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When Strategies Go Awry: Part 4 In A Series On Cognitive Biases And Their Impact

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Commentary

When Strategies Go Awry: Part 4 In A Series On Cognitive Biases And Their Impact

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[Editor's Note: This is part 4 of a series of articles on Cognitive Biases and their impact on Litigation and Negotiation. Laura A. Frase, Of Counsel with Cantey Hanger L.L.P. in Dallas, has over 30 years' experience in Insurance Defense Litigation. She also serves as Negotiation/Settlement Counsel for a number of her clients, having resolved thousands of matters generating significant cost savings. Ms. Frase earned her law degree from St. Mary's School of Law. In 2013, she earned a Master's Degree in Dispute Resolution from Southern Methodist University, concentrating on Negotiation. Ms. Frase is also a trained Mediator and an Adjunct Professor at UNT Dallas College of Law. She is recognized as a Top Woman Lawyer in Texas and AV Peer Preeminent rated. Any commentary or opinions do not reflect the opinions of Cantey Hanger LLP LexisNexis® Mealey Publications™. Copyright © 2018 by Laura A. Frase. Responses are welcome.]

But Wait – I Remember It Differently: Cognitive Biases That Mess with Our Memories

“It's a poor sort of memory that only works backwards' the Queen remarked.”
- Lewis Carroll¹

A critical job of our brain is to remember, learn and predict.² Memory is a result of, and shapes our perception and attention. Over 100 genes have been linked to memory.³ A memory is not, however, a video or photograph. Our complex brain shifts and disturbs the images and sounds we store and call upon. Memory is a reconstruction of past experiences and data that are retrieved and reassembled to craft an image. Memory is fluid, inventive and exceptionally malleable.⁴ “[M]emory

is a creative process. . . . Upon recall, [a] core memory is . . . elaborated upon and reconstructed, with subtractions, additions . . . and distortions.”⁵

How and what we recall is disturbed by Cognitive Biases. “The brain evades, twists, discounts, misinterprets, [and] even makes up evidence – all so that we can retain that satisfying sense of being in the right.”⁶ The Biases discussed in this commentary are some of those that either enhance or impair what we recall, creating troubling consequences in decision-making as our brain plays tricks with our memory.

Hindsight Bias or, “I Knew-It-All-Along Bias”⁷

People always say that Hindsight is 20/20 but in fact, it can be quite myopic. In the **Hindsight Bias**, when we know the outcome of an event, we overestimate our ability to have predicted that same outcome.⁸ In Hindsight, we believe the outcome was not only easily predictable but inevitable⁹ and we exaggerate what we would have known in foresight.¹⁰ The Hindsight Bias essentially “distorts one's ability to judge the true probability of a particular outcome.”¹¹ When an unexpected event or surprise occurs, “we immediately adjust our view of the world to accommodate the surprise.”¹² This “brain-accommodation” occurs because we need to believe “that the world is predictable, even controllable.”¹³

In fact, we go even further than believing we could have predicted the results. Studies have shown that “people not only claim that they would have known it all along, but also that they. . . did, *in fact*, know it all along.”¹⁴ Outcome knowledge garbles memory.

The Bias is heightened the more difficult it is to predict the outcome or when judging in specialized areas of information.¹⁵ We simply forget what our expectations were once the outcome is known and we re-weigh probabilities to match the result. Essentially, we work backwards to justify that the end result was logical and foreseen.

One of the most prevalent examples of Hindsight Bias occurred in the aftermath of the September 11, 2001 terrorist attack. Some believed (and still believe) that leaders failed, or were negligent in appreciating the significance of intelligence that hinted of the impending disaster. With the facts now known, the attack seems easily predictable. In this Bias, we reconstruct our memories to make the unforeseen expected.

There is a continuing debate about the mechanisms that cause Hindsight Bias. Some believe the Bias is a reflection of our motivation to appear knowledgeable.¹⁶ Not only do we need to protect our self-esteem, we also need our worlds to be tidy and predictable.¹⁷ Others believe knowing the outcome serves as a reference point or anchor and we compare the possibilities against the known outcome.¹⁸ One is not altering “past knowing; rather, one revises his or her recollection toward the new reference point [anchor] because it looms so strongly in one’s mind.”¹⁹ Finally the Bias may occur because we naturally and subconsciously want to integrate the outcome into a coherent story, downplaying the alternative outcomes.²⁰ Our new narrative matches the result.

As I am sure you readily appreciate, our practices are replete with Hindsight Bias. The courtroom is all about re-predicting the past.²¹ Juries are asked to determine whether a party acted reasonably, knowing the outcome of the party’s actions or inactions. This knowledge can thus cause a jury to overestimate a party’s ability to avoid or prevent an accident – holding the party to an enhanced and unreasonable standard of reasonableness.²² Indeed, attorneys use this Bias to convince the jury that the injury was not only predictable but inevitably caused by another’s conduct. “[E]vidence consistent with the reported outcome is elaborated, and evidence inconsistent with the outcome is minimized or discounted.”²³ Hindsight Bias can also work in reverse. For example, if a Defendant commonly includes a particular warning with its products and an injury occurs because of the very event warned about,

that warning may take on a higher importance than it did when first conceived.

