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On June 23, 2014, the Supreme Court issued its ruling in Halliburton Co. v. Erica P. John Fund, Inc. *("Halliburton II") that prior case law "affords defendants an opportunity to rebut the presumption by showing, among other things, that the particular misrepresentation at issue did not affect the stock's market price."*[1] *While this has generally been considered the key holding, it has not gone unnoticed that the Court affirmed its prior ruling in* Basic, Inc. v. Levinson,[2] *mentioning that the "presumption of reliance thus does not rest on a 'binary' view of market efficiency"*[3] *and, referring to the Brief for Petitioners, that the "markets for some securities are more efficient than the markets for others."*[4] *In this Article, I discuss the implications for a securities fraud case of the proposition, apparently advanced by the plaintiffs' bar, that there is something new to be found in arguing that the security in question in a securities litigation is "less efficient" than typical.*

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 1.   Halliburton Co. v. Erica P. John Fund, Inc. (*Halliburton II*), 573 U.S. —, 134 S. Ct. 2398, 2414 (2014).

 2.   485 U.S. 224 (1988).

 3.   *Halliburton II*, 134 S. Ct. at 2410.

 4.   *Id.* at 2409.

INTRODUCTION

On June 23, 2014, the Supreme Court issued its ruling in *Halliburton Co. v. Erica P. John Fund, Inc.* ("*Halliburton II*"),[5] affirming that *Basic, Inc. v. Levinson*[6] "affords defendants an opportunity to rebut the presumption [of reliance at the class certification stage] by showing, among other things, that the particular misrepresentation at issue did not affect the stock's market price."[7] While this opportunity to rebut price impact at the class certification stage has generally been considered the key holding in *Halliburton II*, it has not gone unnoticed that the Court also stated that "*Basic*'s presumption of reliance thus does not rest on a 'binary' view of market efficiency. Indeed, in making the presumption rebuttable, *Basic* recognized that market efficiency is a matter of degree and accordingly made it a matter of proof";[8] thus the *Halliburton II* Court noted, referring to the Brief for Petitioners, that the "markets for some securities are more efficient than the markets for others."[9]

I begin by looking at the roles that plaintiffs and defendants have in analyzing market efficiency and how that may change following *Halliburton II*. Following that, I examine the case where either plaintiffs allege only a "less efficient" market or where the court, perhaps based on arguments by defendants, holds that the market for the security is of the less efficient variety. As discussed below, a less efficient market may change the way that parties approach issues including: (1) measurement of price reactions; (2) parsing of price reactions; and (3) moving from price reactions to inflation at other points during a class period. It should be noted that while all of the views below are possible scenarios that may play out in different cases, they will not apply in every case and it is unclear how often, indeed, if ever, they will come into play in actual cases. Nevertheless, they present analyses that, even if not applied, may influence how parties approach certain aspects of cases just because they represent new threats to be avoided or opportunities to be explored.

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5.   134 S. Ct. 2398 (2014).

6.   485 U.S. 224 (1988).

7.   *Halliburton II*, 134 S. Ct. at 2414.

8.   *Id.* at 2410.

9.   *Id.* at 2409.

I. *HALLIBURTON II* AND PLAINTIFFS' AND DEFENDANTS' ROLES IN ARGUING MARKET EFFICIENCY

One noted plaintiffs' attorney, Marc Gross, has predicted that "Post-*Halliburton II*, plaintiffs will seize upon the Supreme Court's rejection of the 'robust' efficiency model in favor of a more relaxed, 'generally' efficient model."[10]   As noted above, the Supreme Court actually referred to its prior *Basic* decision in these statements,[11] meaning that at best, there is some additional clarity as to what should have been already known to the relevant audience (or legal market). The attorney then discusses two cases in which courts found that reactions to new interpretations of already public news would not be consistent with the efficient markets hypothesis.[12] He then argues, "Thus, post-*Halliburton II*, a statistically significant price reaction should be sufficient regardless of whether the reaction takes place following the initial announcement of the news, or sometime later when an analysis 'spotlights' its adverse impact on the company's financial condition."[13] Arguably, if this claim were meritorious, then plaintiffs should have already been making this argument, rather than finding that a restatement by the Supreme Court of its views from *Basic* allows for different "post-*Halliburton II*" interpretations of fact patterns that have appeared before. But, assuming that plaintiffs will at least present such interpretations when they have not before, one relevant question is where that leads us.

While the ability to consider the price impact to "old news" is an interesting proposition that may at first glance help plaintiffs, there are several considerations to highlight. To begin, the idea that a price reaction could occur "sometime later when" new analysis of already known news is published would still be inconsistent with the standard academic model of market efficiency, what Gross refers to as a "robust" view.[14]   For plaintiffs to avail themselves of an argument that the market was responding to a re-evaluation of prior information, they should need to argue—and prove—that the market for the security in question was not efficient in the standard academic sense, in which the

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10.   Marc I. Gross, *Class Certification in a Post-Halliburton II World*, LAW360 (July 21, 2014, 10:47 AM), http://www.law360.com/securities/articles/558536/class-certification-in-a-post-halli burton-ii-world.

