

## COUNTERFACTUAL KEYS TO CAUSATION AND DAMAGES IN SHAREHOLDER CLASS-ACTION LAWSUITS

FREDERICK C. DUNBAR\*

ARUN SEN \*\*

Introducing quantitative rigor into the legal process has been proposed to reduce error and uncertainty in litigation. One area of law that would seem to be a candidate for such formalism would be proving causation. Yet most legal scholars balk at the idea that the legal principles of causation are based on anything as precise as, say, scientific causation. We believe that counterfactual analysis, a relatively recent trend in the philosophy of causation that is being applied in the social sciences, has a role in understanding causation in at least one important area of the law—shareholder class-action lawsuits. The increasingly strict standards imposed by the Supreme Court of the United States over the past twenty years, culminating in the *Dura Pharmaceuticals, Inc. v. Broudo* decision, can be understood in the context of counterfactual analysis establishing loss causation. This approach then has important implications for estimating damages in shareholder class-action lawsuits.

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\* Fred Dunbar is a Senior Vice President at NERA Economic Consulting.

\*\* Arun Sen is a Senior Consultant at NERA Economic Consulting. The authors would like to thank Larry Elliot, Jill Fisch, Salvatore Graziano, Gregg Jarrell, Richard Rapp, Donald Langevoort, David Tabak and the participants of the 2008 Institute for Law and Economics Policy Conference for helpful comments.

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#### INTRODUCTION

Introducing mathematical rigor into the legal process has been proposed to reduce error and uncertainty in litigation. One process that would seem to be a candidate for formalism would be proving causation. As an area of study, the subject of causation has been tackled with particular vigor by philosophers and, more recently, by statisticians and computer scientists. At present, however, the prevailing legal views about causation are largely divorced from the current academic learning on the subject.

One of the reasons for lack of formal rigor in how lawsuits are resolved has been the *sui generis* nature of each case. The problem is illustrated by *Palsgraf v. Long Island R.R.*<sup>1</sup> Still a mainstay of first-year tort classes, even though decided eighty years ago, it involved a freakish set of circumstances that will never be repeated and, according to at least one commentator, is of questionable precedential value.<sup>2</sup> The generalization of this viewpoint to all Anglo-American law is amply described in the encyclopedic and influential *Causation and the Law*, by

1. 162 N.E. 99 (N.Y. 1928).

2. Richard A. Epstein, *Two Fallacies in the Law of Joint Torts*, 73 GEO. L.J. 1377, 1377 (1985). An interesting issue brought up by *Palsgraf* is the role of foreseeable causally dependent chains in establishing liability. That is not the subject of this Paper, however.

Professors H. L. A. Hart and Tony Honoré.<sup>3</sup> One lesson to be learned is that individualized determinations regarding who should bear responsibility for a legally cognizable injury occur in large part because circumstances vary a lot from case to case. A one-size-fits-all approach to causation in determining liability would be offensive to modern sensibilities of justice and due process. In reasoning by analogy, Hart and Honoré divide causal knowledge into two categories—one as the concept is used in litigation and historical research, and the other as it is used in the natural sciences. They conclude that philosophical causation, while applicable to the natural sciences, is not relevant to the law.<sup>4</sup>

In 1953, when the first edition of *Causation and the Law* was published, causation outside of the law was, following philosopher David Hume, thought of primarily in terms of empirical cause-and-effect regularities.<sup>5</sup> Although philosophers often use examples from everyday life to demonstrate their insights, the philosophically rigorous approach to causation seemed to work best for scientific enquiry.<sup>6</sup> Hart and Honoré observed, however, that litigation involves contexts far removed from clinical studies.<sup>7</sup> Instead, building on their analogy between a legal matter and a historical study, historical events occur in complicated contexts with multiple potential causes for the eventual outcomes of interest. Similarly, legal matters can involve a set of multiple human actions and inactions resulting in an injury; the fact finder will have to determine which subset is relevant for the purpose of determining who, and which conduct, is at fault under the relevant legal

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3. H.L.A. HART & TONY HONORÉ, *CAUSATION IN THE LAW* 94–96 (2d ed. 1985).

4. *Id.* at 2 (“We attempt . . . to show precisely why the past philosophical discussions of causation have seemed so irrelevant to the lawyer . . . .”); *id.* at 11 (“The Humean analysis . . . offered to the scientist a more or less adequate account of those aspects of causation with which he is concerned . . . . There are, however, other difficulties connected with causation not touched by this analysis. They are felt by those who, like the historian and the lawyer, are not primarily concerned to discover laws or generalizations, but often apply known or accepted generalizations to particular cases.”).

5. See, e.g., DAVID HUME, *AN ENQUIRY CONCERNING HUMAN UNDERSTANDING* 51 (Tom L. Beauchamp ed., 2000); John Collins et al., *Counterfactuals and Causation: History, Problems, and Prospects*, in *CAUSATION AND COUNTERFACTUALS* 1, 1 (John Collins et al. eds., 2004) (“Thirty-odd years ago, so-called regularity analyses (so-called, presumably, because they traced back to Hume’s well-known analysis of causation as constant conjunction) ruled the day . . . .”).

6. See, e.g., G.H. von Wright, *On the Logic and Epistemology of the Causal Relation*, in *LOGIC, METHODOLOGY AND PHILOSOPHY OF SCIENCE IV* 239, 307 (Patrick Suppes et al. eds., 1973) (“The idea which I have been discussing could be termed *manipulative* or *experimentalist* causation.”).

7. See HART & HONORÉ, *supra* note 3, at ii.

rules. Although Hart and Honoré do not define their perception of historical method as it was to be applied to legal matters, it is likely that it can be described as “historicism”—an approach that viewed quantitative approaches to history to be little more than window dressing.

Eleven years after Hart and Honoré’s first edition, however, Professor Robert Fogel showed how historicism had led to a substantial misunderstanding of the causes of nineteenth-century American economic development.<sup>8</sup> Specifically, Fogel tested a hypothesis that had been universally accepted by historians—that the railroads had been indispensable to American growth. Statistically simulating what would have happened had the economy depended on substitutes for the railroads—mainly improved canals and roads—he showed that Americans would have achieved nearly the same standard of living as actually occurred. As Fogel stated:

If statistical methods could be applied only in the study of trivial issues or if, when applied, they yielded substantially the same conclusions as were obtained by qualitative analysis, a reluctance to exploit these techniques would be understandable. But in the case of the issues examined in this book, statistical methods yield results different from those that were obtained by more traditional approaches.<sup>9</sup>

Fogel’s contemporaries were similarly finding that statistical analysis overturned long-held beliefs in other areas of American history.<sup>10</sup> The durability of using quantitative methods in economic history has been demonstrated by his receiving the Nobel Prize in Economics in 1993.

The relevance of this observation lies in the similarity between civil litigation and exercises in economic history. Plaintiffs’ claims are usually for a quantum of damages to redress an injury caused by the defendants’ conduct, often in the context of business dealings. If the approach to legal causation is analogous to history, then large, civil lawsuits would be most like economic history. In which case, the scientific approaches to historical methods that have proved successful in economic history may well be more relevant than the historicism analogy advocated by Hart and Honoré.<sup>11</sup>

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8. *See generally* ROBERT W. FOGEL, RAILROADS AND AMERICAN ECONOMIC GROWTH (1964).

9. *Id.* at 237–38.

10. *See id.* at 238.

11. Technically, Professor Fogel did not show that the railroads had no effect, but that their existence was not essential to economic development. *See id.* One might

Perhaps not coincidentally, developments in philosophy mirrored developments in economic-history methodology. Fogel structured his inquiry by using a conditional counterfactual: if the railroads had not existed, then what would have been the effects on America? In 1973, the philosopher David Lewis wrote an influential article claiming that Hume had actually specified two ways to view causation: the commonly held regularist view, and a counterfactual analysis of causation that had, to that time, received little examination as a formal approach to causation.<sup>12</sup> Since the appearance of Lewis's article, counterfactual dependence has become the favored "key" to explaining causal facts.<sup>13</sup>

One way to frame a causation analysis using counterfactuals starts with the formal logical problem of whether a specific implication is true. This can be illustrated by the following: the existence of the railroads implied nineteenth-century American economic development if and only if, counterfactually, had the railroads not existed then American economic development would not have occurred at that time. But the counterfactual implication as stated is not true—it was shown by Fogel that America would have attained essentially the same level of economic development without the railroads. Fogel showed this by analyzing in detail a counterfactual, though similar, world—one that would have substituted other transportation modes and their impacts on geographic patterns of land use for the railroads and the actual patterns of land use. In the counterfactual world, America would have become virtually as prosperous as occurred in the actual world. Therefore, the causal dependence of American development on the railroads is rejected.

The relationship between this example and Lewis's theory can be illustrated from his definition of *causal dependence*: "Causal dependence among actual events implies causation. If *c* and *e* are two actual events such that *e* would have not occurred without *c*, then *c* is a

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claim that this is like showing that a defendant is a little bit liable, but liable nonetheless. In the applications below, though, we show that how causation is defined can have a major effect on damages as well as liability. That is, even if liability is shown, the quantum of damages will vary depending on alternative legal treatments of the cause of the plaintiff's loss.

12. David Lewis, *Causation*, 70 J. PHIL. 556 (1973), reprinted in CAUSATION 193, 194 (Ernest Sosa & Michael Tooley eds., 1993). The regularist approach was associated with the first of the following two sentences from Hume: "[W]e may define a cause to be *an object, followed by another, and where all the objects, similar to the first, are followed by objects similar to the second*. Or in other words, *where, if the first object had not been, the second never had existed*." HUME, *supra* note 5, at 60. Hume goes on to relate how we form ideas about causation: "[W]hen many uniform instances appear, and the same object is always followed by the same event; we then begin to entertain the notion of cause and connexion . . . ." *Id.* at 61.

13. Collins et al., *supra* note 5, at 1.

cause of  $e$ .”<sup>14</sup> In the economic-history example,  $e$  is rapid American economic development,  $c$  is the construction and operation of the railroads, and “ $e$  not occurring without  $c$ ” is the absence of American development without the railroads. According to Fogel, nineteenth-century American economic development would have proceeded without the railroads and, therefore, American economic development was not causally dependent on the railroads.

The term *causal dependence* as used here is due to Lewis; that event  $e$  would not have occurred without event  $c$  is causal dependence. Lewis develops a theory that if counterfactual dependence of event  $e$  on event  $c$  is shown, then causal dependence has also been shown. His analysis makes use of a concept of a similar but counterfactual world that includes “not  $c$ .”

It should be noted that counterfactuals are usually divided into two types: conditional and indicative. The following are examples of each type, respectively:

(1) If sophisticated investors would have known about Enron’s accounting treatment for off-balance sheet entities, then they would have realized Enron’s operating cash flows were negative at the time they bought their Enron shares.

(2) If sophisticated investors knew about Enron’s accounting treatment of off-balance sheet liabilities, then they also realized that Enron’s operating cash flows were negative when they bought their Enron shares.<sup>15</sup>

In the legal context, it can be seen that these two statements lead to two quite different inquiries. For our purposes, we employ only conditional counterfactuals. But, indicative counterfactuals like example (2) above are often developed in securities litigation to make inferences about, say, the reason for a stock-price drop if it was not due to the correction of a prior fraudulent misrepresentation.

Lewis’s article was the beginning of an extensive exploration of the role of conditional counterfactuals in generalized theories of causation. Eventually the counterfactual rubric spilled over into other academic disciplines, including social-science research methodology and legal scholarship.<sup>16</sup>

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14. See Lewis, *supra* note 12, at 200.

15. See ERNEST W. ADAMS, A PRIMER OF PROBABILITY LOGIC 281 (1998).

16. See, e.g., STEPHEN L. MORGAN & CHRISTOPHER WINSHIP, COUNTERFACTUALS AND CAUSAL INFERENCE: METHODS AND PRINCIPLES FOR SOCIAL RESEARCH 4–6 (2007). An indication of the general acceptance of the terminology in legal scholarship is given by a 2003 symposium. Symposium, *Baselines and Counterfactuals in the Theory of Compensatory Damages: What Do Compensatory Damages Compensate?*, 40 SAN DIEGO L. REV. 1091 (2003).