Expert witnesses can be vulnerable to Hindsight Bias. If an expert sees many similar outcomes (such as by reviewing multiple claimant’s medical records for specific disease) or renders similar opinions (such as assessing the nature of injuries in medical device litigation), she may be more likely to predict fault in the accused parties’ actions, discounting other causal factors that may be unique in individual cases. Second opinions are more biased toward the outcome than we would like to believe.²⁴ When the results of initial studies are known, second opinions are less likely to be “independent,” which can have significant consequences, particularly if the first opinion is arbitrary or in error.²⁵

Judges are not immune. In one study, when Judges were told a hypothetical appeal had been affirmed, 81.5% of them indicated that they would have predicted that result.²⁶ Now some may suggest this study is flawed because Judges have a sense of what type of cases will or will not be upheld on appeal. However, when a different group of the Judges was given the identical hypothetical case and told that the appeal had not been affirmed, the results were almost the same.²⁷ Knowing the result fortified their opinions. In a more historic example of Hindsight Bias, one Judge even held a trustee liable for failing to sell stock before the Great Crash of 1929.²⁸ Clairvoyance, it seems, was an element of negligence.

The Bias can influence Fourth Amendment claims. Studies have also shown that, when determining whether a search was constitutional, probable cause is found more often when illegal items are actually found during the search. In one study, two different groups were asked to consider 50 different search and seizure fact patterns. The group that was told that evidence was actually seized decided the searches were not intrusive by a higher percentage than the group that was not told whether or not evidence was found.²⁹

One set of scholars argue that the Bias may also be used proactively to diminish liability. For example, an investment manager may disclose contingent information that has minimal disclosure merit, with the thought that the contingency is unlikely to happen. Knowing the minimal merit of the information disclosed, investors may then, with reason, fail to heed the warning.

When the bad outcome happens, those same investors may now look foolish or negligent in their dismissals of the warnings.³⁰ “In effect, the hindsight bias becomes an ‘I-told-you-so’ bias.”³¹

Our clients are just as vulnerable. Research has suggested that it is virtually impossible to determine whether a particular memory is true or false - a significant finding in the context of litigation.³² We can be misguided by our client’s version of “objective facts” because our clients are explaining their story in hindsight, using what are to them “real” memories. Later, when the facts challenge those memories, our client’s credibility may then be at issue.

As attorneys, we too can be directly impacted by Hindsight Bias. For example, we may discount whether a surprise or unforeseen factor changes the outcome we predict in a case. “If we consider ourselves more knowledgeable than we really were, we could easily overestimate our abilities in similar situations in the future. . . [or we may be lulled] into a false sense of security.”³³ When Hindsight is combined with the other Biases discussed in earlier commentaries, such as Confirmation Bias and Anchoring, error can compound upon error.

The legal system imposes some controls that blunt the impact of the Hindsight Bias. Federal Rule of Evidence Rule 407, for example, excludes subsequent remedial measures evidence under some circumstances.³⁴ Bifurcating liability from punitive damage findings in trial is another way to combat the Bias. In patent litigation, an invention has to be “nonobvious” to warrant a patent³⁵ and non-obviousness requires satisfaction of very specific elements to exclude Hindsight.³⁶ In medical malpractice matters, the fact finders may “simplify, trivialize, and retrospectively criticize the decisions of the treating doctor without appreciating the contemporaneous difficulty of the decisions involved.”³⁷ Consequently, juries are not generally asked what reasonable people would do, but whether the behavior was consistent with customary standards of the medical community at the time of the injury.³⁸

Outcome Bias is often confused with Hindsight Bias. In this “Monday-Morning-Quarterbacking” Bias, we erroneously judge the merits of a decision based upon its outcome rather than assessing the factors that led to the decision. In other words, a bad outcome must mean

a bad decision-making process, right? For example, in one study, a group of anesthesiologists was asked to evaluate medical cases in which the poor outcome was either temporary or permanent. The doctors “rated the appropriateness of care lower when the outcome was permanent than when it was temporary.”³⁹ Permanent outcomes more often meant inappropriate care.

The difference between Hindsight Bias and Outcome Bias is subtle - the former rates the probability that a particular outcome would have occurred while the latter rates the decision-making process itself.⁴⁰ Outcome Bias can have a worrying impact as it “leads observers to assess the quality of a decision not by whether the process was sound but by whether its outcome was good or bad.”⁴¹ We see this play out in many cases in which decision-makers are held liable for the poor results. Think about investment managers, corporate officers or product developers who are blamed for undesirable results. In personal injury cases, a jury may more likely believe that the injury was automatically caused by poor decision-making than is warranted.⁴² Surprise is not considered. Uncontrolled or uncontrollable factors are not relevant. Poor results are solely caused by bad decisions.