11.   *Halliburton II*, 134 S. Ct. at 2409, 2414 (citing *Basic*, 485 U.S. 224 (1988)).

12.   Gross, *supra* note 10.

13.   *Id.*

14.   *Id.*; *see, e.g.*, Andrew W. Lo, *Efficient Markets Hypothesis*, *in* THE NEW PALGRAVE DICTIONARY OF ECONOMICS, ONLINE EDITION (Steven N. Durlauf & Lawrence E. Blume eds., 2008), *available at* http://www.dictionaryofeconomics.com/article?id=pde2008_E000050.

price response occurs when the news is first revealed.[15]

Perhaps, however, plaintiffs would simply argue that they have met their burden to prove efficiency by showing efficiency at the lesser level, while defendants would respond that if the plaintiffs' expert's analysis is accepted, then plaintiffs must be bound by the strictures of the standard academic definition, or "robust view," of efficiency.[16] That is, the parties recognize that plaintiffs still have the burden of proving efficiency, but they disagree about the proper interpretation of plaintiffs' expert's analyses. This could lead to some very interesting debates about the interpretation of plaintiffs' work, with plaintiffs' expert potentially being asked if his or her analyses indicate a degree of efficiency consistent with the standard academic view for the security in question or some lower level of efficiency. If the expert answers that the analyses support the standard academic view of efficiency, then the argument for a price reaction to a "somewhat later" analysis would be inconsistent with plaintiffs' own proffered analyses. However, if plaintiffs' expert says that his or her analysis supports only a lesser degree of efficiency, that of course opens the door to questioning on which test(s) did not show the standard academic levels of efficiency, on what type of "lesser" efficiency should result, and on what basis the expert claims that the price reaction that follows old or repeated news is actually due to the news given the specific form of "less efficient" market the expert alleges exists.

Because of the clarity of the standard academic view of market efficiency, many of the tests of that level of efficiency are at least clear in principle (e.g., there should be no statistically significant predictability of price movements[17]) or generally accepted in direction (e.g., trading volume the number of analyst reports[18]). It is, at least currently, unclear what results would support a "less efficient" market. For example, how much predictability in price movements moves one from the standard academic view of market efficiency to a "less efficient" market to an inefficient market? Similarly, one could argue that more analysts are indirect indicators of a more efficient market,

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15. Note that one should not refer to this as a "strong" form of efficiency, as there is already a standard terminology that categorizes markets as strong-form efficient (incorporating all private and public information), semi-strong-form efficient (incorporating all public information), and weak-form efficient (incorporating past prices).

16. Presumably, in providing an opinion on efficiency, plaintiffs and their expert should have to describe the form of efficiency for which they argue. At a minimum, this is a fair topic to explore in a deposition of plaintiffs' expert.

17. *See generally* Eugene F. Fama, *Efficient Capital Markets: II*, 46 J. FIN. 1575 (1991) (discussing predictability through the lens of market efficiency and equilibrium-pricing issues).

18. Cammer v. Bloom, 711 F. Supp. 1264 (D.N.J. 1989).

making at least the direction of the test clear for the standard academic view of efficiency, but how few analysts signal a drop from the standard academic view of market efficiency to a "less efficient" form of efficiency before one reaches a market that should be characterized as inefficient? Experts arguing for "less efficient" markets may wind up having to see if they can address these questions in a way that does not run afoul of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*[19] With little or no academic basis for proving that a market is "less efficient," but not actually efficient in the academic sense nor inefficient, at least initially, plaintiffs are likely to face substantial skepticism if they claim to have threaded this needle, particularly based on their own interpretations of commonly used tests.[20]

There is also the possibility of a role reversal between the parties at the class certification stage. Suppose that there is a case with a single alleged corrective disclosure with no associated price decline, but where there is a "later" reiteration or re-analysis of the same information followed by a price drop. Plaintiffs would hope to survive a challenge to their unorthodox pleading of loss causation by arguing that the price decline following this later announcement is consistent with a less robust version of efficiency. It would then be in defendants' interest to prove that the security in question in fact traded in a market that is efficient in the standard academic sense, such that the later re-analysis could not have been the cause of any observed price movement. In such a situation, defendants may be touting the efficiency of the market for

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19. 509 U.S. 579, 597 (1993) ("[T]he Rules of Evidence . . . do assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand.").

