enlarges the pool of claimants to include some investors who did not rely on the price and therefore obviously did not invest in acquiring information.262 Consequently, the relative compensation to informed investors is reduced, possibly decreasing their share in the population of investors.263 This results in less information provided to the market and incorporated in the prices.264

Second, there are real consequences to over-deterrence.265 The difficulties of adjudicating scienter imply that errors are inevitable and some innocent or negligent misstatements will be viewed as satisfying the scienter requirement.266 The harsh consequences for defendants will deter not only fraud but also the provision of beneficial information.267 In particular, optimistic information involves the risk that it turns out false, resulting in a decline in prices and losses to investors.268 This puts the firm at risk of being sued for fraud.269 Consequently, managers of the firms in this position, who are often the most efficient source of valuable information, will be reluctant to volunteer the positive news.270 This, of course, counteracts the purpose of securities laws.

2. Will There Be Adequate Deterrence to Aftermarket Fraud in the Absence of the Class Action Remedy?

Before answering this question, one must ask what the alternative would be. For example, in place of shareholders exercising a private right

260See id.
261See id.
262See id.
263Mahoney, supra note 261, at 647-50.
264Id. at 648.
265Id. at 649.
266Id. at 650-55.
267Mahoney, supra note 261, at 650-55.
268Id.
of action, if there were a well-enforced governmental prosecution of securities fraud claims under some other remedy, such as a disgorgement of the defendants' gains from the fraud, then there would still be at least some level of deterrence. As defendants' gains are almost always, if not always, less than the public's loss, this would of course lead to less deterrence than currently exists.

But is the current level of deterrence optimal? This is hard to answer theoretically, but some information may be gleaned from the history of cases since Basic. First, the rate in which class action suits are filed has almost tripled since April 1988, post-Basic, to June 1991. This shows that the introduction of fraud-on-the-market led to a drastic change in filings and consequently in the level of deterrence. This evidence is consistent with either over-deterrence post-Basic or significant under-deterrence prior to Basic. An academic study by Johnson, Nelson, and Pritchard on the effects of the Silicon Graphics decision in 1999 supports the former hypothesis. In Silicon Graphics, the Ninth Circuit concluded that the PSLRA codified a high pleading standard, resolving a dispute among district courts in that circuit. The result created a higher bar for plaintiffs to bring securities suits than had existed previously in a circuit that had, to that time, been the venue of preference by plaintiffs. Johnson et al. examine the stock price movement of firms in industry sectors that were more susceptible to securities fraud litigation. The authors find statistically significant abnormal positive returns for these firms' stock prices relative to the market performance in response to the news, with higher abnormal returns for the subset of firms whose headquarter is based in the Ninth Circuit. The results mean that shareholders, whom the securities laws are designed to protect, view the change positively. This implies that the previous level of deterrence through 10b-5 litigation was too great, inflicting costs associated with precautionary measures and litigation that outweiged the benefits. Although generalization of this finding to a different litigation regime is not without uncertainty, it nonetheless shows that the current level of deterrence is actually viewed as


273In re Silicon Graphics Inc. Sec. Litig., 183 F.3d 970, 974 (9th Cir. 1999).

274Johnson et al., supra note 272, at 792.

275Id. at 791.

276Id. at 804.
being too high by the market, and therefore reductions in that level may not be unwelcome.  

3. Can Alternative Theories Provide Sensible Guidelines to Reduce Over-Deterrence?

While it is unlikely that the courts by themselves can fashion an optimal outcome absent Congressional action, the important question remains: Under the law as it exists today, could a court use alternative price-formation theories correctly to deny class certification—or use these theories in other ways that would reduce the value of a case to plaintiffs—in an attempt to improve efficiency?

a. Relating Damages to the Defendant's Behavior

As discussed throughout this article, the importance of correct, full information is important for prices to be signals of fundamental value. This obviously underlies price formation in an efficient market, but divergence of opinions, which is the main ingredient in many of the alternative behavioral theories, is more likely to occur when the environment is uncertain and information is not (fully) public. Therefore, the traditional role of securities laws facilitating efficient information transmission to the marketplace remains a desirable policy when one opens the door to the behavioral alternative. As a result, a danger associated with over-deterrence, especially when the market is experiencing a price bubble and thus a growing probability of a "downward correction," is that it provides negative incentives to reveal positive information. Moreover, episodes of inflated prices often start as a result of a true temporarily higher-than-average growth rate in the economy. During these periods, positive information is crucial to utilize the growth opportunities. Failing to adopt criteria where defendants' liability, under the out-of-pocket measure, is limited to the price impacts caused by misinformation about the fundamental value of the company, as opposed to the effects of a bubble bursting or other behavioral anomaly unrelated to the alleged fraud, results in a disproportionately negative downside. Coupled with noise arising from the difficulty to adjudicate scienter, this increases the potential costs associated with projected trends turning out overly optimistic, and therefore it is likely to bias the voluntary supply of information.

277 One further caveat to this statement is that the study concerned an announcement in July 1999, before the recent waves of corporate accounting scandals, which could have changed the way that the market perceived the threat of securities fraud.
b. Raising the Bar for Class Certification

The second major contributing factor we have identified in the different models of price bubbles was the willingness of rational arbitrageurs to "ride" the bubbles for speculative reasons. Applying a higher standard for class certification will signal to the market that shareholder class actions are not an investor loss insurance scheme for investing during a bubble. This will force investors to internalize the risk involved with speculation and thus should provide adequately lower incentives to purchase stocks in the midst of a frenzy.

Second, note that during a bubble, there is less of an incentive for management to commit fraud. The alleged motive in most securities fraud cases is tied to an attempt to keep a firm's stock price artificially inflated. The stock price, however, is already inflated during a bubble. It is when a bubble bursts, that there are likely to be more lawsuits, not less.\(^\text{278}\) This can only mean that there are a larger number of weaker claims and correspondingly thinning these claims by denying class certification would be preferable to reducing the number of class actions in other circumstances.

VI. CONCLUSION

Fraud-on-the-market claims based on the efficient market hypothesis represent one of the quickest instances of widespread legal usage of an economic theory. Ironically, that usage came at the same time that the theory was starting to undergo serious theoretical and empirical challenges. Nevertheless, the perceived benefits that the theory provided in terms of redress of wrongs and efficiency in case management, as well as the opening to rebut the presumption provided by the theory, helped push its acceptance forward as a means of certifying shareholder class actions.

Since the initial acceptance, criticism of the efficient market hypothesis has only grown larger. What began as a study of a few anomalies or instances where the theory did not perform well has grown to a well-developed alternative school of thought that has both theoretical underpinnings and empirical research in its support. As with most academic debates, the clash of two wholly opposing schools of thought makes for drama. Most supporters of the efficient market hypothesis recognize that pricing mistakes can occur while most supporters of

behavioral finance accept that standard pricing models are generally where the market begins its estimation of the value of actively-traded securities. The two sides also agree that certain types of securities are more likely to be priced by means other than fundamental analysis, such as those securities that appear risky to arbitrageurs.

If one accepts that certain actively-traded securities at certain times do not obey the rules of an efficient market and, as a result, investors may not rely on the price to fully reflect publicly available information, then it is difficult to understand why the presumption of reliance should not be rejected just as it is for illiquid securities that do not obey the rules of an efficient market. Failing to reject the presumption of reliance in such a case would be tantamount to changing the fraud-on-the-market theory from a presumption to removing plaintiffs' burden of proving reliance altogether. This would make Basic unintelligible because the Court left open the possibility that reliance could be disproved; a position that at this time does not seem to have adverse policy consequences.