Outcome Bias, for example, also has potential to impact criminal law cases involving ineffective assistance of counsel. Former clients may believe that a bad outcome means poor lawyering decision-making. Consequently, one court specifically held “[t]he reviewing court must look to the totality of the representation, and its decision must be based on the facts of the particular case, viewed at the time of counsel’s conduct so as to eliminate [outcome or] hindsight bias.”⁴³

Imbued in PSLRA (the Private Securities Litigation Reform Act of 1995) actions is one effort to overcome Outcome Bias. In **Fraud by Hindsight** (FBH), a Plaintiff cannot argue that a mistake or unintentional delay in conveying information is sufficient evidence of fraud.⁴⁴ FBH manifests in the pleading requirements of scienter⁴⁵ to help distinguish mistake or misplaced optimism from fraud. In these matters, Hindsight “can mistakenly lead people to conclude that a bad outcome was not only predictable but was actually predicted by managers . . . [and that they] committed securities fraud.”⁴⁶ Standing alone, alleging “that defendants knew earlier what later turned out badly”⁴⁷ does not

satisfy the pleading requirements of a strong inference of scienter.⁴⁸ There is no fraud by Hindsight.⁴⁹

A relative of Hindsight Bias is **Visual Hindsight Bias** or, the “I-Saw-it-All-Along” Effect.⁵⁰ One group of scholars demonstrated this Bias using x-rays. Radiologists were asked to review chest x-rays of 4,618 men who had a high risk of lung cancer. The study group had x-rays taken every four months and each x-ray was read by two or three radiologists. During this six-year study, 92 tumors were diagnosed in the study group. When the earlier “normal” x-rays of these 92 subjects were reviewed, 75 tumors (or 82%) were then “found” retrospectively. Knowing that subsequent x-rays showed definite signs of tumors caused the radiologists to now visually detect the tumors in earlier ones.⁵¹

In another experiment, participants were asked to look at 30 blurred pictures of several celebrities, beginning with the most degraded and progressing to clearer pictures. The image that each participant relied upon to correctly recognize the celebrity was logged. These same participants, now knowing the identity of the celebrity, were then asked to identify which of the 30 degraded pictures in the series had finally helped them identify the celebrity. Results showed that 88% of the participants “systematically overestimated the degree of blur” of the picture they chose. Knowing the name and likeness of the celebrity caused them to pick a different and blurrier picture as the one that allowed them to identify the celebrity.⁵²

Consider the impact of Visual Hindsight Bias in cases involving eye witnesses. Graphic videos may mistakenly enhance witnesses’ memories. Looking at pictures of products lines from certain manufacturers may cause Plaintiffs to truly believe they handled that actual manufacturer’s material rather than some similar product made by another. Visual memories are literally “cleaned-up” by the outcome-based knowledge. What we see in Visual Hindsight Bias is augmented by knowing what we are supposed to see.⁵³

As attorneys, we must be cognizant of how these Hindsight Biases affect our strategies and our predictions. “[F]eeling wiser after the outcome is known [can] also lead us to a too optimistic evaluation of our prior knowledge state.”⁵⁴ We must also resist the temptation to make predictions too early in the process.⁵⁵ Too little foresight knowledge increases the impact of the

Hindsight Bias.⁵⁶ Research is key. And we should not underestimate the potential for surprise. As prognosticators, we must incorporate the potential for the unforeseen in our strategic plans. Then we can be alert and flexible if the unforeseen alters our clients’ goals.

Availability Bias or “What I Remember Happens Frequently”

As mentioned earlier, memory is tricky. When we wonder how often something occurs, we sometimes use an example that we easily remember to judge frequency.⁵⁷ In doing so, we fall prey to the **Availability Bias**. A term coined in 1973 by Daniel Kahneman and Amos Tversky, this memory bias causes errors when we “estimate frequency or probability by the ease with which instances or associations could be brought to mind.”⁵⁸ For example, if we hear of a crime taking place in our neighborhood, we may then overestimate the risk that additional crimes will take place.⁵⁹ Since we can recall one instance, we then assume there are lots of other similar instances.

Another simple example of Availability Bias is the notion that it rains more in Seattle, Washington than in Georgia. Most have heard of constant rain in Seattle so they erroneously assume greater frequency.⁶⁰ They are wrong - Atlanta, Georgia has a yearly rainfall average of 49.74 inches while Seattle’s yearly average is 34.1 inches.⁶¹ Another study found that airline passenger traffic in Spain temporarily decreased by 20% following a major airplane crash in the region.⁶² The use of other modes of transport available in the area similarly increased.⁶³ The terrible and easily available memory caused the travelers to alter their habits.