Nonetheless, legal scholars have not accepted an approach to legal causation based on counterfactuals. As suggested by Professor Michael Moore, legal scholarship accepts that counterfactuals are a synonym for “but for” or “sine qua non” tests in liability.<sup>17</sup> But, relying on a variety of conceptual concerns raised in the philosophy literature, Moore concluded that counterfactual analysis was not up to the task of providing a general theory of legal causation.<sup>18</sup>

We propose that counterfactual analysis does have a role in causation, at least in circumscribed areas of the law. One of the reasons we differ from Moore is that the questions we will be answering are different from those that a more general theory of causation seeks to answer. A general theory would determine who, if anyone, is legally responsible for a cognizable harm. In contrast, we accept that there are other theories, such as those provided in the law-and-economics literature, for affixing who is the proper defendant. We are concerned with whether, as a result of the defendant’s conduct, harm occurred and the proper measure of its extent.

Perhaps more importantly, we take as given the Supreme Court of the United States’ multiple opinions on shareholder class-action lawsuits and confine what would be allowed in the analysis of causation given the Court’s rules. It is not an oversimplification to state that Moore and others who have attempted metatheories of legal causation are analyzing multiple strands making up common-law patterns as they have developed over the past two centuries. In the area of shareholder class-action lawsuits, however, the Court has resolved, through fiat or otherwise, some of the indeterminacies associated with counterfactual analysis that concern legal and philosophy scholars. Indeed, as will be argued below, the Court’s decisions have had the effect of creating a vocabulary for shareholder class-action liability and damages that differs from how common-law tort principles are typically described.

Another reason we differ from Moore is that philosophers’ recent developments make the counterfactual theory of causation more realistic. One of the more relevant of these is Professor Peter Menzies’s monograph, *Difference-making in Context*.<sup>19</sup> Menzies’s theme is that Lewis’s statement of the counterfactual principle does not give

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17. Michael Moore, *For What Must We Pay?: Causation and Counterfactual Baselines*, 40 SAN DIEGO L. REV. 1181, 1184 (2003).

18. *Id.* at 1258 (describing ten general cases in tort and contract law and concluding, “The counterfactual tests used by the law in these ten contexts cannot be justified on causal grounds.”).

19. Peter Menzies, *Difference-making in Context*, in CAUSATION AND COUNTERFACTUALS, *supra* note 5, at 139. One of the key issues is the potential ambiguity of the counterfactual world. The Menzies article addresses this and other concerns.

unambiguous answers to questions about the causes of events in a number of important situations.<sup>20</sup> Some of his examples are drawn from Hart and Honoré and thus are of special interest to the question of legal causation. To make the counterfactual paradigm more general, Menzies introduces a number of concepts including, importantly, distinguishing conditions from causes.<sup>21</sup> For example, assume that an investor decides on his or her own to purchase an exchange-traded security at a price that is inflated because of an intentional misrepresentation made by management. After the truth becomes known, the price falls and the investor incurs a loss. Under a relatively straightforward counterfactual analysis, if the investor had not bought the security, there would have been no loss incurred. But under the federal securities laws, causation of the loss is attributed to the revelation of the truth, and fault is found with management for not revealing the truth in a timely fashion. To reconcile these two interpretations, Menzies's approach would label the purchase of the security a condition rather than a cause. In fact, Menzies would probably go further and consider the purchase of the security part of what he calls "normal conditions." He uses this term to mean conditions that are assumed to generally hold in the context being studied, and as a result are not worthy of specific mention. Factors that fall outside the set of normal conditions would warrant particular attention as potential causes.<sup>22</sup>

In the Parts that follow, we will formalize and give other examples of counterfactual analysis in an attempt to show that it has a role in understanding causation in at least one important area of the law—shareholder class-action lawsuits. Moreover, we suggest that this trend will reduce error and uncertainty in litigation. This implies that the cold reception given to formalism in the law may be too sweeping.

Before proceeding to the substance of our analysis, we should note that proposals to use formal mathematical constructs in other areas of law, primarily procedure, have not fared well in legal-literature debates.<sup>23</sup> In response to early proposals to use probability to determine

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20. *Id.* at 143.

21. *Id.* at 140.

22. Another reason we differ from Professor Moore is that he concludes that conditional counterfactuals cannot be a theoretical basis for determining legal causation when a defendant fails to take an action that there was a legal duty to take. The securities-fraud example would be a case where a defendant is accused of making a material omission in a Securities and Exchange Commission (SEC) filing. Our view is that a counterfactual analysis can be used to establish causal dependence in such circumstances. This is a less important issue, however, and may be just a semantic problem in circumstances where the duty is specified by statute.

23. Ronald J. Allen & Michael S. Pardo, *The Problematic Value of Mathematical Models of Evidence*, 36 J. LEGAL STUD. 107, 109 (2007) ("[T]he application of probability theory to judicial proof . . . suffers from a deep conceptual



rules of evidence, Professor Lawrence Tribe wrote an influential treatise arguing that such attempts at quantification would do more harm than good.<sup>24</sup> We do not dispute Tribe's conclusion, mainly because we are dealing with a different subject. That being said, it might be productive to revisit Tribe's critiques as they relate to shareholder class-action lawsuits circa 2009. His argument depended to some extent on due-process protections accorded under criminal, rather than civil, law. As will be shown below, shareholder class-action lawsuits have features that make them different from the modal lawsuits that are often assumed in critiques of formalism.

### I. WHY SHAREHOLDER CLASS-ACTION LAWSUITS

There are a number of reasons why shareholder class-action lawsuits are a candidate for more formalism.

#### A. *Shareholder Class-Action Lawsuits Share Common Features*

One of the aspects of litigation that has been a barrier to philosophical causation has been the distinctiveness of each individual claim. As mentioned above, *Palsgraf* is a prime example of a physical chain so unlikely that it will never be repeated. By comparison, shareholder class-action lawsuits have a number of similarities.<sup>25</sup> Some of these similarities are related to the requirements of class-action lawsuits. Class certification implies that issues common to all class members will predominate over individual issues at trial. One of the reasons that the class-action-lawsuit procedure is appropriate for securities fraud is that most claimants were not involved in personally negotiating and contracting with various counterparties for the securities at issue; plaintiffs in these lawsuits will have traded in an impersonal market. This makes it easier to show, but obviously does not guarantee, that individual issues do not predominate.

The typical rule 10b-5 class-action lawsuit arises out of an allegation of untimely disclosure of bad news. When the news becomes public, say at time  $t_a$ , the market impounds it into the stock price, causing a price decline equal to  $P(t_{a-1}) - P(t_a)$ , where, by convention,

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problem that makes ambiguous the lessons that can be drawn from it . . . ."); *id.* at 137 ("Conventional probability approaches are difficult to reconcile with the evidence concerning the structure of trials.").

24. Lawrence H. Tribe, *Trial by Mathematics: Precision and Ritual in the Legal Process*, 84 HARV. L. REV. 1329, 1330 (1971).

25. Complaints used in one shareholder class-action lawsuit have been known to be recycled with global search-and-replace for the name of the defendant firm. Nell Minow, *Time to Wake the Sleeping Bear*, LEGAL TIMES, Feb. 13, 1995.

$P(t_x)$  is the closing price on date  $t_x$ , and the price change is material and not due to other known causes. Every shareholder experiences the same price decline. The allegation is that the defendants should have revealed the news at some earlier point, say  $t_0$ . The plaintiff class would then be defined as anyone who purchased in the interval  $[t_0, t_{d-1}]$  and held until  $t_a$  or later. Plaintiffs will claim damages related to the price decline commonly suffered when the bad news was released.<sup>26</sup>

### *B. Application of Financial Economics*

Through a series of decisions, starting with *Blue Chip Stamps v. Manor Drug Stores*,<sup>27</sup> to its most recent pronouncements in *Stoneridge Investment Partners, LLC v. Scientific-Atlanta, Inc.*,<sup>28</sup> the Supreme Court has created an interpretation of rule 10b-5 litigation that has simultaneously segregated it from the common law of deceit and made the outcomes of the litigation more dependent on financial economics. Academic research in finance has been up to the task: a serendipitous union of high-quality data, sophisticated statistical techniques, and well-funded research agendas stretching back forty years has created a body of science that can be brought to bear on almost every aspect of the typical rule 10b-5 case.

One result of this has been a trend in rules concerning causation that is distinct from the so-called common-sense causation paradigm. Two Supreme Court decisions on causation—*Basic Inc. v. Levinson*<sup>29</sup> and *Dura Pharmaceuticals, Inc. v. Broudo*<sup>30</sup>—homogenized the inquiry that will be made on causation in all rule 10b-5 cases. This inquiry is grounded squarely in financial economics theory and methods. In addition, lower courts have been using financial economics to examine other elements that are necessary for a plaintiff to prove liability. Evidence for the key elements of rule 10b-5 cases has become quantitative and statistical. Statistical hypothesis testing is, basically, proof by contradiction with a known rate of error. Although these developments invoke the philosophy of causation in its relevance to quantitative-data-analysis methods, our focus below is more on the use of causation to determine what is to be analyzed.

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26. This is an oversimplification. As will be shown below, there are a number of constraints that could prevent the damage per share from being equal to the extent of the price drop on the revelation of the bad news.

27. 421 U.S. 723 (1975).

28. 128 S. Ct. 761 (2008).

29. 485 U.S. 224 (1988).

30. 544 U.S. 336 (2005).

*C. Uncertain Policy Objectives and Judicial Hostility*

Because liability in securities fraud depends mostly on evidence grounded in sophisticated economics, it would be reasonable to assume that legal liability and damages satisfy the criteria of the law-and-economics standard of optimal deterrence, but such an assumption would be wrong—or, at least, half wrong. As the Supreme Court's majority observed in *Stoneridge*, the private right of action under rule 10b-5 is neither common law nor explicitly legislated.<sup>31</sup> The original grant of a private right of action was given by the courts. The result has been a legal history with a somewhat accidental policy objective. Although an argument can be made that common-law fraud remedies often result in optimal deterrence, there has never been a showing that outcomes from rule 10b-5 shareholder class-action lawsuits are anywhere near optimal.

This being said, affixing blame is likely consistent with a law-and-economics analysis of optimality. The law-and-economics prescription for liability in tort is to pass it on to the least-cost avoider of the event causing harm. Shareholder class-action lawsuits attempt to enforce the 1933 and 1934 laws mandating adequate disclosure of information to the public. The least-cost avoider in matters involving disclosure means those who can provide financial information about the issuer at lowest cost. Absent a clear conspiracy, liability almost always falls on the corporation, officers, and somewhat less often, independent board members and auditors. In the words of modern economics, financial markets are characterized by asymmetric information. The insiders of an organization and their agents have more information than the outside investors. Absent publicly available information about an issuer, investors have an incentive to use resources to find out what is already known inside the firm. By imposing disclosure duties on the insiders, the securities laws reduce the overall transaction costs in capital markets.

It is in the area of damages where there is likely a divergence from optimal deterrence. The reason for this is that it is virtually impossible to quantify the social cost of fraud in the aftermarket. Reconsider the typical case mentioned above: if the untimely bad news had been released on  $t_0$ , the beginning of the class period, then there would have been a price drop at that time and a different set of shareholders would have suffered a loss. Indeed, because the news was not disclosed in a timely fashion, a large number of investors who are not part of the class received a benefit—they avoided a loss that would have occurred if the news had come out when they were holding their shares. The

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31. 128 S. Ct. at 771–73.

relationship between the members of the class and those who were holding their shares at time  $t_0$  and sold before  $t_d$  is like the relationship between players in a zero-sum game; the members of the class lost in the market what the others avoided losing.

This is not to say there are no social costs of fraud, but rather that the effects are indirect. Deterring fraud causes more complete and accurate disclosure, which has such benefits as improving corporate governance through increased transparency and reducing the riskiness (and therefore the cost) of private capital. It is extremely difficult to quantify these benefits and, to date, scholars have been unable to do so. Therefore, it is not clear whether the court-evolved damage theories bear any relationship to optimal deterrence effects.

What is clear, though, is that class-action-lawsuit damages are usually so large that they exceed the combined wealth of individuals named in class-action lawsuits. If individuals had to face such risks, there would be an adverse effect on the quality of boards of directors and managers of public firms, given the very real risks of error in legal judgments. To mitigate these risks, firms insure directors and officers and also indemnify employees and board members. But this has the opposite effect of reducing the incentive to be careful in avoiding misleading disclosures.

