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Thinking Fast and Slow About the Concept of Materiality

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THINKING FAST AND SLOW ABOUT THE CONCEPT OF MATERIALITY

Mark J. Loewenstein*

ABSTRACT

Determining whether, for securities law purposes, a misrepresentation or omission is material raises interesting questions. The Court of Appeals in SEC v. Texas Gulf Sulphur Co. provided some guidance on materiality, and the U.S. Supreme Court has weighed in several times in the past 50 years. This article first discusses what Texas Gulf Sulphur contributed to the doctrine of materiality, then briefly considers other dimensions of the doctrine, and finally moves to its thesis: The doctrine of materiality should take into account important psychological insights and heuristics that may affect the way that a fact finder decides whether a misrepresentation or omission is material. In that regard, this article draws heavily on the work of a Nobel Prize winning psychologist, Daniel Kahneman, and his influential book, THINKING, FAST AND SLOW.

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“[M]ateriality has become one of the most unpredictable and elusive concepts of the federal securities laws.”¹

“[T]he definition of materiality is an ever-changing one, often changing in subtle ways that make materiality determinations difficult.”²

SEC v. *Texas Gulf Sulphur Company*³ is an important case because the court considered so many fundamental securities fraud issues in its opinion. One of those issues was materiality, and what the court decided has largely, but not entirely, withstood the test of time. While the court’s discussion of the issue is basically sound, it is by no means complete, and the U.S. Supreme Court has weighed in on meaning of materiality in securities fraud several times in the past fifty years.⁴ This article first discusses what *Texas Gulf Sulphur* contributed to the doctrine of materiality, then briefly considers other dimensions of the doctrine, and finally moves to its thesis: the doctrine of materiality should take into account important psychological “heuristics”⁵ that may affect the way that a fact finder decides whether a misrepresentation or omission is material. In that regard, I have drawn on the work of a Nobel Prize winning psychologist, Daniel Kahneman,⁶ and his influential book, *Thinking, Fast and Slow*.⁷

I. INTRODUCTION: SEC V. TEXAS GULF SULPHUR CO. ON MATERIALITY

The issue of materiality in *Texas Gulf Sulphur* arose in the context of the insider trading claims against officers and employees of the company. The SEC alleged that these defendants were in possession of material, non-public information, and until this information was disclosed to the public, they were prohibited from trading in Texas Gulf Sulphur (TGS) stock or options.⁸ To trade before disclosure, the SEC asserted, would violate Rule 10b-5.⁹ The defendants challenged the assertion that the information that they possessed was “material.” In particular, that information consisted of the results an exploratory drill hole that suggested—but did not definitively prove—the presence of a spectacular mineral find in

1. SEC v. Bausch & Lomb Inc., 565 F.2d 8, 10 (2d Cir. 1977).

2. Marc I. Steinberg & Jason B. Myers, *Lurking in the Shadows: The Hidden Issues of the Securities and Exchange Commission’s Regulation FD*, 27 J. CORP. L. 173, 188 (2002).

3. 401 F.2d 833 (2d Cir. 1968), cert. denied, 394 U.S. 976 (1969).

4. See *Matrixx Initiatives, Inc. v. Siracusano*, 563 U.S. 27, 38–45 (2011); see also *Va. Bankshares, Inc. v. Sandberg*, 501 U.S. 1083, 1090–91 (1991); *Basic Inc. v. Levinson*, 485 U.S. 224, 238–41 (1988); *TSC Indus., Inc. v. Northway, Inc.*, 426 U.S. 438, 445–49 (1976).

5. “A technical definition of *heuristic* is a simple procedure that helps find adequate, though often imperfect, answers to difficult questions.” DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* 98 (Farrar, Straus & Giroux 2011) (emphasis in original).

6. Professor Kahneman won the Nobel Prize for Economics in 2002.

7. See KAHNEMAN, *supra* note 5.

8. *Texas Gulf Sulphur Co.*, 401 F.2d at 845–46, 858.

9. *Id.* at 857.

Eastern Canada.¹⁰ TGS needed to keep this information confidential in order to facilitate its ability to secure the rights to the minerals that it may have discovered. The defendants argued that the information was not material because it was not certain that the minerals were actually present in the estimated quantities.¹¹ Only further drilling and mining, the defendants argued, could establish that. This argument persuaded the trial court, which determined that “the test of materiality must necessarily be a conservative one, particularly since many actions under § 10(b) are brought on the basis of hindsight.”¹²