Our memories can also be self-serving. In one well-known study illustrating Availability Bias, married couples were asked to estimate the percentage of their own contribution to various tasks, including housework and causing arguments. Each spouse “tended to think that he or she was more responsible than the other spouse thought.”⁶⁴ This effect occurred no matter whether the spouses were asked about positive tasks or negative tasks. Since each could more easily recall their own contribution to certain tasks, they judged those contributions as occurring more frequently than those of their spouses.

Multiple factors drive how this Bias impacts judgment of frequency. For example, personal experiences of the

event are more easily remembered and thus used to judge frequency.⁶⁵ Likely occurrences are more readily envisioned than unlikely ones.⁶⁶ If the event is particularly vivid, tragic or highly imaginable, the belief that the event occurs frequently increases.⁶⁷ The Availability Bias also strengthens when we lack relevant information of frequency.⁶⁸ If we are not motivated to dive into the actual facts, or we are under time pressure, we may rely more on the examples we easily recall than on hard data.⁶⁹

In our practices, Availability Bias may, for example, impact labor/employment relations cases, as our clients may overestimate their contributions to the success of the company, and thus damages if they are subsequently fired. Clients may also have an exaggerated view of the value of their cases because they recall a high jury award. In divorce proceedings, clients may demand a greater share of the property because of well-remembered hurts or underestimate their own contribution to a marriage's failure. Or clients may overestimate the likelihood they will suffer from significant health issues caused by a pharmaceutical drug because of the number of class-action commercials they see on cable TV.

As memories of corporate scandals fade, the Availability Bias may also cause our clients to underestimate the possibility of being defrauded.⁷⁰ In "disaster myopia,"⁷¹ memories of corporate fraud dwindle over time and clients believe such events are therefore less likely to happen. They may thus become less vigilant or determine certain controls or restraints are no longer necessary.

We too may be directly impacted by the Availability Bias. Some of us specialize in certain types of negotiations where we may see little variety in the fact patterns or terms. When practicing using available memories of the earlier and similar negotiation, it is easy to see that we may then acquire a form of tunnel vision, unable to visualize alternative terms or facts.⁷² Creative bargaining may thus be limited.

Finally, the Availability Bias may generate a "false consensus effect" in which we think others agree with us more often than they do.⁷³ If we recall that one commentator holds the same opinion as ours, we may believe we hold the majority opinion, dismissing the thoughts and perspective of others as inconsequential. Conflict easily escalates under this Bias.

The Availability Bias also can be triggered by influential others. For example, exhaustive media coverage of a tragic, yet infrequent, event exacerbates the Availability Bias. Kahneman and Tversky called this sensation **Availability Cascade** - "a self-sustaining chain of events, which may start from media reports of a relatively minor event and lead up to public panic and large-scale government action."⁷⁴ Eventually, the Availability Cascade may have such impact that it resets government priorities and the reallocation of public funds.⁷⁵ The more emotional the story, the more dramatic the response.

Recall the national reaction to eight people diagnosed with Ebola in the U.S., (three of whom were located in Dallas, Texas) during the fall of 2014. At that time, two-thirds of the U.S. population polled feared an epidemic.⁷⁶ At Texas Health Presbyterian Hospital in Dallas, where two nurses contracted the disease, people were still cancelling outpatient hospital procedures weeks after the nurses were moved to other facilities out of state.⁷⁷ Others cancelled routine doctor visits because the physicians' offices were located in buildings that were near, but not connected to, the hospital.⁷⁸ One two-year college about 60 miles from Dallas sent out last minute rejection letters to applicants from Nigeria, at just about the time the World Health Organization declared the country Ebola-free. One school principal in a northern state was put on 21 day leave because he had recently visited Zambia (also an Ebola-free country).⁷⁹

In Dallas, I personally saw ordinary people wearing surgical masks in grocery stores and heard stories that those dressed in doctor's scrubs in public got shunned and avoided, even though Ebola is not an airborne disease. The media constantly reported the crisis, feeding into the population's anxiety. Scientists attempting to dampen fears were labeled participants in a cover-up.⁸⁰ Immediate political action was demanded. The Centers for Disease Control eventually received approximately \$155 million to support state and local Ebola preparedness and response activities.⁸¹ Significant governmental resources and funds were reallocated because eight out of 320+ million U.S. residents suffered from this terrible disease.

The Availability Bias operates virtually every time we attempt to use memory to assess frequency. We fail to consciously recognize the gap between "what is

memorable and what is typical.⁸² We mistakenly confuse the most available information with the most relevant information.⁸³ Although basing predictions of outcomes on memorable evidence may be time-saving, ascertaining the frequency or probability of outcomes using only the memorable can be problematic – or worse, result in systemic error. “Ubiquity, alas, does not guarantee its infallibility.”⁸⁴ If we rely on our memories to judge frequency or probability in calculating risk or predicting success, we do so at our peril.