What we are left with is that deterrence may be an objective of rule 10b-5 class-action lawsuits, but optimal deterrence is not, or is at least so hard to achieve that it is not a practical objective at this point. An alternative theory, the corrective-justice goal of compensating defrauded investors, seems to be a better explanation of the approach to awarding damages. Indeed, this appears to be one of the main policy guidelines of the Securities and Exchange Commission (SEC) and is consistent with its looking favorably on rule 10b-5 class-action lawsuits.

One criticism of this policy directive is that those who are compensating the losers are not the same as those who committed the fraud. As a result of being able to name the firm as a defendant, the current shareholders end up compensating the class. This is akin to a special dividend for the class members.

It should be pointed out, however, that this is a criticism of the legal policy that a limited liability firm can be treated as a person under the law—a policy that economists sometimes have trouble understanding because, to the economist, there is not such a clear distinction between the firm and its shareholders. As a result of being able to sue the firm, current shareholders will pay penalties and damages for virtually any type of illegal conduct by management that benefited previous shareholders, whether or not they were shareholders at the time the wrongs occurred. An example is price fixing: when

prices are high, current shareholders receive the benefits, but when the cartel is discovered, future shareholders will pay treble damages.<sup>32</sup>

For some of the above reasons, current sentiment in the judiciary, including the Supreme Court majority, is ambivalent to the rule 10b-5 shareholder class-action lawsuit. But the courts have yet to discard the private right of action that was judicially granted in 1970. Arguably, courts have instead tried to tame shareholder litigation. They have attempted to cabin what plaintiffs can plead and collect. The result has been that, other than issues related to intent, proof of virtually all the elements of rule 10b-5 will be based on finance theory and statistics.

In so doing, the courts have given more certainty to executives about what they can and cannot do, as well as what they can and cannot expect if they are served with a rule 10b-5 complaint. Though we should hasten to add that our focus is on Supreme Court decisions, federal district and appellate courts continue to adopt positions that are sometimes difficult for business people to interpret. Arguably, over the past few years these decisions have made it easier for parties to escape liability for concealing material information from the investing public. Legal uncertainty in either direction is usually not helpful.<sup>33</sup>

## II. CONDITIONS AND CAUSATION IN RULE 10B-5

Starting with *Blue Chip Stamps* and culminating with *Stoneridge*, the Supreme Court has made a series of rulings that have defined six elements that must be proved by plaintiffs in a rule 10b-5 class-action lawsuit. These decisions have also indirectly answered the question of *how* most of these must be proved, because the Court has framed the issues in ways that are best addressed with finance theory and statistics. The modern statement of the six elements was first articulated in *Dura* as follows:<sup>34</sup>

- (1) material misrepresentation (or omission);
- (2) scienter (i.e., a wrongful state of mind);
- (3) purchase or sale of a security (must be made *in connection with* a material misrepresentation and scienter);
- (4) reliance or transaction causation (which, since *Basic*, has been subject to a rebuttable presumption if the security

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32. The authors are grateful to Professor Goldschmidt of Columbia Law School for this example.

33. Richard Craswell & John E. Calfee, *Deterrence & Uncertain Legal Standards*, 2 J.L. ECON. & ORG. 279, 299 (1986).

34. The same six elements were repeated by the Supreme Court in *Stoneridge*. 128 S. Ct. at 768.

traded in an efficient market (in which case material misinformation would have caused fraud on the market));<sup>35</sup>

(5) economic loss;

(6) “loss causation” (i.e., a causal connection between the material misrepresentation and the loss).<sup>36</sup>

In *Basic*, the Court cited only five elements of proof under rule 10b-5, *economic loss* being absent from the list.<sup>37</sup>

The six conditions are conjunctive; if any one of them is falsified, then plaintiffs will not be able to carry their burden of proof. In this way, they are like links in a chain; if any link is broken, then plaintiffs will fail to carry their burden of proof.<sup>38</sup>

#### A. The “in Connection with” Requirement

In *Blue Chip Stamps*, the Court found that the “in connection with” (a purchase or sale) requirement meant that the plaintiff had to have engaged in a transaction. Merely holding a security and claiming that a misrepresentation prevented the plaintiff from engaging in a profitable trade was not enough under the Securities Exchange Act of 1934. For example, a plaintiff could not successfully claim that a misrepresentation prevented him or her from selling a security that was later sold for a loss, nor could a plaintiff claim that a misrepresentation prevented the purchase of a security that eventually went up in value.

The *Blue Chip Stamps* holding meant, in effect, there had to have been a transaction associated with the misrepresentation. It then followed that, because of the transaction-causation requirement, the plaintiff would have to show that the transaction satisfying the “in connection with” requirement also satisfied the “reliance” requirement. This meant that the in-connection-with and reliance requirements were collapsed into a single transaction-causation requirement.

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35. *Basic Inc. v. Levinson*, 485 U.S. 224, 250 (1988).

36. *Dura Pharm, Inc. v. Broudo*, 544 U.S. 336, 342 (2005). Note that these are the requirements for either an individual or class-action fraud claim under the Securities Exchange Act of 1934. There are a number of other requirements that have to be met for a court to grant class-action status to a claim.

37. *See Basic*, 485 U.S. at 231–32.

38. These conditions should not be confused with a causal chain, however. *Causation*, as the term is being applied here, applies to the conditions and conduct that lead to plaintiffs’ injury—not the efforts of plaintiffs’ counsel that lead to a legal victory.

### B. Reliance and Efficient Markets

Then, in *Basic*, the Court again made part of the vocabulary of shareholder class-action lawsuits redundant by essentially equating *reliance* with *materiality* in most circumstances. The holding in *Basic* was that actively traded liquid securities are presumed to have traded in an efficient market which, in turn, means that their price reflects all publicly available information. It follows that, if there is misinformation, it would be reflected in the price also. To the extent the misinformation is material, the security is mispriced. For example, if management has failed to disclose a negative earnings surprise that would cause a major reduction in expected future cash flows, then the security is priced higher than would otherwise be the case. Had a reasonable investor known the truth, he or she would not have purchased the security at the market price.<sup>39</sup>

But, in so doing, *Basic* added another requirement: a plaintiff needed to plead that the securities at issue traded in an efficient market. This requirement was framed as a rebuttable presumption, essentially shifting the burden of disproof to defendants. Though there may be more than one way for an individual to establish reliance under rule 10b-5, there has yet to be a case where class certification had been granted without plaintiffs proving that the class traded in an efficient market (or at least making an uncontested allegation on this point). For our purposes then, showing that the market is efficient is considered a necessary condition for a rule 10b-5 class-action lawsuit to proceed beyond the class-certification stage.

### C. Economic Loss and Loss Causation

In *Dura*, the Supreme Court ruled that it is necessary to establish that prices “fell significantly *after* the truth became known”; in other words, it is necessary to show loss causation.<sup>40</sup> Under *Dura*, the Court also required that the “*defendant’s* misrepresentation (or other fraudulent conduct) proximately *caused the plaintiff’s economic loss.*”<sup>41</sup> As we will demonstrate in more detail below, it follows that losses suffered prior to the first alleged corrective disclosure (i.e., when a “relevant truth” became known) are not recoverable under *Dura*.

*Dura* is the last of the trio of cases to set up the causal structure in contemporary shareholder class-action lawsuits. As will be shown, the

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39. As described below, this also implies that the standard for materiality is that misinformation must have an effect on the price of the security. See *infra* Part II.C.

40. 544 U.S. at 347 (emphasis added).

41. *Id.* at 346 (emphasis added).

canonical essence of *Dura* is the following: first, it refined the in-connection-with standard so that a plaintiff could not sell out of his or her position before the revelation of the relevant truth and still have a claim; second, it limited losses to those caused by revelation of the relevant truth; and, third, it effectively combined the showing of materiality and loss causation into one condition (at least partially).

The third point—the typical equivalence of showing loss causation *and* materiality—may need more explanation. Recall from above that, when there is a revelation of the relevant truth at time  $t_d$ , the market impounds it into the stock price causing a price decline equal to  $P(t_{d-1}) - P(t_d)$ . Under the efficient-market hypothesis, if there are no other causes of the price decline, then the magnitude of the price decline is both the *value* of the news as well as the *loss* caused by the news. If there is no measurable price drop caused by the revelation of the relevant truth, then the value of the misrepresentation is not material<sup>42</sup>—that is, the materiality requirement for a securities-fraud claim cannot be proven. Similarly, if there is no measurable price drop caused by the revelation of the relevant truth, then loss causation cannot be proven.

In some circumstances it is possible that a timely disclosure *would* have been material—that is, would have caused a measurable price drop—while the untimely disclosure *does not* cause a price drop due to changes in economic conditions. The fact remains that absent a measurable drop in reaction to the actual (untimely) disclosure, loss causation cannot be proven. Consequently, showing materiality at the time of the misrepresentation would be moot because plaintiffs would not be able to carry their burdens of proof on one of the other elements of a shareholder fraud claim. Conversely, in other circumstances it is possible that the correct information *would not* have been material at the time of the misrepresentation but *did* cause a price drop due to changes in economic conditions. In those cases, unless there is a duty to update, there was no material misrepresentation (or omission). If there is a duty to update, then one must deal with the question of when the misrepresentation became material enough to require such an update, a complication that we assume away for the remainder of this Paper, but that can often be thought of as an adjustment to the date at which the misrepresentation is deemed to be made.<sup>43</sup>

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42. There may be a price drop contemporaneous with the news but not caused by the news. For both materiality and loss causation, the requirement is that the price drop be *caused* by the news.

43. As an example, consider a company that announced that it had discovered a method to extract oil at a cost of \$80 per barrel. If this announcement were made when the price of oil was \$50 per barrel and was predicted to be steady enough such that a price of \$80 was unlikely, the announcement would not be material. If the price of oil increased, at some point even before the price hit \$80, the likelihood of the



*D. Shareholder Litigation Evidentiary Paradigm Shift*

The cumulative result of the Supreme Court decisions has been a paradigm shift in how the elements of liability are to be shown in a securities-fraud case. Though the language used by the Court in *Dura* was based on common-law notions of deceit,<sup>44</sup> this is an atavism. The core set of findings needed to prove a rule 10b-5 shareholder class-action lawsuit can be described in a way that is more precise than the common-law approach to fraud and, other than the issue of intent, can be divorced from the traditional common-law vocabulary.<sup>45</sup>

The cumulative effect of the three decisions is that the six traditional elements described above, as a practical matter in most cases, are converted to the following five:

(conditional elements)

- (1) scienter;
- (2) transactions between the misrepresentation and the revelation of the relevant truth that result in a net long position upon revelation of the relevant truth (from *Blue Chip Stamps* and *Dura*);<sup>46</sup>
- (3) efficient market (from *Basic*);

(causation elements)

- (4) stock-price drop that is caused by revelation of the relevant truth (from *Dura*);
- (5) inflation per share at the time of purchase that is greater than inflation per share at the time of sale.

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extraction methodology being profitable may become material, and it certainly would be if the price significantly exceeded \$80 per barrel and was expected to remain high. Determining when any update was required is both a legal and economic inquiry that may determine which investors have a claim based on the relationship between the date of their purchase and the outcome of that inquiry, and thus can be thought of as an adjustment in the effective date of the misrepresentation.

44. 544 U.S. at 343.

45. Perhaps as a result of the incremental nature of Supreme Court decisions, there has been relatively little commentary on how the traditional overall evidentiary burden in shareholder class-action lawsuits has been restructured. For an exception, see Jill E. Fisch, *Cause for Concern: Causation and Federal Securities Fraud* 44 (Inst. Law Econ., Research Paper No. 08-19, 2008), available at <http://ssrn.com/abstract=1234021> (“If *Basic* has transformed securities fraud into a statutory claim, with a different scope and objectives, the rationale behind the common-law analogy is not compelling. There is no reason to believe that common-law principles can or should be transferred uncritically to the transactional context of the global-securities markets.”).

46. We assume, as is the case with most class-action lawsuits, that the relevant truth is negative news. If instead it is positive news, then the plaintiff would have to have been a net seller upon the revelation of the relevant truth. Without loss of generality, the analysis that follows applies to the situation where the relevant truth is positive.