20. One potential test that may be helpful would be to examine whether the security in question *consistently* takes time to fully absorb news. If the security absorbs news quickly (e.g., there is no apparent excess volatility on the day after the day that the security first is affected by news), that would argue for efficiency in the academic sense. And even if the security does take time to fully absorb news, but does so in an inconsistent fashion, perhaps sometimes taking one day and sometimes several days, then while this may argue for a "less efficient" market, such a result merely postpones the question of how long it took to absorb any particular piece of news such as a corrective disclosure. Similar tests may be possible for repeated news. Notably, unless plaintiffs can show the manner in which the market departs from the standard academic model of efficiency, they may have difficulty in conducting event studies on that security in a way that properly accounts for that departure from inefficiency and does not appear designed to merely yield a certain outcome. Put differently, even if plaintiffs met their burden of proving that a market is "less efficient," they still must conduct their event studies, including addressing the question of whether a repetition or reinterpretation of old news merits an event study, in a manner consistent with what they have proven about the market. Proof that a market is simply "less efficient," even if done properly, should not be a license to conduct any sort of event study with no standards to ensure that the study reflects the type of departure from the standard academic model of efficiency supposedly shown for the market in question.

the security, while plaintiffs highlight any deviations from the standard academic form of efficiency while being careful not to go so far as to point at inefficiency. While we don't know whether or how often this may happen, it could result in some very interesting arguments, not only when it is clear that the roles are reversed, but also perhaps even more so if it is not obvious to one party that the other has effectively switched sides in the efficiency debate.

II. MEASUREMENT OF PRICE REACTIONS

A traditional manner of analyzing price reactions is to keep the event window, or the period over which the price movement is measured, as short as practical.[21] The *Halliburton II* decision notes that "Halliburton cites studies purporting to show that 'public information is *often not incorporated immediately* (much less rationally) into market prices.'"[22] The opinion then, referring to the Brief for Petitioners, states: "The markets for some securities are more efficient than the markets for others, and even a single market can process different kinds of information more or less efficiently, depending on how widely the information is disseminated and how easily it is understood."[23] Putting these two quotes together, one may read the *Halliburton II* Court as highlighting the non-binary view of efficiency from *Basic* and endorsing the view that some markets can take time to process information and thus can take time to impound information into the price of a security, potentially opening up the question of how short an event window should be.

In securities litigation, there is typically a default event window of a single trading day that can be extended if it appears that the price of the security is still unusually volatile (often measured by its continuing to move by a statistically significant amount) the following day or shortened, if that would help distinguish the price responses to two or more separate intraday announcements.[24] This procedure is reasonable because for the purposes of a securities fraud case, an expert often is attempting to measure the price impact of a particular announcement on a particular security.[25] There are situations in which the expert may

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21. David Tabak & Frederick Dunbar, *Materiality and Magnitude: Event Studies in the Courtroom*, *in* LITIGATION SERVICES HANDBOOK: THE ROLE OF THE FINANCIAL EXPERT 19.1 (3d ed. 2001).

22. Halliburton Co. v. Erica P. John Fund, Inc. (*Halliburton II*), 573 U.S. —, 134 S. Ct. 2398, 2409 (2014) (emphasis added).

23. *Id.*

24. Tabak & Dunbar, *supra* note 21, at 19.4.

25. Some potential econometric considerations of this are discussed in Jonah B. Gelbach, Eric

look at similar announcements, for example, to help in parsing a price reaction by assessing the typical reaction of the market to one component of the news. However, even then, it is still typical to begin with an examination of the price reaction in question for the security at issue in the case at bar. Because most securities cases focus on a very limited number of potential disclosure events, it is generally possible to examine whether there is a time stamp or other evidence of the time within the day when an identified disclosure reached the public. In addition, given the generally limited number of events, when there are concerns about leakage before the identified disclosure, it may be worth the effort to examine message boards or other sources that may document such leakage. Thus, event studies in securities litigation have tended to have a fairly precise focus on when news first entered the market.

In contrast to the focus on a single security in most securities litigation, "[a]n [academic] event study typically tries to examine return behavior for a sample of firms experiencing a common type of event (e.g., a stock split)."[26] In those cases, the event window often covers a full trading day or two for each of the events making up the sample.[27] In academic studies covering numerous announcements, it was often felt that it would be too difficult to determine the exact time when they reached the market.[28] Instead, relatively long event windows were often used to increase the likelihood of capturing the relevant event.[29] While improvements in information technology have allowed more precise and less labor-intensive dating of identified announcements,[30]

Helland & Jonathan Klick, *Valid Inference in Single-Firm, Single-Event Studies*, 15 AM. L. & ECON. REV. 495, 496 (2013) ("This paper concerns single-firm event studies, which are especially important in the context of securities litigation.").

26. S. P. Kothari & Jerold B. Warner, *Econometrics of Event Studies*, *in* 1 HANDBOOK OF EMPIRICAL CORPORATE FINANCE 3, 8 (B. Espen Eckbo ed., 2007).