Battling with Focus and Foresight

The Hindsight Bias is almost impossible to avoid. “Learning the outcome has such profound and subtle effects on people’s beliefs that re-creating a past prediction is like trying to cross the same river twice. . . [U]pon learning the outcome, the brain had developed a new set of beliefs and can never really return to its previous state.”⁸⁵ Awareness does not diminish the effect.⁸⁶ Being told to be careful when engaging in Hindsight does not help.⁸⁷ The decision-maker is likely unaware that knowing the outcome influenced them.⁸⁸ Correction is not feasible because our beliefs of probability of outcomes have literally changed.⁸⁹ So now what?

- When faced with outcome knowledge, distrust your initial intuition on predictability. Look for objective standards or evidence (such as regulatory conformity) to assess whether a particular outcome was likely. Force yourself to argue against inevitability.⁹⁰
- Employ “Consider the Opposite.” Like the “Consider the Other” technique discussed in the commentary on Anchoring, concentrate on alternative interpretations of facts or strategies. Take the known outcome and consider what other probabilities could have occurred, particularly those outcomes that are at direct odds with your current perception.⁹¹ Outline the facts that support each possible outcome imagined.⁹² Determine whether you would weigh the possibilities the same if the outcome was the exact opposite of what actually happened. Actually “list or generate the reasons why other outcomes might have been expected.”⁹³ Forcing yourself to “consider plausible alternative scenarios in which the same facts result in different outcomes. . . ‘break[s] down the causal links between outcome knowledge and antecedent

behavior’.”⁹⁴ This technique also lessens the impact of several other cognitive biases and improves decision-making.⁹⁵

- Taking a cue from one commentator, try “claim sanitizing.”⁹⁶ For example, in jurisdictions that protect consulting expert opinions, ask the consultant to review a case and provide only the facts that lead up to the outcome, but not the actual outcome itself. Ask the expert to consider possible outcomes and perhaps even rate the likelihood of the various outcomes. Have her assess whether there is negligence or a violation of standards of care. See if your outcome is predicted. You may then decide whether or not that report should be provided to your testifying expert.
- If you are working to predict an outcome, document the various probabilities you are assessing, thus diminishing the potential for Outcome Bias. Keep notes on your decision-making process and keep the client fully engaged. Prepare them for surprises.
- Availability Bias is more easily challenged. As with other biases discussed in this series, rely on objective criteria rather than instinct. Pause before you decide. Consider what patterns are missing, what gaps exist or, what mundane information is needed to properly assess frequency or probability.
- As with the other Biases discussed in this series, check your overconfidence and ego at the door. These Biases affect us because we like to appear knowledgeable. Set yourself aside and engage in “a little defensive humility.”⁹⁷

Conclusion

Memory is subjective, powerful and incomplete. It is not stagnant. It evolves and is reconstructed each time it is used.⁹⁸ “[M]emory provides our lives with continuity. It gives us a coherent picture of the past that puts current experiences in perspective. The picture may not be rational or accurate, but it persists.”⁹⁹

Memory is vulnerable to our interpretations and life experiences. We have an especially remarkable talent for finding order and meaning in random events.¹⁰⁰ Distortion can be caused by many external sources, including various cognitive biases discussed in this series.¹⁰¹ “Memory is often taken for granted and really

only reflected upon when it fails us.”¹⁰² And given that the salient memory is more available to us, we must be cautious and not rely upon the memorable to predict the probable.

It is important to incorporate what we learn from the past so that we better manage the future.¹⁰³ “Automatically updating beliefs in light of new information is a valuable cognitive skill.”¹⁰⁴ Yet in our practices, Hindsight hinders, particularly when a party attempts to explain that its actions did not cause the already known event and harm. We judge others’ conduct based upon consequences.¹⁰⁵ “Thus, the very outcome knowledge which gives us the feeling that we understand what the past was all about may prevent us from learning anything about it.”¹⁰⁶ Given that memories of alternative probable outcomes are diminished or even erased, dredging up those memories is challenging. And if we rely on what is most memorable to predict frequency or probability, we can hamper our decision-making process. We must be cautious with remembrance.