The appellate court rejected this gloss on materiality, although as discussed below, there is a great deal to be said in support of the trial court’s view. In any case, the appellate court’s decision eschewed the idea that a conservative approach to materiality is appropriate “in the sense that the materiality of facts is to be assessed solely by measuring the effect the knowledge of the facts would have upon prudent or conservative investors.”¹³ Rather, the court observed that sophisticated investors are “entitled to the same protections afforded conservative traders,”¹⁴ and therefore information that would be material to sophisticated traders must be captured within the definition of materiality. Drawing on two prior circuit court opinions,¹⁵ and the Restatement of Torts,¹⁶ the *Texas Gulf Sulphur* court announced this definition of materiality: “[W]hether a reasonable man would attach importance . . . in determining his choice of action in the transaction in question.”¹⁷ This, of course, “encompasses any fact . . . which in reasonable and objective contemplation might affect the value of the corporation’s stock or securities.”¹⁸ In a subsequent case, *TSC Industries Inc. v. Northway, Inc.*, the Supreme Court tweaked this definition:

An omitted fact is material if there is a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote. . . . Put another way, there must be a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the “total mix” of information made available.¹⁹

10. *Id.* at 846.

11. *Id.* at 845.

12. *SEC v. Texas Gulf Sulphur Co.*, 258 F. Supp. 262, 280 (S.D.N.Y. 1966), *aff’d in part, rev’d in part*, 401 F.2d 833 (2d Cir. 1968).

13. *Texas Gulf Sulphur Co.*, 401 F.2d at 849.

14. *Id.*

15. *List v. Fashion Park, Inc.*, 340 F.2d 457, 462 (2d Cir. 1965) (citing *Kohler v. Kohler Co.*, 319 F.2d 634, 642 (7th Cir. 1963)).

16. RESTATEMENT (FIRST) OF TORTS § 538 (AM. LAW INST. 1938).

17. *Texas Gulf Sulphur Co.*, 401 F.2d at 849 (quoting *List*, 340 F.2d at 462) (citations omitted).

18. *Id.*

19. 426 U.S. 438, 449 (1976). While *Texas Gulf Sulphur* and *TSC Industries* dealt with the potential materiality of an omitted fact, the Court subsequently applied the same definition to whether a misrepresentation was material. See *Basic Inc. v. Levinson*, 485 U.S. 224, 238 (1988).

In its formulation of materiality, the *Texas Gulf Sulphur* court addressed the contingent nature of the drilling results, explaining that:

[W]hether facts are material within Rule 10b-5 when the facts relate to a particular event and are undisclosed by those persons who are knowledgeable thereof will depend at any given time upon a *balancing of both the indicated probability that the event will occur and the anticipated magnitude of the event* in light of the totality of the company activity.²⁰

This insight has remained undisturbed and is often cited in other opinions.²¹ The Court went on to apply this concept of materiality to the facts before it and concluded that the test results were indeed material because the results were so impressive and would have a dramatic effect on the value of TGS stock.²² The conclusion was bolstered by the fact that several insiders (defendants in the case) bought large positions and options on TGS stock.²³ If they thought the information was material then, perforce, so would other potential investors.

II. DEVELOPMENT OF MATERIALITY

A. MATERIALITY IN THE SUPREME COURT

Subsequent to its 1976 decision in *TSC Industries*, the Supreme Court revisited the issue of materiality in three separate cases: *Basic Inc. v. Levinson*,²⁴ *Virginia Bankshares, Inc. v. Sandberg*,²⁵ *Matrixx Initiatives, Inc. v. Siracusano*,²⁶ each of which added an important gloss on the concept.

1. *Basic*

In *Basic*, the Court rejected a rule-of-thumb test for materiality and insisted that the test of materiality must be focused on “the significance the reasonable investor would place on the withheld or misrepresented information.”²⁷ The case involved a false denial by a company, Basic Inc., that it was involved in merger negotiations. The company issued the denial because it wanted to keep the merger negotiations confidential, fearing that disclosure would jeopardize a possible deal. It persuaded the lower courts to adopt an “agreement-in-principle” test under which merger negotiations would be deemed immaterial until an agreement in principle was reached. The principle, which was adopted by some circuit court decisions,²⁸ was based on three rationales: first, merger negotiations

20. *Texas Gulf Sulphur Co.*, 401 F.2d at 849 (emphasis added).

21. Indeed, 82 courts had cited this concept as of February 2, 2018.

22. *Texas Gulf Sulphur Co.*, 401 F.2d at 850.

23. *Id.* at 851.

24. *See generally* 485 U.S. 224 (1988).

25. *See generally* 501 U.S. 1083 (1991).

26. *See generally* 563 U.S. 27 (2011).

27. *Basic*, 485 U.S. at 240.