27. *See* A. Craig MacKinlay, *Event Studies in Economics and Finance*, 35 J. ECON. LITERATURE 13, 15 (1997) ("In practice, the period of interest is often expanded to multiple days, including at least the day of the announcement and the day after the announcement.").

28. John J. Binder, *The Event Study Methodology Since 1969*, 11 REV. QUANTITATIVE FIN. & ACCT. 111, 122–23 (1998).

29. *Id.*

30. For example, Dow Jones News/Retrieval began in 1973. *See generally* Sidney A. Rosenzweig, *Don't Put My Article Online!: Extending Copyright's New-Use Doctrine to the Electronic Publishing Media and Beyond*, 143 U. PA. L. REV. 899, 902 n.13 (1995). It increased its subscriber base substantially during the 1980s. *See Start the Computers Stop the Presses!*, INFOWORLD, Mar. 30, 1981, at 26 (11,000 subscribers in 1981); Beth Krevitt Eres et al., A Decision Maker's Guide to Videotext and Teletext 56 (June 9, 1986) (unpublished manuscript), *available at* http://unesdoc.unesco.org/images/0006/000689/068919eb.pdf (205,000 subscribers in 1986). Dow Jones News/Retrieval further expanded its strategy to target a broader audience in the 1990s. *See* Geraldine Fabrikant, *COMPANY NEWS: Dow Jones and West to Link Data*

the proliferation of alternative news sources, including Internet message boards, now also means that there is a greater possibility of widespread dissemination of rumors or information before an official announcement, potentially supporting the use of some methodology that may lead to an earlier start to an event window to capture the release of news in event studies covering multiple securities.[31]

While a longer event window provides the benefit of increasing the likelihood of capturing all of the relevant news releases, it also entails the cost of capturing additional, unrelated news as well as random fluctuations in the price of the security or securities being studied. For academic event studies that involve analyses of multiple securities, this cost tends to be muted; as price increases unrelated to the event being studied in some securities will tend to offset similarly unrelated price decreases in securities.[32] In contrast, most securities litigations involve one or more securities of the same issuer, meaning that the effects of random noise affecting that one security or issuer are less likely to be averaged out, and any price fluctuations after adjusting for market and industry effects that are not caused by the actual news event under consideration will be incorrectly attributed in full to that news, all of which argues for a shorter event window in securities litigation.[33]

Services, N.Y. TIMES, May 18, 1994, http://www.nytimes.com/1994/05/18/business/company-news-dow-jones-and-west-to-link-data-services.html ("In yet another effort to make information services more user friendly . . . ."). It was then merged into Factiva, currently a major source of online news. *FACTIVA replaces Dow Jones Interactive*, PENN LIBR. (May 23, 2003), http://www.library.upenn.edu/news/26.

31. For the results to still be scientific and have a known rate of error, one should employ a standard protocol across all events. The protocol may allow for flexibility, such as moving the start date earlier when there are comments, such as on message boards, describing a release of news that already occurred. However, the methodology should not be based on price movements before the known news release, as that confuses what is being measured (the price movement) with the methodology for making the measurement and biases the analysis to pick up large but not small random fluctuations immediately preceding a news release. In contrast, while not standard, always starting the event window at a fixed period, such as two trading days, before the news announcement, would at least be a valid methodology if consistently applied to all events.

32. *See generally* Binder, *supra* note 28 (discussing the methodology of academic event studies). Technically, the noise component of the measured movements should be proportional to the inverse of the square root of the number of events considered, assuming that they are in non-overlapping time periods. So, for example, a study of 100 events should typically be expected to have one-tenth the noise of that of a single event with the same length event window.

33. Similar issues occur with medical studies. If possible, medical studies are not performed on a single patient but on a group of patients, as well as a control or placebo group. The length of observation is often set beyond the period of expected efficacy or adverse side effects of the treatment, under the assumption that with relatively large treatment and control groups, later results will be similar if the treatment has no long-term effects, but that differing long-term results may indicate a longer treatment effect than previously anticipated. In contrast, if one dealt with a single patient, it would typically be harder to say if unexpected long-term effects were due to unanticipated effects of the treatment or to some development unrelated to the treatment.