“Memory says: ‘Want to do right? Don’t count on me.’”
- Adrienne Rich¹⁰⁷

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 34. FED R. E. Rule 407. One commentator argues that admitting subsequent remedial measures to prove feasibility dilutes the protections from Hindsight Bias

- Rule 407 was intended to afford. Kimberly Eberwine, *Hindsight Bias and the Subsequent Remedial Measures Rule: Fixing the Feasibility Exception*, 55 CASE W. RES. L. REV. 633, 654-658 (Spring 2005).
35. As one commentator suggests, “decision-makers unconsciously let knowledge of the invention bias their conclusion concerning whether the invention was obvious in the first instance.” Gregory N. Mandel, *Patently Non-Obvious: Empirical Demonstration that the Hindsight Bias Renders Patent Decisions Irrational*, 67 OHIO ST. L.J. 1391, 1393 (2006). Consequently, fact-finders in patent cases are required to assess objective evidence before reaching the conclusion as to whether or not a patent was warranted or whether the invention was obvious, rather than hunches. See, *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litigation*, 676 F. 3d 1063, 1079 (Fed. Cir. 2012).
36. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S. Ct. 684, 694, 15 L. Ed.2d 545 (1966).
37. H.W. LeBourgeois, Debra A. Pinals, Valerie Williams and Paul S. Appelbaum, *Hindsight Bias among Psychiatrists*, 35(1) J. OF THE AMER. ACADEMY OF PSYCHIATRY & THE LAW, 67-73 (March 2007) <http://jaapl.org/content/35/1/67>. In this study, a group of psychiatrists were asked to conduct hypothetical case reviews and determine suicide and violence risk ratings. Those who were told that the suicide or violent act occurred rendered significantly higher ratings than the control group. *Id.*
38. Chris Guthrie, Jeffery Rachlinski and Andrew Wis-trich, *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 828 (2001).
39. Hal R. Arkes and Cindy A. Schipani, *Medical Malpractice v. the Business Judgment Rule: Difference in Hindsight Bias*, 73 OR. L. REV. 587, 593 (1994) citing Robert A. Caplan, Karen L. Posner and Frederick W. Cheney, *Effect of Outcome on Physician Judgments of Appropriateness of Care*, 265 JAMA 1957, 1960 (1991).
40. Hal R. Arkes and Cindy A. Schipani, *Medical Malpractice v. the Business Judgment Rule: Difference in Hindsight Bias*, 73 OR. L. REV. 587, 593 (1994).
41. DANIEL KAHNEMAN, THINKING FAST AND SLOW 203 (2011).
42. Robert T. Miller, *Smith v. Van Gorkom and the Kobayashi Maru: The Place of the TransUnion Case in the Development of Delaware Corporate Law*, 9 Wm. & Mary Bus. K. Rev. 65, 198-200 (Nov. 2017). The 1985 decision in *Transunion* was known as one of the most notorious decisions in the history of Delaware Law and the author suggests, among other theories, that it was a botched first attempt to describe the duties corporate directors owed when selling a company. *Id.* at 76.
43. *Ex Parte Christina MARTINEZ*, 330 S.W.3d 891, 901 (Tex. Ct. Crim. Apps. – 2011) citing *Strickland v. Washington*, 466 U.S. 668, 104 S. Ct. 205, 280, L.Ed.2d 674 (1984) (emphasis added). See generally, Stephanos Bibas, *The Psychology of Hindsight and After-The-Fact Review of Ineffective Assistance of Counsel*, 2004 UTAH L. REV. 1 (2004). One commentator suggests that Hindsight Bias amounts to a shift of the legal standards, arising to almost an ex post facto standard, subjecting parties to standards that increase after the fact. See Jeffery J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571, 600 (1998).
44. *Denny v. Barber*, 576 F.2d 465,467 (2d. Cir. 1978).
45. Generally, a securities fraud claim requires scienter as one of the six elements to be proven. Scienter has been defined as “a mental state embracing intent to deceive, manipulate, or defraud,” and a plaintiff must allege that ‘defendants consciously intended to defraud, or that they acted with a high degree of recklessness.’” See *Ezra Charitable Trust v. Two International, LTD*, 466 F.3d 1, 6 (1st Cir. 2006).
46. Mitu Gulati, Jeffrey J. Rachlinski and Donald C. Langevoort, *Fraud by Hindsight*, 98 NW. U.K. REV. 773, 774 (Spring 2004). While battling the Hindsight Bias was said to be the goal in FBH pleadings requirements, the authors argue that, instead, the doctrine serves as a case management tool in which “judges are seeking to manage securities cases through a thinly disguised effort to screen securities cases at an early stage of the proceedings.” *Id.* at 776-777.