28. *See generally* Staffin v. Greenberg, 672 F.2d 1196, 1207 (3d Cir. 1982); Greenfield v. Heublein, Inc., 742 F.2d 751, 756 (3d Cir. 1984); Reiss v. Pan Am. World Airways, Inc., 711 F.2d 11, 14 (2d Cir. 1983); Flamm v. Eberstadt, 814 F.2d 1169, 1178 (7th Cir. 1976);

are inherently uncertain and disclosure may create an unwarranted sense of optimism among investors; second, it allows management to keep sensitive negotiations confidential, thus helping to assure success in the negotiations; and third, it provides an easy-to-apply bright line rule.²⁹

The Supreme Court was unconvinced that these rationales justified the principle. As to the first rationale, the Court held that investors should be able to judge for themselves how to weigh the information about a possible merger.³⁰ As to the second and third rationales, the Court found them unpersuasive because they do not address whether a reasonable investor would consider the information significant.³¹ They are simply justifications for corporate managers to disclose information when it suits their preferences. While the Court left the door open for corporate management to decline comment when asked whether merger negotiations are underway,³² management could not falsely deny the existence of such negotiations.³³

2. *Virginia Bankshares*

Virginia Bankshares dealt with a rather narrow, but important, question of materiality; that is, whether “statements of reason, opinions or beliefs” could be material.³⁴ Citing *TCS Industries*, the *Virginia Bankshares* Court held that they could, stating: “We think there is no room to deny that a statement of belief by corporate directors about a recommended course of action, or an explanation of their reasons for recommending it [can be viewed by a reasonable investor as significant].”³⁵ The Court did not, however, let the matter rest there. Later in its opinion, the Court added this gloss:

The question arises, then, whether disbelief, or undisclosed belief or motivation, standing alone, should be a sufficient basis to sustain an action . . . absent proof by . . . objective evidence . . . that the statement also expressly or impliedly asserted something false or misleading about its subject matter. We think that proof of mere disbelief or belief undisclosed should not suffice for liability . . . , and if nothing more had been required or proven in this case, we would reverse for that reason.³⁶

This statement by the Court is difficult to parse and caused Justice Scalia, in a short concurring opinion, to offer this clarification:

TSC Indus., Inc. v. Northway, Inc., 426 U.S. 438 (1976). See also Marc I. Steinberg & Robin M. Goldman, *Issuer Affirmative Disclosure Obligations—An Analytical Framework for Merger Negotiations, Soft Information, and Bad News*, 46 MD. L. REV. 923, 925 (1987); Marc I. Steinberg, *Securities Litigation*, 14 SEC. REG. L.J. 76, 76 (1986).

29. See *Basic*, 485 U.S. at 233.

30. *Id.* at 234.

31. *Id.* at 234–36.

32. *Id.* at 239 n.17.

33. *Id.* at 247.

34. *Virginia Bankshares, Inc. v. Sandberg*, 501 U.S. 1083, 1090 (1991).

35. *Id.*

36. *Id.* at 1095–96.

As I understand the Court's opinion, the statement "In the opinion of the Directors, this is a high value for the shares" would produce liability if in fact it was not a high value and the directors knew that. It would not produce liability if in fact it was not a high value but the directors honestly believed otherwise. The statement "The Directors voted to accept the proposal *because* they believe it offers a high value" would not produce liability if in fact the directors' genuine motive was quite different—except that it would produce liability if the proposal in fact did not offer a high value and the Directors knew that.³⁷

Taken together, the two opinions suggest that a mere misrepresentation of opinion, unless accompanied by a misrepresentation of fact, is not actionable, presumably because it is not material.

3. *Matrixx*

Matrixx raised the issue of whether the manufacturer of an over-the-counter drug had to disclose certain alleged adverse effects of that drug if the number of patients experiencing those adverse effects was not "statistically significant."³⁸ The drug in question here—Zicam Cold Remedy—was alleged to have caused patients to lose their sense of smell, and the defendant, *Matrixx*, learned of these incidents from patients and medical researchers.³⁹ *Matrixx*'s own studies, however, did not confirm these findings and it issued press releases denying the link.⁴⁰ Following *Matrixx*'s press releases, the popular media reported the allegations, and as a result, the price of *Matrixx* stock plunged.⁴¹

The district court granted the defendant's motion to dismiss, but the court of appeals reversed, and the Supreme Court affirmed the appellate court.⁴² The Supreme Court noted that "medical professionals and regulators act on the basis of evidence of causation that is not statistically significant."⁴³ It therefore "stands to reason that in certain cases reasonable investors would as well."⁴⁴ The Court concluded that plaintiffs had adequately pleaded that defendant's statements regarding the safety of Zicam, that failed to reference the adverse information of which it was aware, was misleading and that such misrepresentations may have been material.⁴⁵ The Court thus rejected the trial court's bright-line rule and reaffirmed the more nuanced approach of *Basic*.⁴⁶

What was left unexplored in *Matrixx* was this intriguing possibility: a drug may be associated with adverse effects that are required to be dis-

37. *Id.* at 1108–09 (emphasis in original).

38. *See Matrixx Initiatives, Inc. v. Siracusano*, 563 U.S. 27, 30 (2011).