Moreover, relative to other events, allegedly corrective disclosures that lead to securities litigation are more likely to be unexpected and to cause relatively large price responses, which in turn are more likely to continue influencing price movements for a longer period of time.[34]

What does that mean for analyses in securities cases in situations where plaintiffs argue that they have shown that the market for a security is of the "less efficient" variety that may fail to incorporate information quickly? An implication is that the end point for the event window now arguably could be extended further because there is more reason to believe that the "signal" from the disclosure is continuing to influence security price movements. Thus, this may lead to a further dispute among the parties and the experts as to how far out to look to account for further declines and/or reversals of price movements following allegedly corrective disclosures.[35]

Another potential dispute may involve the consideration of whether news from before the alleged corrective disclosure was still having an influence during the event window. After all, if the news from the corrective disclosure can still influence price changes "sometime later," and particularly if it is argued that it may do so even after the price of the security has settled down, then why can't news before the corrective disclosure have a similarly long-lasting or delayed effect? So, if there is a corrective disclosure and subsequent price decline on Thursday, and if plaintiffs argue that the security in question traded in a "less efficient" market, it would seem that defendants should be able to argue that perhaps some or all of the price drop may be the result of, say, a prior news announcement unrelated to the allegations on Monday of that week. As a first pass, assuming identical impact periods for all news seems compelling, whether it is the Thursday corrective disclosure or the Monday confounding news, meaning that plaintiffs should not be able to try to claim the potential benefits of a less efficient market without also being subject to ways that the same theory could reduce or

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34. Dmitry Krivin et al., Determination of the Appropriate Event Window Length in Individual Stock Event Studies 23 (Nov. 4, 2003) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=466161.

35. The Krivin et al. paper uses a baseline rule common to some experts to continue the event window through each day in which there is a statistically significant price movement unless other news enters the market. *Id.* at 8–9. Generally, this can be thought of as saying that the window is kept open until it appears that the price movements settle down. With a "less efficient" market, however, one might question whether the influence of a disclosure settles down and then somehow appears again. An interesting debate may develop as to what evidence may support such a position and whether the expert is using a generally accepted or even published methodology with controlling standards and a known rate of error in arguing that news has a delayed effect or that repeated news has a new effect on the price of a security.

eliminate their damages claims.

To make the situation even more complicated, recall that the *Halliburton II* decision referred to the Brief for Petitioners' view that "even a single market can process different kinds of information more or less efficiently, depending on how widely the information is disseminated and how easily it is understood."[36] This opens up several new lines of inquiry, both for alleged corrective disclosures and other news events. Perhaps experts may begin counting the number of news stories and analyst reports to examine "how widely the information is disseminated" for both alleged corrective disclosures as well as for potentially confounding news during *and before* the event window for the corrective disclosure. Reviews of analyst reports, including changes to price targets and earnings (and other financial) estimates may provide guidance as to whether the information was easily understood, as exemplified by immediate and consistent changes in these measures across analysts in the case of easily understood information and by delayed or inconsistent changes across analysts in the case of less easily understood information. It is not clear whether and how such measures might come into play, and whether a consensus will develop on either point, but the statements about degrees of efficiency in *Halliburton II* appear to at least initially open the door to a re-examination of how to construct an event window when a security is deemed to trade in a "less efficient" market.

One important concern here is that the parties may not recognize how the potential for different event windows may affect the measures of statistical significance for any given price reaction. To see this, we should begin with the standard definition of statistical significance, here taken from the *Reference Manual on Scientific Evidence*: "the probability of getting data as extreme as, or more extreme than, the actual data—given that the null hypothesis is true."[37] That is, statistical significance is the rate of false positives, meaning the probability of getting a result (here, a price movement) as large (extreme) as or larger (more extreme) than what was actually observed when the null hypothesis is true (here, there was no material event). In discussing the cutoff level for statistical significance, this same source further notes, "In practice, statistical analysts typically use levels of 5% and 1%. The 5% level is the most common in social science, and an analyst who speaks of significant results without specifying the threshold probably is

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36. Halliburton Co. v. Erica P. John Fund, Inc. (*Halliburton II*), 573 U.S. — 134 S. Ct. 2398, 2409 (2014).

37. FED. JUDICIAL CTR., REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 250 (3d ed. 2010).

using this figure."[38] This means that if one randomly selected a date when there was no material news, there should be only a five percent chance that the associated stock price movement (net of market and/or industry effects) would be large enough, solely due to chance, to be deemed statistically significant. In legal terms, this would be the "known or potential rate of error" relevant to the consideration of expert testimony.[39]

However, suppose that the expert considers two possible windows, such as one around the initial disclosure of an event and a second when the event is discussed at a later point by an analyst. If the event was not material, in the sense of not being expected to have an impact on the stock price, then the potential error rate is no longer five percent, but roughly twice that, or about ten percent, because two tests were undertaken.[40]   As noted by the *Reference Manual on Scientific Evidence*, "[r]epeated testing complicates the interpretation of significance levels. If enough comparisons are made, random error almost guarantees that some will yield 'significant' findings, even when there is no real effect."[41]   In situations where the expert has multiple ways to show statistical significance, "courts should not be overly impressed with claims that estimates are significant. Instead, they should be asking how analysts developed their models."[42]   That is, no adjustment will typically be warranted where an expert always follows the same procedure (and only one event is tested), for example by looking only at the first time news is disclosed and following a set rule for the length of the event window.[43]   In contrast, if an expert would consider testing for statistical significance every time that an analyst discusses the news after the initial disclosure, then he or she is engaging in repeated testing, and should adjust his or her calculations of statistical significance to make them accurate and not subject to being dismissed as unreliable.[44]

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38.   *Id.* at 251 (footnote omitted).