47. *Ezra Charitable Trust v. Two International LTD*, 466 F.3d 1, 6 (1st. Cir. 2006).
48. *Tellabs, Inc. v. Makor Issues & Rights LTD*, 551 U.S. 308, 127 S. Ct. 2499, 2508, 168 L. Ed. 2d 179 (2007).
49. *Garden City Employees' Retirement System v. Anixter International, Inc.*, 2011 WL 1303387, 19 (N. D. Illinois, March 31, 2011).
50. Erin M. Harley, Kerri A. Carlsen and Geoffrey R. Loftus, *The "Saw-It-All-Along" Effect: Demonstrations of Visual Hindsight Bias*, 30 J. OF EXPER. PSYCH.: LEARNING, MEMORY AND COGNITION, No. 5, 960—968 (2004).
51. *Id.* at 960.
52. *Id.* at 963.
53. *Id.* at 967. The authors propose the term “fluency-misattribution” to explain visual hindsight bias – “exposure to target-identify information results in enhanced processing fluency of the degraded images.” *Id.*
54. Rüdiger F. Pohl, *Hindsight Bias* in COGNITIVE ILLUSIONS: A HANDBOOK ON FALLACIES AND BIASES IN THINKING, JUDGMENT AND MEMORY, 1st ed. 363, 366 (Ed. by Rüdiger F. Pohl, 2012).
55. Ian Weinstein, *Don't Believe Everything You Think: Cognitive Biases In Legal Decision Making*, 9 CLINICAL L. REV. 783, 802 (2003).
56. Ralph Hertwig, *Hindsight Bias: How Knowledge and Heuristics Affect Our Reconstruction of the Past*, MEMORY, 11 4/5 357, 370 (2003). http://library.mpib-berlin.mpg.de/ft/rh/RH_Hindsight_2003.pdf.
57. JONATHAN BARON, THINKING AND DECIDING 153 (2008).
58. Amos Tversky and Daniel Kahneman, *Availability: A Heuristic of Judging Frequency and Probability*, 5 COG. PSYCHOLOGY 207 (1973) <https://msu.edu/~ema/803/Ch11-JDM/2/TverskyKahneman73.pdf>. Initially the authors only attributed assessments of frequency to the Availability Bias. They later described the use of available information to describe probability of an event as the Simulation Heuristic. Daniel Kahneman and Amos Tversky, *The Simulation Heuristic*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, 201-208 (Daniel Kahneman, Paul Slovic, & Amos Tversky eds., 1982). Generally commentators now combine the two effects under Availability.
59. Amitai Aviram, *The Placebo Effect of Law: Law's Role in Manipulating Perceptions*, 75 GEO. WASH. L. REV. 54, 72 (Nov. 2006).
60. Richard Birke and Craig Fox, *Psychological Principles in Negotiating Civil Settlements*, 4 HARV. NEGOTIATION L. REV. 1, 8 (1999).
61. *Compare* <https://www.usclimatedata.com/climate/atlanta/georgia/united-states/usga1761> (retrieved Feb. 2, 2018) *with* <https://www.usclimatedata.com/climate/seattle/washington/united-states/uswa0395> (retrieved Feb. 2, 2018).
62. José I. Castillo-Manzano, Diego J. Pedregal, and Rafael-Pozo-Barajas, *Assessing Fear of Flying after a Plane Crash. The "Rainman" effect – Myth or Reality?* 20 J. OF AIR TRANSPORT MANAGEMENT 20, 21 (May, 2012).
63. *Id.*
64. JONATHAN BARON, THINKING AND DECIDING 155 (2008).
65. DANIEL KAHNEMAN, THINKING FAST AND SLOW 130 (2011).
66. Amos Tversky and Daniel Kahneman, *Availability: A Heuristic of Judging Frequency and Probability*, 5 COG. PSYCHOLOGY 207, 208 (1973) <https://msu.edu/~ema/803/Ch11-JDM/2/TverskyKahneman73.pdf>.
67. Rolf Reber, *Availability* in COGNITIVE ILLUSIONS: A HANDBOOK ON FALLACIES AND BIASES IN THINKING, JUDGMENT AND MEMORY, 2d. ed. 185, 191 (Ed. by Rüdiger F. Pohl, 2017). Some scholars have suggested that Vividness is a separate bias occurring when we “place more weight on concrete, emotionally interesting