39. *Id.* at 31–33.

40. *Id.* at 34–35.

41. *Id.* at 35.

42. *Id.* at 36–37.

43. *Id.* at 43.

44. *Id.*

45. *Id.* at 46–47.

46. *Id.* at 45.

closed to investors but not to consumers of the drug or to federal agencies, such as the Federal Food and Drug Administration (FDA), that regulate the pharmaceutical industry. This arises because the disclosure obligations that pharmaceutical companies have to the FDA are not investor focused; they are scientifically focused.⁴⁷ Whether, in an appropriate case, the Court will revisit this issue remains to be seen.

B. TWO ASPECTS OF THE DOCTRINE OF MATERIALITY

1. *The Role, if any, for “Significance”*

The *Basic* test of materiality requires disclosure of information where there is “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having *significantly* altered the ‘total mix’ of information made available.”⁴⁸ This standard led Thomas Madden, in his article *Significance and the Materiality Tautology*,⁴⁹ to examine the role of significance in determining materiality. After noting the broad circuit court interpretations of both words, he states that “circuit court usage of significance ranges from tautological usage to more nuanced uses—meaning degree or amount, probability and even near certainty.”⁵⁰ To clarify the importance of “significance,” Madden looked to the Supreme Court’s decision in *Matrixx*, which he states does little, if anything, to change or clarify the use of significance outside of its general, dictionary definition. He ultimately concludes that “until further clarity comes, usage of significance is likely to be recited in finding materiality but remains tautological and subject to conclusory judicial finding.”⁵¹

2. *An Objective (Price-Centric) Definition*

In *Living in a Material World: Strict Liability Under Rule 10b-5*,⁵² Michael J. Kaufman interprets materiality as a price–value disparity. He argues that information that affects the total mix of information provided to the reasonable investor will affect the stock price.⁵³ In other words, a

47. See generally, Katherine Cohen, Joseph W. Cormier, & Manhu V. Davar, *Predictable Materiality: A Need for Common Criteria Governing the Disclosure of Clinical Trial Results by Publicly-Traded Pharmaceutical Companies*, 29 J. CONTEMP. HEALTH L. & POL’Y 201 (2013) (arguing that federal agencies that regulate the disclosures of clinical trial results must cooperate to create regulations, policies, and guidelines that adequately account for the interests of patients, investors, and the future of medical innovations).

48. Thomas M. Madden, *Significance and the Materiality Tautology*, 10 J. BUS. & TECH. L. 217, 219 (2015) (citing *Basic Inc. v. Levinson*, 485 U.S. 224, 231–32 (1988)) (emphasis added).

49. *Id.* at 219–20.

50. *Id.* at 233.

51. *Id.* at 243.

52. Michael J. Kaufman, *Living in A Material World: Strict Liability Under Rule 10b-5*, 19 CAP. U. L. REV. 1, 4–5 (1990); see also Nicholas Kappas, *A Question of Materiality: Why the Securities and Exchange Commission’s Regulation Fair Disclosure Is Unconstitutionally Vague*, 45 N.Y.L. SCH. L. REV. 651, 658, 661 (2002) (the market price approach should be contrasted with the “quantitative approach” and the “qualitative approach.”).

53. Kaufman, *supra* note 52, at 5.

material misstatement or omission is one that alters the price at which a reasonable investor would have decided to purchase or sell securities. Therefore, in order to be successful, a plaintiff must show that the defendant's misstatement or omission caused a disparity between the price at which the stock was traded and the value of the trade.⁵⁴

Does a price-centric definition make sense? In other words, can some misrepresentation or omission be actionable—that is, material—even if its disclosure may not affect price? There are three concerns with the price-centric model. First, calculating how the price of a security would have been affected if some omitted information had been disclosed is a difficult task in many cases. For publicly traded securities, the problem may not be as daunting because there is typically data available when the misrepresentation or omission is disclosed and the market reacts to that information. But, the data may not be there for privately held companies. Consider a case in which the plaintiff is a buyer of stock from the issuer and complains that the issuer did not disclose a falloff in new orders. When the plaintiff learns this information, he or she has no market transactions to cite. Should the case be dismissed?

This leads to the second concern: that is, the claim that the plaintiff is saddled with an investment that the plaintiff would not otherwise have acquired, even if the size of the price discrepancy is not easily quantified.⁵⁵ This plaintiff may simply be seeking rescission and arguably should not be denied the remedy if the plaintiff can otherwise satisfy the definition of materiality and the other elements of the claim. Finally, the U.S. Supreme Court has not said that the misrepresentation or omission must affect the price. Other jurisdictions, however, do specifically link materiality to market price.⁵⁶

III. PSYCHOLOGY AS A FACTOR IN DETERMINING MATERIALITY

A. THINKING, FAST AND SLOW

In *Thinking, Fast and Slow*, Daniel Kahneman recounts the research that he and his collaborator, Amos Tversky, undertook over a long period of time to determine how people reach judgments. They noted, based on empirical studies, that a person's intuition is often wrong be-

54. *Id.*

55. See Richard Booth, *The Two Faces of Materiality*, 38 DEL. J. CORP. L. 517, 519 (2013) (arguing that the concept of a reasonable investor can include both investors who react and those who do not. In the end, to be material, a fact not need be outcome determinative, it just needs to impact some investor behavior).