Based on *Dura*'s distillation in the elements of proof, it should not be surprising that in the three-plus years since that decision, economic loss and loss causation seem to have been two of the more written-about and fought-over elements in shareholder class-action lawsuits. It would seem that more precision in the definition of these concepts would lead to more certainty in their application.

### III. COUNTERFACTUAL DEPENDENCE AND THE MEANINGS OF *ECONOMIC LOSS* AND *LOSS CAUSATION*

Some of the confusion in *Dura*'s application is caused by its being built on an existing vocabulary of rule 10b-5 case law that is inadequate in light of the Court's discussion. Interpreting *Dura* with the old definitions leads to conceptual traps. As the most important example, in the past, if a case was not dismissed for lack of loss causation, *inflation* of a share that was purchased in reliance on a fraudulent misrepresentation or omission and held until after the fraud was cured was generally treated as identical to *damage*. Now, exclusive focus on the behavior of inflation over an investor's holding period will lead to a misapplication of the loss-causation standard and a miscalculation of damages.

In addition, the Court did not refer to any *corrective disclosure*, instead substituting *revelation of relevant truth*. The consequence of the new language is not cosmetic; the change in vocabulary has major implications for both whether the loss-causation standard has been satisfied and how damages are to be measured.

#### A. Terminology

Loss causation ultimately relates to the question of how, if at all, damages were caused by the defendant's actionable conduct. Because loose use of vocabulary can lead to some confusion, it is important to review the key terms commonly used in explaining damages estimation in rule 10b-5 shareholder class-action lawsuits:

*True value*: the per-share market price of the stock (purchased by class plaintiffs) that would have prevailed in the counterfactual world absent of violative conduct by the defendant.<sup>47</sup>

*Value line*: the graph of the stock's true value over the course of the class period.

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47. Note that this is the definition we use in this Paper, while others may define *true value* as the price that would have prevailed had prior wrongdoing been revealed prior to the plaintiffs' trading. The reasons for the difference in definitions and the import of this difference are discussed later in this Paper.

*Inflation per share*: the difference between the amount paid for the stock by a plaintiff and the stock's true value at the time of purchase.<sup>48</sup>

*Index method*: an approach to estimating the value line. In its most common form, an index of the defendant company's peers is computed. This index is then anchored to the value of the defendant company's stock price on the first closing price after the final corrective disclosure (usually the day after the last day of the class period). The true value of defendant's stock is then estimated by substituting the daily return of the index for that of the defendant company's stock price throughout the class period. Inflation per share is then computed as the difference between the estimated value line and the market price of the stock.

*Percent price inflation*: an approach to estimating inflation per share. In a single disclosure case with no inflation buildup over time, the percent price drop of the defendant's stock price due to revelation of the relevant truth is the assumed percent inflation per share for every day of the class period. For example, if the defendant's share price lost one-quarter of its value because of the revelation of the relevant truth, then under this approach the inflation per share on every day of the class period would be 25 percent of the market price.

*Dollar price inflation*: an approach to estimating inflation per share. In a single disclosure case with no buildup of inflation over time, the dollar price drop of a defendant company's stock price due to the revelation of the relevant truth is the assumed inflation per share every day of the class period. For example, if the defendant company's share price declined by \$5 because of revelation of the relevant truth, then under this approach the inflation per share on every day of the class period would be \$5.

*Retention shares*: shares purchased during the class period that are held until after the end of the class period.

*In-out shares*: shares purchased during the class period that are sold before the end of the class period. The sum of damages to retention shares and in-out shares is equal to aggregate damages before the consideration of offsets.

One noncontroversial conclusion of *Dura* is that there should be no damage for a share that is sold before revelation of the relevant truth. Even if stock-price inflation falls over a plaintiff's holding period (i.e., from the date of purchase to the date of sale), no justifiable claim for damages exists if no alleged misrepresentation or omission is made public during that period (either explicitly or effectively).

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48. The concepts of *true value* and *value line* have become commonplace after their use in Judge Sneed's concurring opinion in *Green v. Occidental Petroleum Corp.*, 541 F.2d 1335, 1341-46 (1976) (Sneed, J., concurring).

*B. The Meaning of Economic Loss*

Before getting to loss causation, it is useful to deal with the notion of economic loss, which the Court brought up for the first time in *Dura*. Having used the phrase, however, the Court never defined it. Consequently, there is some disagreement about what is meant by *economic loss*. The vast majority of courts have used the proximate-cause standard, mentioned in *Dura*, and claimed economic loss is a loss as a result of the alleged misrepresentation.<sup>49</sup> Recently, however, two courts seem to have equated *economic loss* with *realized loss* (sale at a price lower than the price paid).<sup>50</sup> In these courts, realized loss in the securities holdings at issue has become a new requirement for a plaintiff to get to trial.

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49. See, e.g., *In re Daou Sys., Inc. Sec. Litig.*, 411 F.3d 1006, 1027 (9th Cir. 2005) (“Plaintiffs’ economic loss was not that they purchased stock at inflated prices; rather, their economic loss was the decline in their stock value that was the direct result of Daou’s misrepresentations.”); *In re Unumprovident Corp. Sec. Litig.*, 396 F. Supp. 2d 858, 898 (E.D. Tenn. 2005) (“One method of pleading loss causation [under the Private Securities Litigation Reform Act] is to allege facts indicating the plaintiff’s economic loss was suffered in close temporal proximity to the public disclosure of the alleged fraud. Where a significant stock-price decline immediately follows an announcement revealing fraud or prior misinformation to the public, it can reasonably be inferred that decline is fairly attributable to the conduct or information disclosed.”); *D.E. & J Ltd. P’ship v. Conaway*, 284 F. Supp. 2d 719, 748–49 (E.D. Mich. 2003) (“[T]he majority view is that, although alleging that a security was artificially inflated may suffice to plead ‘transaction causation,’ ‘loss causation’ requires the plaintiff to point to some causal link between the alleged misrepresentations and a concrete decline in the value of the plaintiff’s stock . . . . The most common ‘causal link’ pled under this rule is a showing that the plaintiff suffered an economic loss fairly attributable to the public airing of the alleged fraud, *i.e.*, a significant stock price decline immediately following the announcement that reveals the fraud to the public.”).

50. *In re Veeco Instruments, Inc. Sec. Litig.*, No. 05-MDL-01695(CM), 2007 WL 4115809, at \*10 (S.D.N.Y. Nov. 7, 2007) (“Plaintiffs’ damages calculations could not include Class Members who purchased Veeco stock during the Class Period and either sold it at a profit, or retained it past the point after the Class Period when the stock price first recovered to the price at which the shares were purchased. This is because such Class Members can prove no economic loss that is attributable to any of the Defendants’ alleged misrepresentations. This ruling diminished the number of damaged class members and, thus, the amount of the calculated damages.”); *In re Estee Lauder Co. Sec. Litig.*, No. 06-CIV-2505(LAK), 2007 WL 1522620, at \*1 (S.D.N.Y. May 21, 2007) (“As it is perfectly plain that plaintiff would have profited if he sold after September 11, 2006, may have profited even if he sold before September 11, 2006, and may well profit in the future if he has not yet sold, this complaint patently fails to plead loss causation for this reason alone.”); *id.* at \*1 n.5 (“Plaintiff’s contention that an economic loss is sustained simply as a result of the fact that the price of the stock dropped following disclosure is unpersuasive.”).

To the economist, the interpretation of the majority of courts makes more sense. Realized loss is not the same as economic loss.<sup>51</sup> Perhaps more importantly, realized loss is remote from loss causation.<sup>52</sup>

Economic loss in the academic sense evokes the concept of opportunity cost. The notion of opportunity cost, in turn, is often consistent with legal concepts regarding how the consequences of the defendant's conduct should be evaluated. When an investor purchases a security infected by a material fraud, then obviously its true value is less than the amount paid. The funds used in payment for the security cannot be used for other investment opportunities. The expected value of an alternative use of these funds is at least equal to the cash price paid for the security and represents what the investor gave up at the time of purchase. From the concept of opportunity cost there are two ways to view economic loss in the shareholder-litigation framework and neither is realized loss.

The first is based on an implication, described in more detail below, that the *Basic* Court ruled that the alternative use for the money that bought defendant's shares was to purchase the shares that were the closest substitute to the defendant's shares. This alternative basket of securities would have been expected to perform like the defendant's shares, but for losses caused by the fraud.

Thus, the relevant counterfactual is the following: if it were the case that plaintiffs had not purchased the defendant's shares, then the plaintiffs would have invested their money in a hypothetical basket of securities that would have behaved in every respect like the defendant's security except for excess returns caused by the fraud. In this counterfactual world, the plaintiff would have then avoided the losses, and only the losses, that occurred because of price drops on days of corrective disclosures of the relevant truth.<sup>53</sup> This does not seem like a

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51. In this regard, the courts that have used realized loss as a cap on damages might be better grounded in the Private Securities Litigation Reform Act of 1995 (PSLRA), which some attorneys claim created an actual-damages constraint on what a plaintiff can recover. We do not deal with the concept of actual damages here because we are limiting our discussion to rules and terminology from the Supreme Court.

52. Realized loss can be attached to transaction causation, though. For example, prior to the PSLRA, section 12 securities cases allowed the plaintiff to be given rescission damages—the return of the security to the seller for the return of the purchase price to the buyer. *See* 15 U.S.C. § 771(2) (2006). As Judge Posner pointed out, however, this created windfall damages for plaintiffs. *Bastian v. Petren Res. Corp.*, 892 F.2d 680, 685 (7th Cir. 1990). The rescission rule was modified by the PSLRA to allow the defendant to reduce the rescission amount by “negative causation”—the amount of the stock-price drop not explained by the alleged fraud. *See* 15 U.S.C. § 771(2).

53. But, the economic loss would exclude any losses associated with additional misrepresentations made after the stock purchases and their impact on the stock price when they were made and disclosed.

very satisfying explanation, however, because it then would imply that economic loss and loss causation are redundant under *Dura*. The redundancy might be removed if the following were true: loss causation is the *fact* of loss caused by the revelation of the relevant truth, and economic loss is the *magnitude* of this loss. But this resolution is based primarily on a semantic difference.

A second realistic concept of economic loss starts with the counterfactual that, were the relevant truth revealed in a timely fashion, then the stock price would have dropped prior to plaintiff's purchase. In this counterfactual, the most similar world is one where the plaintiff makes a purchase of the same number of shares but at a lower price. This is an explanation of economic loss that is consistent with the in-connection-with transaction requirement—that is, the fact of a trade of the actual number of shares in the same security is assumed true in the counterfactual world. The counterfactual price is then the actual price less inflation per share, which is the value of the concealed or omitted information (assuming an efficient market, per *Basic*).

The relevant counterfactual in this case is the following: had management made timely disclosures, the plaintiff would have bought and sold his or her securities at different prices over the class period. For each transaction, the difference between the counterfactual price and the actual price is the inflation per share. From this, it follows that the economic loss is the difference between the inflation per share on purchase and the inflation per share on sale. This definition of *economic loss* is consistent with Professor Michael J. Kaufman's reading of *Dura*, though he admits the Court did not squarely address the issue.<sup>54</sup>

Viewed in this way, economic loss is not necessarily a measure of damages, but a cap on damages should economic loss be less than the quantum of loss causation. This interpretation is a more complete resolution of the redundancy between loss causation and economic loss observed in the first counterfactual above. As noted by Professor

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54. MICHAEL J. KAUFMAN, SECURITIES LITIGATION: DAMAGES § 11A-40 (2006) (“The soundest interpretation of the Court’s concept of ‘economic loss’ is that it permits a showing that the investor suffered a loss by purchasing securities at an artificially inflated price without mitigating that loss by reselling those securities at the same inflated price. Only that definition of ‘economic loss’ gives any meaning to the Court’s opinion. By that refined standard, the plaintiffs who purchase securities at an artificially inflated price of loss per share, cannot show ‘economic loss’ if they resell those shares the instant after the transaction at \$100 per share. Those plaintiffs have fully mitigated their losses. Similarly, a plaintiff who purchases at \$100, but resells at \$125, may suffer an ‘economic loss’ in the court’s sense if the sale price would have been higher in the absence of the fraud. Loss occurs when the dissemination of the misrepresented or nondisclosed facts causes a movement in the market price of the securities.”).