- information than on more probative abstract data.” Harry S. Gerla, *The “Reasonableness” Standard in the Law of Negligence: Can Abstract Values Receive Their Due?* 15 U. DAYTON L. REV. 199, 210-211 citing RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGEMENT 55-61 (1980).
68. Rolf Reber, *Availability* in COGNITIVE ILLUSIONS: A HANDBOOK ON FALLACIES AND BIASES IN THINKING, JUDGMENT AND MEMORY, 2d ed. 185, 199 (Ed. by Rüdiger F. Pohl, 2017).
69. *Id.* at 198.
70. Eric F. Gerding, *The Next Epidemic: Bubbled and the Growth and Decay of Securities Regulation*, 38 CONN. L. REV. 393, 421 (Feb. 2006). Apocryphally, Mr. Gerding wrote in 2006 “[w]hen boom-times return, a financial industry burdened with a multitude of regulations can make a politically persuasive argument that burdensome regulations are outdated.” *Id.* at 424. We are now seeing the current administration employ this very argument to justify de-regulation.
71. *Id.* at 422.
72. Joseph W. Rand, *Understanding Why Good Lawyers Go Bad: Using Case Studies In Teaching Cognitive Bias In Legal Decision-Making*, 9 CLINICAL L. REV. 731, 746 (2003).
73. Robert S. Adler, *Flawed Thinking: Addressing Decision Biases In Negotiation*, 20 OHIO ST. J. ON DISP. RESOL. 683, 704 (2005).
74. DANIEL KAHNEMAN, THINKING FAST AND SLOW 142 (2011).
75. *Id.*
76. Saeed Ahmed and Dorrine Mendoza, *Ebola Hysteria: An Epic, Epidemic Overreaction* on CNN (Oct. 20, 2014). <http://www.cnn.com/2014/10/20/health/ebola-overreaction/index.html>.
77. Sidney Lupkin, *Ebola Scare Turns Dallas Hospital Into a ‘Ghost Town’* ABCNEWS (Oct. 18, 2014) <http://abcnews.go.com/Health/ebola-scare-turns-dallas-hospital-ghost-town/story?id=26276610>.
78. *Id.*
79. Saeed Ahmed and Dorrine Mendoza, *Ebola Hysteria: An Epic, Epidemic Overreaction* on CNN (Oct. 20, 2014). <http://www.cnn.com/2014/10/20/health/ebola-overreaction/index.html>.
80. *Id.*
81. <https://www.cdc.gov/phpr/readiness/funding-ebola.htm>. (Retrieved Jan. 31, 2018). I find it fascinating that four years later I am still asked at doctor’s appointments if I have traveled outside of the United States in the last 21 days.
82. Richard Birke and Craig Fox, *Psychological Principles in Negotiating Civil Settlements*, 4 HARV. NEGOTIATION L. REV. 1, 9 (1999).
83. *See generally*, Barry Goldman, THE SCIENCE OF SETTLEMENT: IDEAS FOR NEGOTIATORS (2008).
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85. Chris Guthrie, Jeffery Rachlinski and Andrew Wis-trich, *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 825 (2001). Studies have shown, however, that Judges are less likely to be impacted by cognitive illusions like Hindsight than juries and the authors caution those that advocate for more jury decisions to proceed cautiously. *Id.* at 827.
86. Mitu Gulati, Jeffrey J. Rachlinski and Donald C. Langevoort, *Fraud by Hindsight*, 98 NW. U.K. REV. 773, 777 (Spring 2004).
87. Jeffery J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571, 586 (1998).
88. Scott Hawkins and Reid Hastie, *Hindsight: Biased Judgements of Past Events after Outcomes are Known*, 107 PSYCHOLOGICAL BULL., No. 3, 311, 323 (1990).
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90. Baruch Fischhoff, *For Those Condemned to Study the Past: Heuristics and Biases in Hindsight*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, 335, 343 (Daniel Kahneman, Paul Slovic, & Amos Tversky eds. 1982).
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93. Hal R. Arkes, David Faust, Thomas Guilmette and Kathleen Hart, *Eliminating the Hindsight Bias*, 73 J. OF APP. PSYCHOLOGY, No. 2, 305, 307 (1988).
94. Maggie Wittlin, *Hindsight Evidence*, 116 COLUM. L. REV. 1323, 1364 (June, 2016).
95. Douglas N. Frenkel and James H. Stark, *Improving Lawyers' Judgment: Is Mediation Training De-Biasing?* 21 HARV. NEGOTIATION L. REV. 1, 23 (Fall 2015).
96. Nancy Leong, *Improving Rights*, 100 VA. L. REV. 377, 424-426 (April 2014).
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99. ERIC R. KANDEL, IN SEARCH OF MEMORY: THE EMERGENCE OF A NEW SCIENCE OF MIND 10 (2006).
100. Baruch Fischhoff, *For Those Condemned to Study the Past: Heuristics and Biases in Hindsight*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, 335, 344 (Daniel Kahneman, Paul Slovic, & Amos Tversky eds. (1982). Mr. Fischhoff explains this ability as part of the “gambler’s fallacy” – that we can predict a flipped coin will land on “heads” because the previous four flips also landed on heads. *Id.*
101. Henry L. Roediger, III and David A. Gallo, *Associative Memory Illusions* in COGNITIVE ILLUSIONS: A HANDBOOK ON FALLACIES AND BIASES IN THINKING, JUDGMENT AND MEMORY, 2d. ed. 390 (Ed. by Rüdiger F. Pohl, 2017).
102. Jacqueline E. Pickrell, Daniel M. Bernstein, and Elizabeth Loftus, *Misinformation Effect* in COGNITIVE ILLUSIONS: A HANDBOOK ON FALLACIES AND BIASES IN THINKING, JUDGMENT AND MEMORY 345 (Ed. by Rüdiger F. Pohl, 2004).
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