39.   Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 594 (1993).

40.   Technically, because these are designed to be two independent tests, the probability of finding a result that meets the criterion for statistical significance of a single test at the 5% level should be 1 - (1 - 0.05) x (1 - 0.05), or 1 - $(0.95)^2$, or 0.975, or 9.75%. In some cases, however, additional statistical considerations may come into play.

41.   FED. JUDICIAL CTR., *supra* note 37, at 256.

42.   *Id.* at 256–57 (footnote omitted).

43.   Of course, it still remains true that multiple-comparison adjustments may be required when multiple events are tested.

44.   Note that the adjustment would need to be made based on all the possible tests that the expert could have made under whatever methodology they employ, not just on the ones that they ultimately rely on. For example, if Analysts *A* and *B* both discuss the news at a later date, the

Similarly, the length of an event window is another area where an expert could engage in repeated testing. A solid procedure would be to use a rule to determine the length of each event window (e.g., continue through each day with no new news and with a statistically significant daily return), while ad hoc approaches that let an expert select various possible event windows allow for multiple answers, and thus multiple possible chances to produce a result showing a "significant" price movement. At a minimum, such ad hoc approaches would call for multiple-comparison adjustments; more generally, their nature may be such that even such corrections are insufficient and the results remain unreliable.

III. PARSING OF PRICE REACTIONS

A second area where less efficient markets may come into play is in the parsing of price reactions to news that includes, but does not consist solely of, a corrective disclosure. For example, suppose a company announces that it is lowering guidance for Division A by seven cents per share and for Division B by three cents per share. Further suppose that the parties agree that both pieces of information came as a complete surprise to the market and that the resulting decline in the company's share price was $10 per share. Finally, suppose that the allegation in this case is that the company knew and should have previously disclosed the entire seven-cent per share guidance change for Division A, but that the change in guidance at Division B was a timely disclosure.

If the company's stock trades in an efficient market, it is fairly easy to move from this disclosure to a preliminary conclusion that $7 per share of the price decline is due to the news about Division A and $3 per share of the price decline is due to the news about Division B, resulting in inflation of $7 per share. A potentially hidden assumption

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expert cannot test only the reaction to the discussion by Analyst *B* without some reliable basis for doing so and thereby count only two tests (the initial disclosure and the reaction following Analyst *B*'s later discussion). Particularly improper would be relying on the later price movements to determine which statements to test to see if they are associated with stock price movements. This is a nearly circular procedure in which one formally tests only the dates with large price movements based on either formal or informal observations of the stock price data, whether by the expert or by the lawyers who decided which events to include in a complaint or other legal document. The best practice would be for the expert to define a specific rule for which dates to test (e.g., initial disclosures and any analyst reports that specifically mention the news in a headline). The quality of the rule could then be assessed via traditional methods employed in litigation such as examination of the sensitivity of the results to alternative rules and questioning the expert as to whether he or she uses the same rule consistently or appears to adopt different rules in different cases with no basis for doing so.

here is that the seven- and three-cent changes in guidance have expected discounted present values summed over future time periods that still maintain the seven-to-three ratio. If that assumption can be deemed valid, then an expert can argue that if the market for the company's stock is efficient, then the price of the company's shares is equal to the discounted value of expected future cash flows, meaning that if the changes in those expected discounted values are in a seven-to-three ratio, the price reaction should similarly be divided in a seven-to-three ratio.[45]

But, once "a single market can process different kinds of information more or less efficiently, depending on how widely the information is disseminated and how easily it is understood,"[46] we are potentially open to a new world of investigation. Suppose that some analysts discuss both divisions, some discuss only Division A, and some discuss only Division B. Could that be the basis for a claim that the information about the two divisions was not equally widely disseminated? Further suppose that the amount of discussion of the two divisions is not equal in the analyst reports. Does more discussion of one division mean that information about that division was more widely disseminated and thus more worthy of discussion (i.e., material), or could it mean that that the information about that division was less easily understood and merited further analyst review and commentary?[47]

While the seven-to-three ratio in this example would still presumably carry weight as an initial starting point, once markets are "less efficient," there may be openings to argue that the market weighs different pieces of news in ways that do not conform to the standard paradigm of rational behavior. Assuming this is the case, in some instances, the dispute would solely be between plaintiffs and defendants, with plaintiffs wanting to put more weight on portions of the news that are part of the allegations in the case while defendants wish to do the opposite. In some instances, a dispute could even arise

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45. Here, we abstract from questions such as whether there are other potential issues such as reputation effects, and, if so, whether those other issues are properly even part of a damages claim or how they are allocated across the different parts of the news event containing the corrective disclosure. The seven-to-three ratio could change if other considerations enter the picture.