Kaufman, this interpretation is also consistent with the view of the Court that if an investor purchased a security and sold it immediately, he or she would not have suffered a loss.

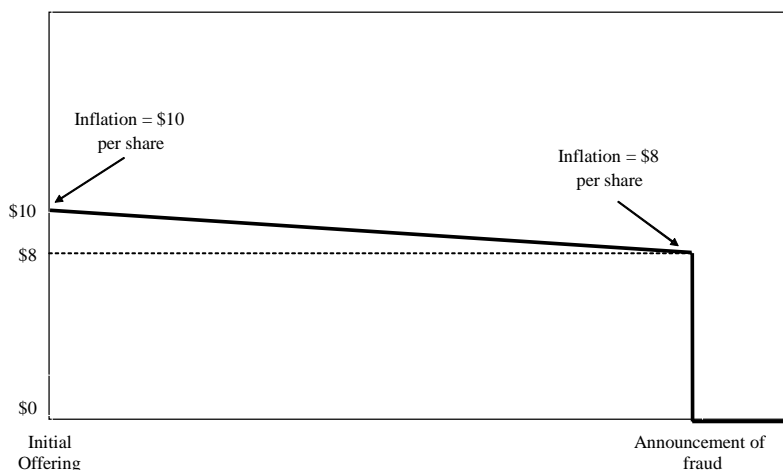
But, under this theory it is also the case that an investor can sell a share at a higher price than he or she bought the share—having no realized losses—and still incur an economic loss. In the counterfactual world, the price appreciation between purchase and sale could have been greater than in an actual world where there was some price appreciation, but not as much as in the counterfactual world because there was a corrective disclosure that caused a temporary price drop. Thus, even a plaintiff with no realized loss would be able to pursue his or her claim under this concept of economic loss. Be forewarned, however, that the Supreme Court did not resolve with any finality what *economic loss* means, and there is the potential for other interpretations.

*C. Economic Losses Greater than the Drop in Stock Price on the Revelation of the Relevant Truth*

Most shareholder class-action litigation occurs over stocks that have fallen in price over the class period. Very often, plaintiffs' estimate of inflation per share also falls over the class period, meaning that the claimed economic losses, if measured as the difference between inflation on purchase and inflation on sale, are greater for purchasers at the beginning of the class period than for those who purchase just before the end of the class period. Damages are often claimed for retention shares, even after *Dura*, for the full amount of the inflation at the time of purchase, even if the inflation per share on purchase is greater than the drop in stock price when the truth is revealed. Such claims, though, are based on a theory of causation that is inconsistent with *Dura*. If the inflation per share drops to zero on the day of the disclosure of the truth, and if the inflation per share at the time of purchase was greater than the decline on the day the truth became known, then the inflation per share must have declined prior to the disclosure day. But this could only happen for reasons other than the revelation of the relevant truth. If there were losses before the disclosure of the relevant truth, then some set of factors, other than the alleged fraud, were at work such that in their absence, there would not have been that decline in the price of the stock before the disclosure of the relevant truth. This component of the price decline represents an investment risk, other than fraud, which the investor took on when the security was purchased. The following hypothetical illustrates this principle.

Consider two closed-end index funds that claim to be invested in a basket of securities to match the S&P 500. Suppose that one fund in fact invests its initial public offering (IPO) proceeds in such securities, while the managers of the other fund fraudulently pocket all of the cash it raised without investing in anything. After the subscription period is closed, each fund is traded on the New York Stock Exchange. Because the market believes that both funds are holding the S&P 500 portfolio, their share prices will be the same as long as the fraud in the second fund remains secret. Obviously, absent any revelation of fraud, both funds should track the S&P 500.

The figure below is a stylized depiction of the following hypothetical sequence of events: when trading begins, the share price of each fund is \$10; over time, the S&P 500 loses 20 percent of its value; and when the share price of the funds is \$8, the truth about the fraudulent fund is immediately revealed and its share price collapses to zero.



**Figure 1**

Most would agree that a shareholder class-action lawsuit is an appropriate response. In the instant hypothetical, we have specified that the managers have committed the fraud. A damages policy may depend on whose conduct is to be deterred by bringing the case. One of the main policy objectives of shareholder class-action lawsuits is to deter future managers from perpetrating frauds on investors—that is, to prevent frauds from arising.<sup>55</sup>

55. In the event there are codefendants, such as accountants, brokers, etc., there are additional considerations, such as the time at which the codefendants' conduct contributed to the fraud. For the sake of exposition, we are not dealing with these complications.



Continuing with the numerical example, a shareholder who buys the fraudulent fund at the initial price of \$10 and holds past the alleged corrective disclosure will have suffered an economic loss of \$10. But of that loss, \$2 was due to the decline in the S&P 500—an intervening factor occurring between the purchase of the shares and the disclosure of fraud—making that \$2 a loss the investor would have suffered whether he or she invested in the “real” or the “fraudulent” fund.

Consider the losses sustained by three members of the purported class:

(1) Plaintiff *A* buys stock on the first day of the class period for \$10 per share and sells on the day before the corrective disclosure for \$8 per share.

(2) Plaintiff *B* buys on the first day of the class period for \$10 per share and retains all shares until after the corrective disclosure, when the stock price falls to \$0 per share.

(3) Plaintiff *C* buys on the day before the corrective disclosure for \$8 per share and retains all shares until after the corrective disclosure, when the stock price falls to \$0 per share.

In the vocabulary of shareholder class-action lawsuits, plaintiff *A* is an in-out investor, one who purchases during the fraud period and sells before the end of that period. Plaintiffs *B* and *C* are buy-and-hold investors, who retain the shares they purchased during the period through the end of the fraud period.

*Dura* did not change prior doctrine on the measure of plaintiff *C*'s loss attributable to the alleged fraud. Given liability, this individual would be entitled to compensation for loss incurred upon the corrective disclosure: in this case, \$8 per share. If the court found the three conditions for liability for fraud related to the subject matter of the corrective disclosure, and if plaintiff *C* made no security sales that benefited from the fraud, such a damage claim would not be seriously disputed by a court.

The claims made on behalf of plaintiffs *A* and *B*, however, have become more clearly limited under *Dura*. To see this, we need to show how the plaintiffs would have estimated damages pre-*Dura* based on two possible approaches, which in this example give the same answer: plaintiff *A*'s damages would be estimated as \$2 per share, and plaintiff *B*'s damages would be \$10 per share.

(1) *The index method*: in this approach, we observe that on the day after the corrective disclosure, the stock price attains its true value of \$0. If we were to anchor an S&P 500 index to this endpoint, the true value throughout the class period would also be \$0. That is, the value of the fraudulent fund has always been \$0.

(2) *The percentage inflation method*: in this approach, we observe that on the corrective-disclosure date, the fund lost 100 percent of its

value. Thus, the inflation per share was 100 percent throughout the class period, again meaning that the value of the fraudulent fund has always been \$0.

The plaintiffs would then argue for calculation of damages under either of these theories: the loss for plaintiff *A* would be the inflation per share on the purchase of the security less the inflation on the sale, which is equal to \$2 in this example (\$10 less \$8); the loss for plaintiff *B* would be the inflation per share on purchase, or \$10 in this example.

The defendant would admit that plaintiffs *A* and *B* would have suffered no losses due to the decline in the S&P 500 had they known the fund was a fraud and instead kept their money in a checking account. This counterfactual, however, is irrelevant. The shareholder purchased a stake in the S&P 500 and thereby assumed the market risk that materialized. The defendant caused neither plaintiffs' preference to assume market risk nor the decline in the stock market.

The resolution of this conflict can be obtained by using a counterfactual analysis to determine the extent of causal dependence of the plaintiffs' losses on the defendant's fraud. In this instance, the Supreme Court's most similar (implied) counterfactual world is one in which the plaintiffs' investment would have been a security not infected with fraud, but similar in all other ways.

This is consonant with Lewis's theory which is partially built on a more rigorous version of the legal concept of the "but-for" world.<sup>56</sup> One of the conceptual problems is that there is a vast number of but-for worlds where the fraud would not have occurred, but all such hypothetical worlds except a few are irrelevant for determining liability and damages. For example, one possible counterfactual is that the manager defendant was never born. In such a circumstance, neither the fraud nor disclosure-related investor losses would have occurred.<sup>57</sup> However, this does not mean that the manager's birth is a proximate cause of the fraud, nor are the manager's parents held responsible for investors' losses. Lewis's theory invokes the notion of history up to the antecedent event (in other words, history up to the time of the fraud is the same in the counterfactual world as it is in the actual world).<sup>58</sup> Then we ask whether in the world most similar to the actual world, in the

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56. The use of the but-for-world concept is common in estimating damages. See Robert Hall & Victoria Lazur, *Reference Guide on Estimation of Economic Losses in Damages Awards*, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 277, 284 (2d ed. 2000) ("In cases where damages are calculated under the restitution-reliance principle, the 'but for' analysis posits that the harmful event did not occur."). Restitution-reliance-principle cases include securities-fraud actions. *Id.* at 325-26.

57. The issue of whether the disclosure or the fraud is the proximate cause is discussed in a separate Part. This problem was not considered by the *Dura* court.

58. See Collins et al., *supra* note 5, at 4-7.

absence of the fraudulent conduct of the defendant, there would have been as great an investor loss. If the answer is no, then shareholder losses would have been less in the closest counterfactual, no-fraud world due to the lack of dependence between fraud and market losses. In this closest counterfactual world, the investor would still suffer the market losses resulting from the risk assumed on the purchase of a security even if the fraud had not occurred. In the instant example, the difference between the losses in the actual world and the counterfactual world is limited to the share-price drop on disclosure of the fraud. Thus, in this case, an idealization of this closest world without the antecedent of fraud is the nonfraudulent fund—a counterfactual security.<sup>59</sup>

Consequently, to measure damages we can ask whether the plaintiffs would have sustained losses associated with the decline in the S&P 500 if they had purchased a counterfactual security (theoretically, the security not affected by the fraud but identical in all other respects). For plaintiffs *A* and *B*, the answer is clearly yes—both would have lost \$2 per share because of the market decline. Therefore, the plaintiffs' damages theories would result in a \$2-per-share windfall to both *A* and *B* solely because they unknowingly invested in the fraudulent, as opposed to the nonfraudulent, fund.<sup>60</sup> The only remaining candidate for loss caused by the fraud is the \$8 decline in the share value that occurred on revelation of the relevant truth.

The same principle applies to the estimation of damages for common stock where operating assets, rather than securities, are backing the equity. The notion of market risk has had important applications in recent United States Court of Appeals for the Second Circuit decisions that have interpreted loss causation. For example, in the WorldCom litigation, Judge Denise Cote granted the defendants' motion to strike testimony on causation, citing the difference between

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59. In an efficient market, which is a condition precedent to this loss-causation analysis, there is always a substitute security. Note that we are not arguing that the investor would have necessarily invested in the nonfraudulent fund in every but-for world. Rather, as will be shown below, we are using this device as a way to illustrate the closest counterfactual world.