56. See Yvonne Ching Ling Lee, *The Elusive Concept of "Materiality" Under U.S. Federal Securities Laws*, 40 WILLAMETTE L. REV. 661, 678 (2004); see also Dale A. Oesterle, *The Overused and Under-Defined Notion of "Material" in Securities Law*, 14 U. PA. J. BUS. L. 167, 183 (2011) ("However, if a trader buys or sells, she does not have to prove that she would not have made the same trade on accurate information. She would only have to show that the information altered the *total mix* of information important to them at the time.").

cause people often ignore, or fail to adequately weigh, statistical evidence. To account for this, Kahneman identifies the thought processes that we all employ, which he calls System 1 and System 2. System 1 is basically our intuition, and it determines many of the choices and judgments that we make.⁵⁷ It is “automatic” and the “Fast” in the title of the book. System 2 is more reflective or “effortful,”⁵⁸ as Kahneman describes it, but often is overshadowed by System 1. Kahneman’s research establishes the dominance of System 1, or intuition, and seeks to explain why we so often ignore statistical evidence that would affect our judgment. Kahneman carefully explains that System 1 relies on various heuristics, or rules of thumb, in making judgments.

An example that Kahneman gives illustrates the use of heuristics.⁵⁹ Assume that “Steve” is described as “shy and withdrawn, invariably helpful but with little interest in people or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail.”⁶⁰ The description is intended to evoke a stereotypical librarian, and when asked whether Steve is a librarian or farmer, participants in the study chose librarian, ignoring the fact that there were more than twenty male farmers for every male librarian; thus, it was much more likely that Steve would be a farmer than a librarian. Respondents relied, instead, on the use of the “resemblance” heuristic. That is, System 1 operated to give an instinctive response and used an easy, readily available basis for making the decision. “Because System 1 operates automatically and cannot be turned off at will, errors of intuitive thought are often difficult to prevent.”⁶¹ System 1, thus, is gullible and biased to believe and jump to conclusions.⁶² “Extreme predictions and a willingness to predict rare events from weak evidence are both manifestations of System 1.”⁶³ “System 2 is in charge of doubting and unbelieving, but System 2 is sometimes busy, and often lazy.”⁶⁴ Many of the heuristics that Kahneman identifies may have an effect on fact finders asked whether a particular fact or set of facts was material within the definitions set forth above. These heuristics may also explain why an insider may have traded on information that does not fit within those definitions. The balance of this section is devoted to briefly exploring those heuristics.

57. See KAHNEMAN, *supra* note 5, at 13.

58. See *id.* at 14.

59. See *id.* at 7.

60. *Id.*

61. *Id.* at 28.

62. Of course, it may be appropriate to jump to conclusions if those conclusions are likely to be correct and the cost of an occasional mistake are acceptable. The jump, after all, saves time and may be “efficient,” in a classical economic sense. See *id.* at 79.

63. *Id.* at 194.

64. *Id.* at 81.

1. *Outcome or Hindsight Bias*

Kahneman describes how and why people tend to assess the quality of a decision by its outcome and calls this phenomenon the “outcome bias.” Consider this illustration from the book:

Based on an actual legal case, students in California were asked whether the city of Duluth, Minnesota, should have shouldered the considerable cost of hiring a full-time bridge monitor to protect against the risk that debris might get caught and block the free flow of water. One group was shown only the evidence available at the time of the city decision; 24% of these people felt that Duluth should take on the expense of hiring a flood monitor. The second group was informed that debris had blocked the river, causing major flood damage; 56% of these people said the city should have hired the monitor, *although they had been explicitly instructed not to let hindsight distort their judgment.*⁶⁵

It is clear from this example (and others Kahneman provides) that people have trouble separating the likelihood of the actual outcome from what was known at the time of the decision. As he says, “Once you adopt a new view of the world . . . you immediately lose much of your ability to recall what you used to believe before your mind changed.”⁶⁶ This is, of course, System 1 operating and another instance of a poor judgment.