46. Halliburton Co. v. Erica P. John Fund, Inc. (*Halliburton II*), 573 U.S. — 134 S. Ct. 2398, 2409 (2014).

47. A tool to quantify such effects, known as content analysis, was recently endorsed by the First Circuit in *Bricklayers and Trowel Trades International Pension Fund v. Credit Suisse Securities (USA) LLC*, 752 F.3d 82, 96 n.12 (1st Cir. 2014). Content analysis involves the counting and/or statistical analysis of mentions of terms to evaluate how much importance the concepts behind those terms by authors, often acting on the perceived importance or interest of those concepts to their readership, at one or more points in time.

among plaintiffs, such as in a situation where some investors purchased after one alleged misrepresentation but before a second one. In that type of situation, the early purchasers would have a financial interest in attributing as much as possible of the price decline following a corrective disclosure to the alleged misrepresentation before their purchase (i.e., the statement they could have relied upon).

Later purchasers, or those who purchased after both alleged misrepresentations, have a more complicated set of concerns. One important objective for them may be allocating a disproportionate share of the price decline following a corrective disclosure to the alleged misrepresentation for which they are more likely to recover. For example, if there is more of a risk that the court or a jury will find that the first alleged misrepresentation was not made with scienter, then later purchasers would, *ceteris paribus*, increase their expected recovery by allocating more of the loss to the second misrepresentation.

IV. MOVING FROM PRICE REACTIONS TO INFLATION AT OTHER POINTS IN TIME

A third area in which a less efficient market may be relevant is the use of price reactions, typically at the point of a corrective disclosure, to calculate inflation at other points in time. To see why this may be an issue, consider first a common approach to calculating inflation over a class period with a single alleged misrepresentation and a single alleged corrective disclosure. First, the price reaction associated with the corrective disclosure is calculated, meaning that the total price movement following the disclosure is measured and adjusted to remove the effects of market and/or industry factors as well as any confounding news.

Suppose that an expert calculates that a stock that was trading at $80 prior to the corrective disclosure fell by $20 due to the corrective news in that disclosure. The second step for the expert to take is to translate this estimated reduction in inflation at the end of the class period into a measure of inflation at earlier points in time. Two of the most common starting points for this are the "constant-dollar" method, in which the earlier inflation is $20 per share, and the "constant-percentage" method, in which the earlier inflation is twenty-five percent of the stock price at any point in time.[48] Both of these figures may be adjusted to account for multiple alleged misrepresentations and/or corrective disclosures, as

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48. *See, e.g.*, David Tabak, Inflation and Damages in a Post-*Dura* World 1–3 (Sept. 15, 2007) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1017334 (discussing these two methods for modeling inflation).

well as for changes in the value of the misrepresentations, as discussed below.   Finally, in turning the inflation into damages, any legal requirements, such as limitations from the Private Securities Litigation Reform Act or any requirements that are generally interpreted to flow from the Supreme Court's decision in *Dura Pharmaceuticals, Inc. v. Broudo*,[49] are implemented.[50]

The basic theory behind using a constant-dollar or constant-percentage inflation is that in the absence of a changing economic environment or other factors, news that is valued at a certain amount at one point in time would be valued at the same amount at other points in time.   This can be justified by reliance on the efficient market to consistently value information based on whatever is the appropriate valuation technique.   However, if the market is "less efficient," then it becomes more difficult, and perhaps impossible, to rely on it to provide consistent valuations.   One problem with a less efficient market is that there are many possible deviations from efficiency, and a lack of consistency is one of them.   It is of course possible that the inefficiency is either a slow but consistent incorporation of news or that it is an incorrect incorporation of news that at least is consistently incorrect in the same fashion.   In the former case, that of a slow incorporation of news, one may ask whether the full amount of inflation should be assumed to be present at the point of a misrepresentation and especially at the point of an omission.   If plaintiffs argue that the market incorporates news slowly, then they may have to accept arguments that the effects of any misrepresentation only affected the price of the security slowly as well.[51]

To return to changes in the value of a misrepresentation, suppose that an oil exploration company falsely announces that it has uncovered a field at which it would cost $40 per barrel to extract oil.   If the price of oil is $15 per barrel and expected to stay at approximately that price, the

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49.   544 U.S. 336 (2005).

50*.   See, e.g.*, Tabak, *supra* note 48 (examining the requirements that flow from the *Dura Pharmaceuticals, Inc.* decision).