60. Not allowing these plaintiffs to recover the \$2 from the loss due to market conditions that they willingly took on is consistent with the Court's statement in *Dura* that "the statutes make these . . . actions available, not to provide investors with broad insurance against market losses." *Dura Pharm., Inc. v. Broudo*, 544 U.S. 336, 345 (2005). If not, then plaintiffs *A* and *B* would recoup \$2 because they invested in a fund that later turned out to be fraudulent, while investors who made the exact same investment decision but happened to select a fund that was not fraudulent would have no recovery.

economic losses that were the realization of risk associated with holding a stock in a declining market and those caused by a fraud.<sup>61</sup>

A concealed fact cannot cause a decrease in the value of a stock before the concealment is made public. As [the Second Circuit in] *Merrill Lynch* has formulated the test for loss causation, a plaintiff must show “both that the loss be foreseeable and that the loss be caused by the materialization of the concealed risk.”<sup>62</sup>

It may be argued, however, that the above counterfactual analyses showed only that the losses occurring prior to the revelation of the relevant truth were not caused by the fraud. This leaves open the possibility that other categories of losses, in addition to the reduction in inflation per share caused by revelation of the relevant truth, may be attributable to the fraud.<sup>63</sup>

The relevant counterfactual that would provide a more general theory is this: conditional on the plaintiffs’ share purchase, were management to have made timely disclosures prior to the plaintiffs’ share purchase, the plaintiffs would have avoided a reduction in inflation per share immediately following revelation of the relevant truth. This implies that the Court’s loss-causation standard examines the difference in share price on the date of the corrective disclosure between the counterfactual security (never infected with fraud) and the actual security to gain insight into how much of the price drop is due to the removal of the inflation per share on the day of the plaintiffs’ purchase. To the extent the price drop in the actual security is greater than the inflation per share without the disclosure, then some of the price drop is due to other factors. The plaintiffs’ damages would then be capped at the amount only due to loss causation, where the loss-causation amount is the inflation per share in the plaintiffs’ security that

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61. *See In re WorldCom, Inc. Sec. Litig.*, No. 02 Civ. 3288 (DLC), 2005 U.S. Dist. LEXIS 2216, at \*18–20 (S.D.N.Y. Feb. 17, 2005) (“Relying on another expert’s opinion that WorldCom would not have been able to complete the 2000 Offering had its financial condition been accurately revealed, [plaintiffs’ expert] opines that ‘[a]ccordingly there is no offset for negative causation for the May 2000 Notes.’ . . . . The parties agree that the negative causation defense in *Section 11* and the loss causation element in *Section 10(b)* are mirror images; in the former, the burden of proving negative causation is on the defendant, and in the latter, the burden of proving the existence of loss causation is on the Plaintiff.”).

62. *Id.* at \*21–22 (quoting *Lentell v. Merrill Lynch & Co.*, 396 F.3d 161, 173 (2d Cir. 2005)).

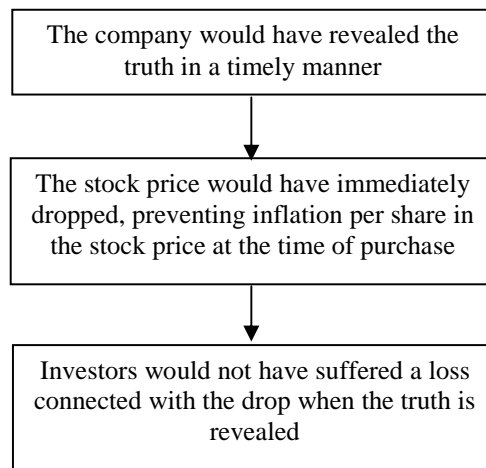
63. In a later Section, we discuss one of the other types of losses often suffered by investors in a shareholder class-action lawsuit—so-called collateral damage. *See infra* Part IV.B.

was present at the time of purchase and removed on the revelation of the relevant truth.

As is obvious from above, a key issue in a rule 10b-5 case is what happens to the stock price when the alleged relevant truth is revealed to the market. This has led to closer scrutiny of what constitutes the relevant truth and to whether there was some other cause of the stock-price behavior when the relevant truth was revealed. Examination of these questions in actual cases has uncovered issues that, if not novel, are at least taking on more importance. Also, doubts have arisen about the extent to which the event study, now at its peak in legal respectability, can resolve disputes about causation by itself in a growing number of circumstances. As a result, the event study is being viewed more as a starting point rather than providing the final answer. Additional analytical tools from the social sciences and finance are being applied in analyzing stock-price behavior in response to disclosures of misrepresentations and omissions to understand which of the information in the disclosure is actually moving the stock price.

#### IV. APPLICATION TO RECENT ISSUES IN USING THE EVENT STUDY TO MEASURE DAMAGES

We now examine in more detail the analytical approach taken to establish the counterfactual in shareholder class-action lawsuits. Given “normal conditions,” such as market efficiency and appropriate purchases and sales by investors, the counterfactual that needs to be established can be described by the following diagram:



**Figure 2**

The critical issue is to establish the first link in this causal chain. The second link is usually taken for granted. That is, as noted in the Section above on economic loss, it is assumed that if the stock price had not been inflated, investors either would not have invested in the stock at all (they may have looked for a substitute investment elsewhere), or at a minimum would not have been holding the stock when the price dropped after the (timely) revelation of the truth. This depends on the assumption that in reality, investors purchased the stock *in reliance* on the inflated price (that is, after inflation had come into the stock).

Confirming the first link in the causal chain relies on a combination of technical tools. The first and most prominent of these is the event study. An event study is a statistical tool that is used to determine whether a drop in the stock price on a given day is abnormal, given market and industry movements. If the drop is in fact abnormal, an event study can also calculate the *excess return*, that is, the amount by which the stock dropped beyond what would have been predicted by market and industry movements. An event study is usually the first step in showing loss causation due to an untimely disclosure.

While an event study can determine the abnormal stock-price drop on the day of a disclosure, it cannot be automatically assumed, however, that the entirety of this drop is due to the disclosure. It is first necessary to establish that no other negative news was released on the same day and, if negative news did become public simultaneously, that investors were not considering the non-fraud-related information when reacting to the disclosure. If it appears that other factors might have been relevant, then further steps have to be taken to identify them and ascertain their potential contribution to the price drop.

#### *A. Event Studies and Loss Causation*

The typical approach to estimating damages in a securities-fraud case involves performing an event study to determine both the materiality of the allegedly misleading information and the magnitude of the losses caused by the alleged fraud. Because of its wide acceptability, standards governing its operation, known rate of error, and ability to test hypotheses, the event-study technique provides a good example of scientific evidence. A proper approach must account for market-related events and trends that also could have affected the stock price. For example, in a pre-*Dura* decision, *In re Executive Telecard, Ltd. Securities Litigation*,<sup>64</sup> the court ruled that the plaintiffs' expert's report failed the Supreme Court's *Daubert* standard of

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64. 979 F. Supp. 1021 (S.D.N.Y. 1997).

admissibility<sup>65</sup> for neglecting to take into consideration other factors contributing to stock-price declines. The *Executive Telecard* decision said the following:

Those principles—when applied within the damages valuation context—simply require elimination of that portion of the price decline that is the result of forces unrelated to the wrong . . . . Such forces can be broadly categorized into: (1) company risk—the unique risk that is peculiar to the particular stock at issue, and (2) market risk—the risk associated with market wide variations generally.<sup>66</sup>

Generally, testimony based on properly conducted event studies has been admitted in court proceedings while testimony based on other methods, such as the index approach, has been ruled inadmissible.<sup>67</sup> The event study has become a fixture as a tool for securities litigation and academic literature related to securities litigation.<sup>68</sup> Depending on the intended purpose, event studies of the type used in litigation rely on two well-accepted principles to provide meaningful evidence. The first is the semistrong version of the efficient-market hypothesis, which states that stock prices in an actively traded security usually reflect all publicly available information and respond quickly to new information, and was the basis for the Supreme Court's decision in *Basic*. The second is that the price of an efficiently traded stock is an optimal estimate of its fundamental value, namely the present discounted value

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65. See *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).

66. *Telecard*, 979 F. Supp. at 1025.

67. See *id.* at 1021; see also *In re Williams Sec. Litig.*, 496 F. Supp. 2d 1195, 1271–94 (N.D. Okla. 2007) (explicitly ruling out the use of the index method in that case, but allowing for the analysis of damages based on event studies); *Goldkrantz v. Griffin*, No. 97 Civ. 9075(DLC), 1999 WL 191540, at \*5 (S.D.N.Y. Apr. 6, 1999) (granting the defendants' summary judgment motion due to the plaintiffs' failure to contest the defendants' event-study analysis); *In re Seagate Technology II Sec. Litig.*, 843 F. Supp. 1341, 1368–69 (N.D. Cal. 1994) (accepting some of the defendants' event studies, and dismissing certain claims on that basis, but ruling that defendants' other event studies were inadequate and denying their motion for summary judgment with regard to those issues; also finding plaintiffs' event studies lacking and therefore denied their cross-motion for summary judgment).

68. See, e.g., Janet C. Alexander, *The Value of Bad News in Securities Class Actions*, 41 UCLA L. REV. 1421, 1426–27 (1994); Daniel R. Fischel, *Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities*, 38 BUS. LAW. 1, 1–2 (1982); Jonathan R. Macey et al., *Lessons from Financial Economics: Materiality, Reliance, and Extending the Reach of Basic v. Levinson*, 77 VA. L. REV. 1017, 1028–43 (1991); A. Craig MacKinlay, *Event Studies in Economics and Finance*, 35 J. ECON. LITERATURE 13, 13 (1997); Mark L. Mitchell & Jeffrey M. Netter, *The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission*, 49 BUS. LAW. 545, 545 (1994).

of the expected future stream of free cash flow.<sup>69</sup> A properly performed event study can measure the extent of losses in response to an event under the following circumstances:

1. The event is a well-defined news item.
2. The time that the news reaches the market is known.
3. There is no reason to believe that the market anticipated the news.
4. It is possible to isolate the effect of the news from market, industry, and other firm-specific factors simultaneously affecting the firm's stock price.<sup>70</sup>

There have often been situations where some of the above conditions have not been present but the event study was used nonetheless in conjunction with additional analyses. For example, the corrective disclosure may have been in a news release that contained more than one news item that could have arguably influenced the market. Recently, however, there has been more focus on what actually happens when the truth is revealed and whether conditions one and four hold, even in the most seemingly well-isolated corrective disclosures.

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69. Robert J. Shiller, *From Efficient Markets Theory to Behavioral Finance*, 17 J. ECON. PERSP. 83, 84–85 (2003).

70. These steps are amplified as follows in David Tabak & Frederick Dunbar, *Materiality and Magnitude: Event Studies in the Courtroom* 3–4 (Nat'l Econ. Research Ass'n, Working Paper No. 34, 1999):

The procedure for performing an event study has several well-defined steps:

First, one estimates a predicted stock price return, or percentage change, from the day before the news reaches the market to the day the stock price assimilates the news. In doing this estimation, one uses a model that takes into account market and industry effects on stock price returns.

Next, the predicted return is subtracted from the actual return to compute what is called the excess return. If the excess return is calculated as the sum of individual excess returns over a number of periods (usually individual trading days), the difference between the actual and predicted returns summed over all these periods is called the cumulative excess return (or "CAR").

Typically, the predicted return does not exactly equal the actual return even when no event has occurred. To determine whether the difference between the actual and the predicted return, the CAR, is just due to chance, the CAR is tested for statistical significance . . . .

The final step, if necessary, involves computing the relevant magnitude of the event. To do this, one calculates the change in stock price or capitalized value of the firm implied by the estimated CAR and thus attributable to the event in question.

*Id.*



*B. Stock-Price Reaction: Loss Causation or Collateral Damage?*

An event study of the effect of a corrective disclosure on the defendant firm's stock price is the most common way of determining the magnitude of the loss caused by the fraud. One can think of the revelation of the truth, even if belated, as an experiment performed by history. If there have been no changes in the nature of the fraud or its relationship with the stock price, the result is considered to be a best estimate of the stock-price impact, had the truth been revealed earlier.

A potential problem with naïve application of this approach is that the nature of an untimely, corrective disclosure might be different from that of a timely disclosure if the former causes the market to believe there has been fraud. For the most part, however, the price impact of the fraud-risk component of a corrective disclosure has been considered to be so slight that it can be ignored. But this is not always so, and in some cases a more fact-intensive inquiry may be necessary. In this Section we consider the possibility that a drop in a stock's price might be caused not by the facts revealed in a disclosure *per se*, but rather by *ancillary effects arising from the disclosure*, a category of factors that have already been referred to as *collateral damage* (we should be clear at this point that *collateral damage* refers to the *factors* which help lead to the price drop, not the associated price drop itself; this semantic distinction will be relevant below). These factors may create uncertainty or fear regarding the future of the company, and it is this uncertainty which might, in some cases, be responsible for the price drop.

It is interesting to consider the issue of collateral damage from the philosophical point of view. If we adopt Professor Menzies's distinction between causes and conditions, one question that arises is whether a factor that gives rise to collateral damage is truly a cause, or only a condition. As we shall see below, the answer may vary with the circumstances. In some cases, the secondary factors making up collateral damage might have been present even if the disclosure at issue had been made in a timely manner. In such instances, one might suppose that the collateral damage is more a condition inherently tied to the substance of the disclosure than a cause in its own right.