The implications of the phenomenon on materiality are significant. After an event has occurred, a fact finder is likely to be overly influenced as to the likelihood of its occurrence at an earlier time. Kahneman points out the effect of outcome bias in, among other areas, medical malpractice, where juries are more prone to believe that a medical procedure with a bad outcome seemed more likely after the bad outcome occurred than at the time it was done. As a result, physicians tend to practice defensive medicine, ordering tests and referring patients to specialists even though unwarranted by *ex ante* information. In securities litigation, for instance, a company’s decision not to insure against a certain risk and not to disclose that it had made that decision may be found to be a material omission if that risk in fact materializes. This possibility—that hindsight bias might result in liability—encourages over-disclosure of information to investors, to the detriment of those investors.⁶⁷ It also provides support for the trial court’s judgment in *Texas Gulf Sulphur* that the test of materiality ought to be conservative because it is made in hindsight. Ironically, Kahneman provides empirical and theoretical support for the trial court’s intuitive judgment about hindsight bias.

65. *Id.* at 203–04 (emphasis added).

66. *Id.* at 202.

67. Investors do not benefit from being deluged with information that is not material. See *Basic Inc. v. Levinson*, 485 U.S. 224, 231 (1988) (citing *TSC Indus., Inc. v. Northway, Inc.*, 426 U.S. 438, 448–49 (1976)).

2. Confirmation Bias

Under System 1, this heuristic operates to favor, uncritically, “acceptance of suggestions . . . of the likelihood of extreme and improbable events.”⁶⁸ Kahneman writes that when asked for the probability of a catastrophe, such as tsunami hitting California within the next thirty years, one is likely to evoke images of tsunamis and then be prone to overestimate the probability of such disaster. The mere suggestion of a catastrophe makes its occurrence seem more likely than it actually is. Kahneman explains that this bias is due to the fact that the individual who estimates the probability is focused on the event in question and acts in a “confirmatory mode,” searching his or her mind for instances of tsunami disasters and then, because of that singular focus, overestimating the possibility.⁶⁹ The individual is not focused purely on the statistical probabilities, but rather on the disaster that would ensue.

This heuristic may be particularly pernicious when considering materiality. Suppose that the question is whether an issuer, which has facilities located on the Pacific Ocean coastline, should have disclosed the risk that it may suffer an uninsured loss due the occurrence of a tsunami. Should such a loss occur, a fact finder is likely to be influenced not only by the hindsight bias, but also by the confirmation bias, as the risk of a tsunami, now a reality, becomes even more likely in the mind of the fact finder.

3. Affect Heuristic

This heuristic describes a common psychological phenomenon: people make judgments and decisions based on their emotional response to the question.⁷⁰ The classic example is how people judge risk. The more that people hear about a risk, generally through the media, the higher they judge the risk to be. Kahneman, citing a well-known study, gives many examples.⁷¹

Like the confirmation bias, these misperceptions are driven by the respondent’s emotional response to the paired category. For instance, people hear and read a great deal about tornadoes, and have a strong emotional response to news of them, so they judge the risk of tornadoes far higher than asthma, of which we hear relatively little. Yet, the risk of death from the latter is fifty-two times greater. This heuristic can easily influence a fact finder’s assessment of materiality, depending on the circumstance involved. For instance, an omission relating to the risk of acci-

68. KAHNEMAN, *supra* note 5, at 81 (emphasis added).

69. *See id.* at 324.

70. *See id.* at 138–40.

71. *See id.* at 138. (“Strokes cause almost twice as many deaths as all accidents combined, but 80% of respondents judged accidental death to be more likely; tornadoes were seen as more frequent killers than asthma, although the latter cause 20 times more deaths; death by lightning was judged less likely than death from botulism even though it is 52 times more frequent; death by disease is about 18 times as likely as accidental death, but the two were judged about equally likely; death by accidents was judged to be more than 300 times more likely than death by diabetes, but the true ratio is 1:4.”).

dental death on a project may be perceived as material by a fact finder because people tend to grossly exaggerate the risk of death by accident.⁷²

4. *Availability Heuristic*

When determining the size of a particular category or the frequency that a given event will occur, System 1 relies on the ease with which we can recall instances of that category or event. For instance, because sex scandals among politicians, or more recently, instances of sexual misconduct in the workplace, are so widely reported and easily drawn from memory, people tend to overestimate the rate with which they occur. As Kahneman describes it, “[t]he availability heuristic . . . substitutes one question for another: you wish to estimate the size of a category or the frequency of an event, but you report an impression of the ease with which instances come to mind.”⁷³ If a securities fraud case involves the failure of management to disclose the risk that a certain event may take place and adversely affect the company, a fact finder may think of recent examples of such events and conclude that the risk was high and should have been disclosed. Only a careful consideration of the actual statistical probability will correct the potential judgment error. In short, people tend not to adequately appreciate how much randomness there is in the world, concluding that the world around us is simpler and more coherent than the data can support.⁷⁴

5. *Additional Factors*

Kahneman discusses a number of psychological factors, not strictly heuristics, which operate on System 1 and may result in erroneous judgments. In considering the effect of psychology on a fact finder’s judgment of materiality, such factors include:

- **Overconfidence.** Kahneman explains that “neither the quantity nor the quality of the evidence [a person has] counts for much in subjective confidence.”⁷⁵ In other words, if we can tell ourselves a story based on the evidence that we have, we’ll be confident that the judgment we make based on that evidence is correct, and we fail to consider the possibility that critical evidence for that judgment is missing. Overconfidence should not be a problem in litigation, as both sides have an opportunity to convince the fact finder. But, it may come into play in another way: the fact finder may be overly persuaded by the earliest presentation. This, in turn, is reflected in the “halo effect,” described below.
- **Halo effect.** The “halo effect” describes the fact that sequence matters: first impressions are so powerful to System 1 judgments that subsequent information received by the fact finder may lose

72. *See id.*

73. *Id.* at 130.

74. *See id.* at 117–18.

75. *Id.* at 87.

its significance, if not ignored completely.⁷⁶ This suggests that the first advocate in a trial may have an outsized influence on the fact finder, biasing the way the fact finder hears and considers subsequent presentations. In jury cases, the halo effect may also influence the deliberations. Kahneman explains that in group meetings the first to speak has more influence than do subsequent speakers, with others tending “to line up behind them.”⁷⁷ (He recommends that to counter the halo effect, members of a group should write down a summary of their views before any member of the group expresses a view.)⁷⁸

- Framing effect. The way that information is presented effects the way that it is perceived.⁷⁹ The same information presented two different ways evokes different responses. For instance, a food presented as 90% fat-free is more appealing than one presented as 10% fat.⁸⁰ In other words, how information is presented has a disproportionate effect on how it is received, providing an advocate with an important tool to persuade a fact finder and, perhaps, convert non-material information into material information.
- Expert opinions. Somewhat counter-intuitively, numerous studies cited by Kahneman demonstrate that expert judgments are inferior to algorithms at predictions. For instance, “experienced radiologists . . . contradict[ed] themselves 20% of the time when they reviewed the same image on separate occasions.”⁸¹ More to the point, individuals tend to exaggerate their ability to predict the future, creating an unwarranted optimism and overconfidence.⁸² For instance, Kahneman cited a study by Duke University researchers testing the accuracy of stock market predictions by financial officers of large corporations.⁸³ The result: these individuals “had no clue about the short-term future of the stock market.”⁸⁴ This suggests that the use of expert witnesses in trials involving questions of materiality may not be a solution to the various biases that laypeople typically demonstrate, as experts are also burdened by heuristics.

A second implication of these findings is that relying on how insiders responded to nonpublic information, as did the *Texas Gulf Sulphur* court, should be understood in light of psychological factors that might affect their judgment. They may have made the right call in buying or selling their company’s stock, but perhaps for the wrong reason. For instance, Kahneman describes how human nature is such that we are “driven more

76. *See id.* at 83.

77. *Id.* at 85.

78. *Id.* at 88.

79. *See id.*

80. *See id.* at 85.

81. *See id.* at 225.

82. *See id.* at 253.

83. *See id.* at 261.

84. *Id.* at 224.

strongly to avoid losses than to achieve gains."⁸⁵ Thus, it may be unfair to conclude that negative information was material *just because* insiders who had that information about their company traded on it.

B. APPLYING SOME CONCEPTS TO THE MATERIALITY DOCTRINE

It is likely that in every case in which materiality is an issue, heuristics and the biases of the fact finder may come into play. Reconsidering a case, such as *Kronfeld v. Trans World Airlines, Inc.*,⁸⁶ in light of such factors is instructive. *Kronfeld* involved an alleged omission in a registration statement for the issuance of convertible preferred stock by Trans World Airlines (TWA). At the time of the filing, July 23, 1983, TWA was a subsidiary of Trans World Corporation (TWC) and had been experiencing financial difficulties. As a result of those difficulties, and well before the filing of the registration statement, one of TWC's shareholders, a private equity firm called Odyssey Partners, lobbied TWC to spinoff TWA and TWC's other subsidiaries.⁸⁷ TWC responded, in part, by retaining an investment banker (Goldman Sachs) to advise it on how it might address the issues raised by Odyssey Partners. While this study was underway, Odyssey Partners' proposal was considered by the TWC shareholders at their annual meeting on April 27, 1983,⁸⁸ but did not gain approval.⁸⁹ Goldman Sachs subsequently completed its study and presented it to TWC's Finance Committee on September 6, 1983, by which time the registration statement had already been filed and the preferred stock offering completed.⁹⁰

Goldman Sachs provided TWC with seven different recommendations, among which was that it spin-off TWA to its shareholders. The Finance Committee decided on September 27 that the spin-off option made the most sense and sent its recommendation to the full board of directors for its consideration. At a meeting on September 28, the board of directors concurred in that recommendation and made a public announcement of its decision. The market price of TWA dropped in response to the announcement, because TWC was a source of financial support for TWA.