51.   In the case of a material affirmative misrepresentation, meaning, generally, new allegedly false information that is alleged to have increased the price of a security, one may wish to examine the timing of the actual price movement following that news.   In the case of an omission or a misrepresentation that maintained prior expectations and thus should not have affected the price of a security, the most relevant analysis may involve examining the speed of the security's response to other releases of new information.   Notably, if plaintiffs are arguing that a security traded in a "less efficient" market, they may have already argued that the security in question did not incorporate news as rapidly as is the case in a "more-efficient" market, and then may have to accept that any alleged inflation did not start out equal to the full claimed effect of any alleged misrepresentation.

value of the misrepresentation is likely to be small, as it represents only the possibility for value to the company in an unlikely future. If, however, the price of oil rises to $70 per barrel and is expected to stay at similarly high levels, then the value of the misrepresentation would be higher, as the company could begin earning profits quickly (assuming that the time and cost of beginning extraction are small) and would be expected to do so for an extended period of time. One can imagine similar influences on other types of misrepresentations; for example, a disclosure about the share of a financial institution's portfolio composed of subprime assets would be likely to have a greater impact in periods where investors are concerned about subprime loans than in periods where there was no such concern.

Whenever there is likely to be a material change in the value of a misrepresentation during a class period, experts should consider whether to adjust the level of inflation over time rather than holding it constant at either the dollar or percentage amount at the time of the corrective disclosure. When one assumes an efficient market, then it follows that the market price should reflect a rational accounting for changes in economic conditions. For example, an expert could measure the value of yet unexploited oil by creating a model of the expected future price paths of oil, determining when it would pay for the company to exploit the oil (accounting for any initial start-up costs that may make the decision more complicated than to just exploit oil whenever its price exceeds the marginal cost of extraction), and then properly valuing the potential outcomes.[52] If the market for the security is efficient, then market participants as a group can be assumed to have performed, or would have performed, an analysis of that nature to value the misrepresentation as a function of relevant changing economic conditions.

However, if the market is assumed to be less efficient and not properly processing information, one can ask what basis one would have for translating price reactions at one point in time into estimates of inflation at another point with materially different, or perhaps even unchanged, relevant economic conditions. In some situations, the expert may be able to rely on analyst reports that actually contain a model that explicitly accounts for the relevant economic factor(s). When there is no such evidence, the expert may be able to rely on historical data from the same company or peers, such as earnings-response coefficients in the case of alleged misrepresentations of earnings. Even when there is no outside evidence for how the market

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52. This is a form of real-option problem with known valuation techniques.

responded, or would have responded, to the interaction between the subject of the misrepresentation and changing economic conditions, an expert may still argue that the rational response is the best estimate for what the market would have done. But, in that case, there is the obvious tension of arguing that the rational, or efficient, response is the best way to model the market's reaction when plaintiffs either failed to or did not attempt to show that the market did actually tend to generally respond to news in a rational, efficient manner.

CONCLUSION

Much of the early focus on *Halliburton II* deals with the likely impact of the ruling that defendants may attempt to rebut the presumption of reliance at class certification by showing a lack of price impact. Yet, there is another portion of the ruling that deserves consideration: that the Supreme Court has affirmed its belief that market efficiency is not "binary," but rather favorably cited the Petitioner's argument that "that market efficiency is a matter of degree," and that "even a single market can process different kinds of information more or less efficiently, depending on how widely the information is disseminated and how easily it is understood."[53]

Initially, a renewed focus on different degrees of efficiency would seem to help plaintiffs by lowering the burden for showing that a security traded in a market efficient enough to trigger the presumption of reliance. At least one prominent plaintiffs' attorney has argued that the additional clarity on this issue that he believes is found in *Halliburton II* will also help plaintiffs by allowing them to consider price movements in response to new interpretations of previously released news. This leads to the interesting question of whether, if that occurs, it will be defendants arguing that the security traded in a more "robust" manner, meaning one consistent with the academic definition of efficiency, while plaintiffs highlight the less efficient nature of the market. Of course, in that situation, defendants can similarly use plaintiffs' argument about a lesser degree of market efficiency to consider later favorable re-evaluations of corrective disclosures or to argue that part of the price movement following an alleged corrective disclosure should actually be attributed to the re-evaluation of some prior non-actionable news. Finally, there are often portions of a damages analysis that may implicitly rely on an efficient market, such as parsing a price reaction or taking the measured price reaction at one

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53. Halliburton Co. v. Erica P. John Fund, Inc. (*Halliburton II*), 573 U.S. — 134 S. Ct. 2398, 2409 (2014).

point in time and using it as a basis for estimating inflation at another point in time. To the extent that plaintiffs prove only that a security traded in a "less efficient" market, then they may invite a challenge to their later damages analysis. Whether and how some or all of these possibilities play out will be something to look for as we navigate a post-*Halliburton II* world.