On the other hand, sometimes the collateral damage would not have occurred in the event of a timely disclosure. To merely dismiss these factors as a condition would seem to be misleading, then. An analogy can be made here with one of Menzies's examples. He discusses a situation where a fire occurs in an ordinary building. Trivially, there must have been oxygen present for the fire to start. Yet, it would seem foolish to call the presence of oxygen a *cause* in this case. The presence of some oxygen in the air might be considered part

of the normal conditions, and is hardly noteworthy in an examination of what caused the fire. But if a fire takes place in a laboratory in a chamber that is supposed to be kept in a vacuum, the fact that some oxygen was present and enabled the fire to start becomes much more important. In this case, the oxygen might reasonably be considered one of the causes. Similarly, considering whether or not the collateral damage would be present under normal conditions can help lead to the correct counterfactual that should be considered in a litigation context.

The purpose of the remainder of this Section is to discuss situations where collateral damage is the more likely explanation of a price drop, and to analyze the resulting causation-related questions.

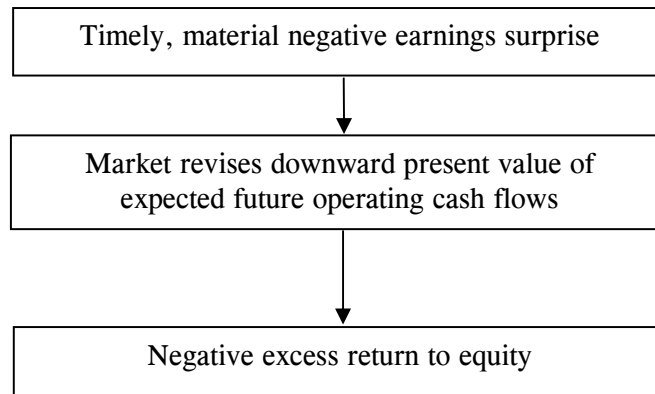
#### 1. CAUSAL ANALYSIS OF REVELATION OF THE RELEVANT TRUTH

One of the ways to visualize causation is through directed acyclic graphs (DAGs), which formalize the notion that the links in a diagram showing a causal chain flow in only one direction and hence demonstrate causation, as opposed to an ordinary flow chart.<sup>71</sup> These have analogs to the type of statistical evidence that is presented to determine materiality, loss causation, and damages. We consider the effect of an announcement of a negative earnings surprise on the stock price: the type of news that can trigger a claim. Abstracting from the question of scienter, whether the market infers fraud is based on the realization of a binary condition—either the announcement was timely or it was untimely. An untimely earnings surprise means there was a legal obligation to disclose the earnings (or the conditions that led to the unexpected earnings) at an earlier date, such as at the prior quarterly earnings announcement.

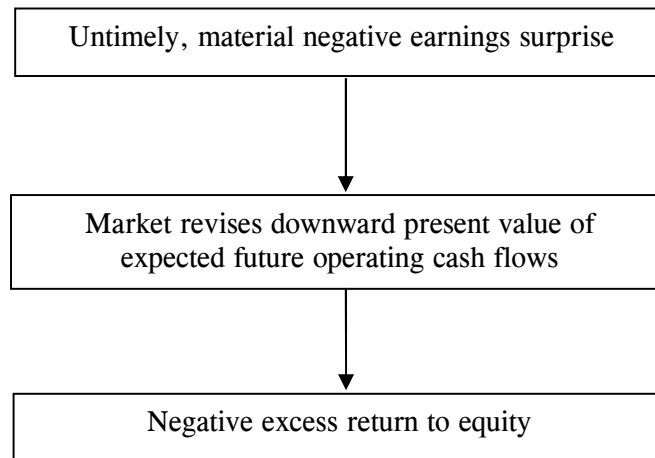
The graph of a timely, material earnings surprise where the market believes there is no adverse legal consequence would be the following:

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71. See JUDEA PEARL, CAUSALITY: MODELS, REASONING AND INFERENCE 12–21 (2000).

**Figure 3**

In its simplest form, the revelation of a material accounting restatement or untimely disclosure of other information that is used to estimate future cash flows would have an identical causation graph:

**Figure 4**

If this reflected the complete explanation of the observed excess return, then most analysts would feel comfortable using the results of an event study to address causation, materiality, and damages. There could be other consequences of an untimely announcement, however, that upon investigation might reveal that the event study is measuring more than one disclosure effect.

For one, an untimely news announcement can differ because it can raise the suspicion—usually assumed to be immaterial—of a breach of a legal obligation, hence the potential for a shareholder class-action lawsuit. Theoretically, if the market simultaneously suspects grounds for legal action, then there will be an expectation of a class-action settlement that occurs at the same time as the untimely negative earnings surprise.<sup>72</sup>

The prospect of a shareholder class-action lawsuit should not have much practical impact, however, because its expected cash effect would be small relative to the defendant firm's capitalization. Most of these cases are settled or dismissed before trial, and the typical settlement has historically been less than 3 percent of investor losses.<sup>73</sup> Insurance typically pays the lion's share of settlement and defendants' legal expenses. If the prospect of a shareholder class-action lawsuit was the only confounding factor when the untimely earnings revision was announced, there would generally be no material concern about using the entire excess return as the measure of loss caused by the fraud.

But there may be other confounding effects when there is suspicion of fraud in an announcement. The recent experience with employee stock-option backdating is instructive. A number of option-backdating disclosures have been accompanied by a statistically significant stock-price decline, yet the accounting violation arguably had no material impact on the firm's cash-flow disclosures. Also, the number of employee stock options and estimates of their value has almost always been correctly and timely reported in the footnote disclosure; consequently, there should be no stock-price impact from fears of dilution on an option-backdating announcement. This means the estimates of future free cash flow per share and, therefore, the firm value per share would not be significantly affected by the corrective disclosure.

The remaining possible explanations for out-sized price drops are limited in number, though several of them have difficulties. One is that the market is not efficient, but this explanation would not be acceptable to plaintiffs because they are compelled to invoke the fraud-on-the-market theory to succeed at the class-certification phase. A second is

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72. Janet C. Alexander, *Rethinking Damages in Securities Class Actions*, 48 STAN. L. REV. 1487, 1504 n.68 (1996); see also Bradford Cornell & James C. Rutton, *Market Efficiency, Crashes, and Securities Litigation*, 81 TULANE L. REV. 443, 467–08 (2006); Richard A. Booth, *Who Should Recover What in a Securities Fraud Class Action?* 4, 7 (University of Md. Legal Studies, Research Paper No. 2005-32, 2005), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=683197](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=683197).

73. TODD FOSTER ET AL., RECENT TRENDS IN SHAREHOLDER CLASS ACTION LITIGATION: FILINGS STAY LOW AND AVERAGE SETTLEMENTS STAY HIGH—BUT ARE THESE TRENDS REVERSING? 15 (2007), available at [http://www.nera.com/publication.asp?p\\_ID=3267](http://www.nera.com/publication.asp?p_ID=3267).

that option backdating carries with it the possibility of invasive SEC and Department of Justice investigations. But, at least ex post, the out-of-pocket costs associated with expected defense and penalties have turned out to be relatively modest compared to the loss in capitalization when options backdating has been announced.

Other collateral effects of an options-backdating disclosure, however, might be more material to investors. Key employees involved in the practice may be dismissed, and official investigations may be a distraction for the remaining executives. In addition, there is the possibility, described further below, that an announcement of accounting violations in general, and options backdating in particular, causes increased uncertainty and risk in holding the firm's securities. Investors require a higher return for investing in riskier assets, and news that causes an increase in risk would also cause the price of the affected shares to fall.

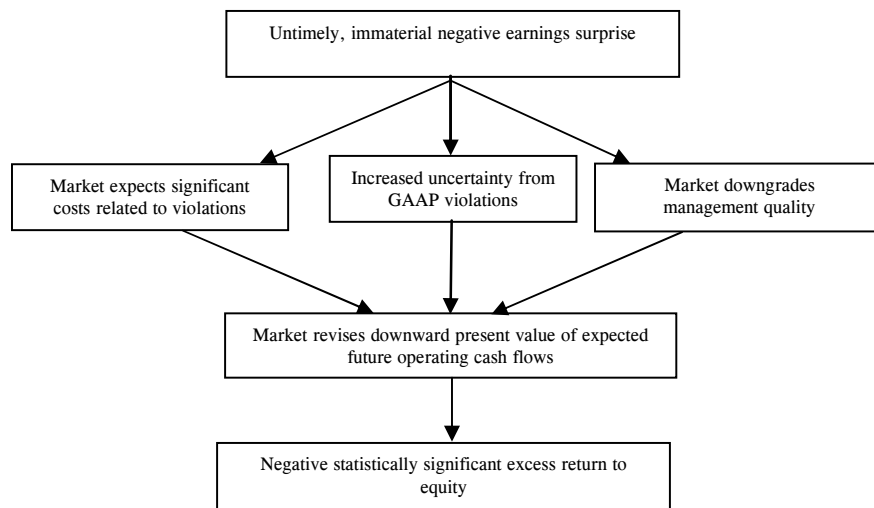
A recent monograph by Professor Allen Ferrell and economist Atanu Saha also makes the point that, in addition to signaling serious legal issues, a corrective disclosure may be associated with a downgrade in the market's opinion of management.<sup>74</sup> More specifically, they argue that a stock-price decline on the day of a corrective disclosure may reflect a reassessment of how well the firm is run. Using an example of an accounting restatement that does not by itself add information about the firm's value, the authors caution, "Investors might infer that the quality of the firm's management and internal controls are lower than they had previously believed and revalue the firm downward accordingly."<sup>75</sup>

In their view, the causation explanation can become more complicated than in the simple restatement case. The implication of their argument, which we explain below, is likely based on a spurious correlation. This can best be demonstrated with the hypothetical introduced earlier concerning an earnings surprise that is a noncash generally accepted accounting principal (GAAP) violation (were it timely disclosed, there would have been no material impact on future expected operating cash flows). But, the collateral effects at the time of the announcement lead to a statistically significant stock-price decline. In this instance, the DAG could have multiple paths as shown below in Figure 5.

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74. Allen Ferrell & Atanu Saha, *Loss Causation Requirement for Rule 10b-5 Causes of Action: The Implications of Dura Pharmaceuticals, Inc. v. Broudo*, 63 BUS. LAW. 163, 181 (2007).

75. *Id.*



**Figure 5**

Although Ferrell and Saha argue that there would be no liability under the circumstances represented by Figure 5, it is likely that plaintiffs would strenuously dispute such a claim. Referring first to the left-hand side of the graph, the question arises as to whether the information that there was a fraud, even if immaterial, matters for loss causation. The distinction between the information that was concealed (i.e., the actual, restated earnings in this example) versus the allegation that management was engaged in a cover-up is of critical importance. In the hypothetical presented by Ferrell and Saha, the misrepresentation is that the company was holding assets in cash when they were actually in treasury bills. The distinction gives rise to a balance-sheet accounting violation but has no effect on the value of the company.<sup>76</sup>

76. This example may seem stylized, but it is uncannily similar to what occurred to Refco, Inc. On October 10, 2005, a press release from the company stated the following:

Refco Inc. (NYSE: RFX) today announced that it had discovered through an internal review a receivable owed to the Company by an entity controlled by Phillip R. Bennett, Chief Executive Officer and Chairman of the Board of Directors, in the amount of approximately \$430 million. Mr. Bennett today repaid the receivable in cash, including all accrued interest . . . This receivable from the entity controlled by Mr. Bennett was reflected on the Company's prior period financials, as well as on the Company's May 31, 2005 balance sheet. The receivable was not shown as a related party transaction in any such financials.

Press Release, Refco, Inc., Refco Announces Undisclosed Affiliate Transaction (Oct. 10, 2005), *available at* <http://www.secinfo.com/d11MXs.z1eVu.d.htm>.

Although revealing an accounting violation by not showing the debt as a related-party transaction, Refco was in a financially stronger position after the press release

The issue involves comparing the actual stock price to what it would have been had there been no fraud.<sup>77</sup> The hypothesis is that, had the truth been known in a timely fashion, the stock price would have been no lower so there would have been no damages. Whether the stock price would have been the same in the counterfactual world, however, is not always clear.