85. *Id.* at 302.

86. 832 F.2d 726 (2d Cir. 1987).

87. *Id.* at 728.

88. The district court opinion set forth the proposal in TWC's proxy statement, quoting from the affidavit of a witness in the case:

The proxy resolution stated, in its effective sentence, that: the stockholders of Trans World Corporation, assembled at the 1983 Annual Meeting, request and recommend that the Board of Directors develop and implement a program to separate [the affiliates] by spinning off the primary subsidiaries of Trans World Corporation to the stockholders to create independently traded public corporations or by selling some of the primary subsidiaries, and that a committee of non-management members of the Board of Directors report to the stockholders by August 31, 1983 on the best means to consummate this separation at the earliest practicable date.

Kronfeld v. Trans World Airlines, Inc., 631 F. Supp. 1259, 1260 n.3 (S.D.N.Y. 1986).

89. *Kronfeld*, 832 F.2d at 728.

90. *Id.* at 729.

The purchasers of the convertible preferred stock brought a securities fraud class action alleging that the registration statement should have disclosed the possibility of a spin-off and the failure to do so was a material omission.⁹¹

The district court dismissed the action on summary judgment,⁹² but the Court of Appeals reversed.⁹³ Citing the *Texas Gulf Sulphur* test balancing likelihood and magnitude, the appellate court held that the omission might have been material and, therefore, summary judgment was inappropriate.⁹⁴ The appellate court noted the dramatic stock price decline on the announcement of a spin-off, which satisfied the “magnitude” test. The court acknowledged, however, that the “likelihood” test “cuts much less sharply in favor of plaintiff.”⁹⁵ It is on this issue that the biases and heuristics of *Thinking, Fast and Slow* have salience. Looming largest, of course, is hindsight bias. Knowing that the spin-off occurred, any fact in the record—and the appellate court cited several—appears much more significant than it was at the time. Most importantly, and a basis for the district court decision, was that the TWC had not received the Goldman Sachs report or considered alternative courses of action until long after the public offering had closed.⁹⁶

The hindsight bias would be augmented here by the affect and availability heuristics, making the defendant’s burden of persuasion much more difficult. Recall that the affect heuristic posits that people make judgments based on their emotional response to questions. In *Kronfeld*, a fact finder might have an emotional response to the loss suffered by the plaintiffs and the corresponding gain realized by the defendants. Moreover, the fact finder might be affected by the fact that the plaintiffs were individuals, while defendant was a large corporation. A clever plaintiffs’ lawyer may successfully hide from the fact finder that fact that some members (perhaps a majority) of the plaintiff class were, in fact, entities, by having the named plaintiff be an individual. Indeed, the lead plaintiff in the case was an individual.⁹⁷ As to the availability heuristic, the fact finder might be influenced by memories of stock fraud cases prominent in the news, which are easily recalled and result in biasing the fact finder’s judgment. Other heuristics may also come into play, depending on the background of the fact finders and the way that the case is presented to them.

91. Because “the TWA prospectus discussed in some detail the relationship between TWA and TWC, . . . the question presented [was] whether that discussion omitted to state material facts necessary to make the statements therein not misleading; not whether, considered in the abstract, there was an obligation to disclose those facts at that time.” *Id.* at 735.

92. *Kronfeld*, 631 F. Supp. at 1265.

93. *Kronfeld*, 832 F.2d at 737.

94. *Id.* at 735.

95. *Id.* at 736.

96. *Kronfeld*, 631 F. Supp. at 1264–65.

97. *See Kronfeld*, 832 F.2d at 728.

IV. CONCLUSION

Psychology research and scholarship demonstrates that humans are prone to errors of judgment, and it identifies the reasons why. But litigation is not a controlled psychology experiment. Rather, the fact finder typically is given copious amounts of information presented by advocates—often highly skilled—seeking to persuade them as to the truth. It may be that the procedural safeguards, including rules of evidence and jury instructions, are adequate to combat the heuristics that might otherwise influence a fact finder's judgment. At the same time, perhaps these safeguards are not adequate. Thus, being aware of these heuristics and the way that a fact finder might respond to evidence triggering these heuristics should shape the way an advocate presents his or her case. In light of the ubiquitous nature of biases and heuristics, statistical evidence, the bane of System 1 and the mainstay of System 2, should be emphasized, where appropriate and available in the presentation of evidence.

Thus, psychology research has a role to play in informing litigants and judges. In jury cases, the jurors should be made aware of how their judgments may be affected by common heuristics. They should be cautioned, for instance, not to overly weight how insiders reacted to nonpublic information. Similarly, they should be encouraged to heavily weigh statistical evidence that tempers a judgment that might otherwise be made without reference to that statistical evidence.