## 2. THE NEED FOR FACTUAL ANALYSIS

In trying to assess materiality and loss causation, an immediate problem involves understanding the mechanism that is causing a downward revision of expected cash flows. Unfortunately, inspection of the corrective disclosure by itself will often not reveal the full explanation of the price decline. The history of shareholder class-action lawsuits shows that there are a number of possible explanations.

### *a. Misrepresentation that appears to be material simply from the fact that it is a misrepresentation*

The fact that management is facing all the problems associated with accusations of participating in an accounting violation could, in certain circumstances, be enough to send the stock price tumbling. If this could be shown to be the only material piece of news, then it would appear that defendants might have the better argument.<sup>78</sup> This very issue was recently confronted in an SEC enforcement action arising over backdated options at Brocade Communications Systems, Inc. In

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having exchanged, dollar for dollar, a finance receivable for cash. Yet, the stock price fell 45 percent on the announcement. See Peter A. McKay et al., *Refco CEO Takes Leave Over Debt*, WALL ST. J., Oct. 11, 2005, at C1.

77. See, e.g., *Affiliated Ute Citizens of Utah v. United States*, 406 U.S. 128, 154–55 (1972); *In re Executive Telecard Ltd. Sec. Litig.*, 979 F. Supp. 1021, 1025 (S.D.N.Y. 1997) (“In assessing the reliability of the Expert Witness’s damages analysis we are mindful of the well-settled general principle that damages in a securities fraud case are measured by the difference between the price at which a stock sold and the price at which the stock would have sold absent the alleged misrepresentations or omissions.”).

78. See, e.g., *In re Craftmatic Sec. Litig.*, 890 F.2d 628, 640 (3d Cir. 1989) (“Where the incremental value of disclosure is solely to place potential investors on notice that management is culpable of a breach of faith or incompetence, the failure to disclose does not violate the securities acts.”); see also *Caremark, Inc. v. Coram Healthcare Corp.*, 113 F.3d 645, 648 (7th Cir. 1997) (“To plead loss causation, the plaintiff must allege that it was the very facts about which defendant lied which caused its injuries.”); *In re Citigroup, Inc.*, 330 F. Supp. 2d 367, 377 (S.D.N.Y. 2004) (“Plaintiff’s allegation that Citigroup’s failure to disclose that its revenues were derived from ‘unsustainable and illegitimate sources’ violated section 10(b) is likewise unavailing, for the federal securities laws do not require a company to accuse itself of wrongdoing.”).

deciding that the isolated fact of a fraud is not material, Judge Stephen Breyer made the following comment:

For its part, the SEC has suggested that investors punished Brocade's stock simply because the company's financial statements had been inaccurate, or in other words, because they believed Brocade's executives had lied. This observation may be true, too, but it is a woefully insufficient basis for finding that the misrepresentations are "material" as a matter of law. If a misrepresentation is deemed material simply because it is a misrepresentation, then the law's materiality requirement is altogether meaningless.<sup>79</sup>

*b. News about management quality*

With regard to news about management quality, however, it is likely that plaintiffs have a potentially persuasive rebuttal. It is important to be clear about semantics on this issue. Usually what is meant by *management quality* is the ability to run the firm so as to maximize shareholder value. Consider a different hypothetical from the one above, where the firm's executives *materially* overstated earnings over several filing periods. A well-known reason for using accounting tricks is to cover up disappointing core earnings. In the but-for world of timely earnings announcements not violating GAAP, there still would have been one or more negative earnings surprises. In the but-for scenario, such news would signal that management was not performing up to market expectations. Consequently, negative inferences about management quality from a corrective disclosure are simply delayed inferences that would have also been made from timely disclosures. Put another way, in this case, concerns about management quality might be considered conditions that generally accompany poor news about earnings, à la Professor Menzies. Management quality would not be considered a separate cause in its own right.

With regard to an *immaterial* accounting violation, one might wonder whether there are any inferences about management quality that would cause the price decline. Sometimes there is one: lack of adequate internal control mechanisms. Whether this is an issue, either in the allegation of a misrepresentation or in loss causation, would be a factual issue.

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79. *SEC v. Reyes*, 491 F. Supp. 2d 906, 912 n.6 (N.D. Cal. 2007).



*c. Increased perceptions of investment risk*

News of material accounting violations (i.e., disclosures that would cause investors to reduce their expectations of future free cash flow) would signal that management has been less than candid with the truth. To label this failing as management quality, though, is slippery. For this reason, in the above example we have excluded the possibility that management quality per se may also be measured along the dimension of integrity.

Nonetheless, if shareholders and the board of directors believe that the plaintiffs' allegations have merit, then this will have two repercussions: first, a higher-than-average expectation that the culpable executives will have limited tenure; second, a perceived risk that this is not the last piece of bad news about earnings. Each of these is discussed below.

**(I) INFERENCES REGARDING MANAGEMENT JOB SECURITY**

Losing executives may affect expectations of future cash flows if the market were to believe that replacements are not capable of filling the shoes of those who left. An announcement of an accounting violation that creates credibility problems for incumbent management could therefore contribute to a stock-price drop by causing a market reassessment of how long existing management is going to last, especially if a board-of-directors investigation is triggered by the disclosure. If management escapes being fired, however, then the stock price should recover the amount it lost. In any event, because the accounting change was not material (by assumption), there is an open question of whether management firings would have been foreseeable at the time the misrepresentation was originally made. Once again, the issue of loss causation may become one of a factual inquiry into the allegation. Simply because the stock price dropped on the news, though, is not enough by itself to trigger damages.

**(II) RISK OF FUTURE MATERIAL ACCOUNTING-RELATED EARNINGS SURPRISES**

Upon hearing a disclosure of an accounting violation, it is common for investors to expect the second shoe to drop. If there is an additional disclosure of a material accounting infraction that triggers fraud liability, then the part of the initial excess return caused by increased risk is certainly part of damage per share. The question is more complicated, however, if there (1) is additional news that affirms the accounting violation was not material, or (2) is no additional news that

provides tacit guidance that the original accounting violation was not material.

Is an increased perception of risk that accompanies a disclosure a cause, or a condition, for the resultant price drop (assuming that the heightened risk does indeed contribute to the drop)? The answer, as alluded to above, at least partly depends on whether the first disclosure is complete or whether more disclosures follow. It might thus be possible to say that the *completeness* of the first disclosure should form part of the conditions for this example. In particular, since one might expect a complete disclosure to generate less risk and uncertainty, the normal conditions might constitute two distinct possibilities: either a disclosure is complete and generates little increased risk, or it is not, and risk increases substantially. Viewed this way, in the scenario where the initial disclosure is only partial (accompanied by greater uncertainty, and then followed by further disclosures that confirm the uncertainty), the presence of risk may be considered normal and hence not really a *cause* of the drop; a complete analysis would depend on the outcomes of subsequent disclosures. On the other hand, if it turns out that the disclosure was in fact complete, the presence of risk would not be normal and would merit consideration as collateral damage in a causation argument.

*d. Is generalization about collateral damage possible?*

Announcement of an immaterial accounting violation will often trigger a stock-price drop and shareholder class-action lawsuits. Assuming that the pure stock-valuation aspects of the violation—that is, its effect on the discounted present value of future cash flows—are not material, one may wonder what caused the price drop and whether any of it reflects information the market did not know before. In some cases, such as issues dealing with management quality or the first of a series of negative accounting restatements, the answer is likely to be yes. Plaintiffs may then be able to construct a plausible case for loss causation by arguing that such information would have depressed the stock price during the class period.

As Judge Breyer recognized, however, there is a potential circularity to the argument that an otherwise immaterial violation becomes material *only* because the stock-price drop was caused by market-perceived implications of the fact of the infraction rather than its gravity. If courts were to accept such arguments, then immaterial violations would always become material only if their announcement causes a stock-price drop for a reason other than the substance of the misrepresentation.

Even the hot-button issue of management integrity is not so clear cut. If an infraction in and of itself is not material to shareholders, then it may be reasonable for management to believe that a necessary condition for fraud is missing from their conduct. Indeed, the implication of an immaterial violation is that, were the truth known from the beginning, the share price would have been no lower over the class period than it actually was. If the stock price drops nonetheless because of uncertainty about management credibility, the market is arguably assuming there is more risk than is actually the case—i.e., the market is getting it wrong even though it may be rational to expect more negative news, such as firings or other accounting misstatements, because this has been a historical pattern for other stocks. If, in fact, internal and government investigations exonerate management and there are no more accounting restatements, then share prices will rise on positive news. Again, though there would not have been a lower price during the class period had the true financials been reported from the start, there would have been no change in perceptions of management integrity because the substance of the misrepresentation was immaterial (by assumption). The only way that plaintiffs could sustain an action is to argue that the relevant counterfactual is one where a violation occurs (which would make it not a counterfactual), and then management would have to reveal the violation instantaneously after the class period starts in order to induce a price reaction at the beginning of the class period that causes uncertainty about management integrity. Without assuming such a but-for world, there would be no inflation per share at the beginning of the class period and no damages. Such a theory of causation, however, would be a contrivance just to sustain a case where the materiality requirement would not otherwise be met.

Arguably, as a policy matter, there is merit to deterring willful misrepresentations even if the stock price would not have moved in the absence of the misrepresentation. It is likely, for example, that the SEC believes it should enforce civil and/or criminal penalties in such a case. This is not, however, necessarily the best fact pattern for traditional shareholder class-action lawsuits.

#### CONCLUSION

The *Dura* decision has shone the spotlight brightly on the issue of loss causation. Due to the stricter standards imposed by the Supreme Court, carefully establishing loss causation is now more crucial than ever in shareholder class-action lawsuits. It is now widely accepted that investor losses due to so-called intervening events, such as a drop in the S&P 500 during the class period prior to the revelation of the relevant truth, are to be excluded from damages. Such a result is consistent with

the philosophical notion of the counterfactual world without liability being the one closest to the actual world; inflation per share and loss causation are then the difference between the stock prices in the actual world and the counterfactual world. In a simple case, damage per share then becomes equal to the lesser of loss causation or the decline in inflation per share between purchase and sale.

Complications arise when there is confounding news at the time of the revelation of the relevant truth. Although an event study can detect when a stock-price decline on such news is statistically significant, it cannot by itself determine which of simultaneous events caused the price drop. For example, is it the substance of the corrective disclosure or the uncertainty about the future caused by a revelation of wrongdoing? Sometimes, finance theory can be used to rule out some potential explanations of a price drop. Other times, an empirical analysis will be the best way to find out what piece of information caused the market to react. When available, the most telling information is often contained in analyst reports following the disclosure. A review of postdisclosure materials to determine which element of the news was material to the market should be done in such a way as to minimize bias. There is the danger that an expert is selectively quoting from the available sources. One method that is currently being used to reduce the chance of drawing an erroneous conclusion is content analysis.<sup>80</sup>

Although *Dura* arguably added clarity to the notion of loss causation, correctly showing loss causation has not become less complicated. Investigators are finding an increasing number of situations where careless application of the standard event study may yield the incorrect counterfactual. In such instances, a fact-intensive inquiry, perhaps using alternative or complementary approaches, may be needed to draw correct inferences about the causes and amount of shareholder losses.

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80. DAVID TABAK, MAKING ASSESSMENTS ABOUT MATERIALITY LESS SUBJECTIVE THROUGH THE USE OF CONTENT ANALYSIS 1 (2007), available at [http://www.nera.com/image/PUB\\_Tabak\\_Content\\_Analysis\\_SEC1646-FINAL.pdf](http://www.nera.com/image/PUB_Tabak_Content_Analysis_SEC1646-FINAL.pdf); see, e.g., *NAACP v. AcuSport, Inc.*, 271 F. Supp. 2d 435, 515 (E.D.N.Y. 2003) (“[An expert’s] opinions were largely based on a study that he performed using ‘content analysis.’ [The expert] and several of his research assistants reviewed documents and deposition testimony from the various defendants in an attempt to draw inferences as to which defendants did or did not employ any one of ‘countermarketing’ strategies [the expert] had identified. The results of this analysis were presented to the jury on charts that were useful and reliable in supporting his conclusions.”).