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Anchoring, Information, Expertise, and Negotiation: New Insights from Meta-Analysis

DAN ORR* & CHRIS GUTHRIE**

I. INTRODUCTION

Suppose that we asked you whether the average temperature in San Francisco was higher or lower than 558 degrees.¹ Do you think this question would influence your estimate of the average temperature in the city? Suppose instead that we asked you whether the average price of a college textbook was higher or lower than \$7,128.53.² Would this question have an impact on your estimate of the average price of such a text? What if we asked you whether the number of "top 10" Beatles' records was higher or lower than 100,025?³ Would this affect your estimate of the number of Beatles' albums that did make the top 10?

You wouldn't think so, but you would probably be wrong. Due to a phenomenon that psychologists call "anchoring,"⁴ we are often unduly influenced by the initial figure we encounter when estimating the value of an item. This initial value serves as a kind of reference point or benchmark that anchors our expectations about the item's actual value.⁵

Negotiation and dispute resolution scholars have observed that this phenomenon could have an impact on negotiation. In a number of studies,

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¹ SCOTT PLOUS, *THE PSYCHOLOGY OF JUDGMENT AND DECISION MAKING* 146 (1993) (reporting the results of an unpublished study conducted by George Quattrone and colleagues).

² *Id.*

³ *Id.*

⁴ Amos Tversky & Daniel Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1128-30 (1974) (introducing anchoring).

⁵ *Id.* at 1128 ("[D]ifferent starting points yield different estimates, which are biased toward the initial values.").

researchers have shown that opening offers and demands,⁶ insurance policy caps,⁷ statutory damage caps,⁸ negotiator aspirations,⁹ and other “first numbers” can influence negotiation outcomes in transactions and settlements. What no researcher has done, however, is assess how potent this phenomenon is.

In this article, we attempt to do just that by conducting a “meta-analysis” of studies that have tested the impact of an opening figure in a negotiation experiment. Meta-analysis, as we explain in greater detail below, is a statistical method that allows scholars to analyze all available studies to measure the impact of one variable—in this case, opening offers, demands or other starting figures—on another variable—in this case, negotiation outcomes.¹⁰ Using this technique, we find that anchoring has a powerful impact on negotiation outcomes.

We also use meta-analytic techniques to explore whether two factors might limit the impact of anchoring on negotiation outcomes: information and expertise. With respect to the first, we hypothesized that an anchor would be most influential in information-poor environments; in those environments where the recipient of an anchor has much more information about the value of the item being negotiated, we expected that anchors would exert less influence. We find some—but only some—support for this proposition. Second, we hypothesized that experienced negotiators would be less susceptible than inexperienced negotiators to the influence of anchors. Again, we find some—but only some—support for this proposition. On the whole, we conclude that anchoring has a significant impact on negotiators and negotiation outcomes.

Our article proceeds as follows. In Part II, we explore the phenomenon of anchoring in greater detail, providing insight into its operation and underlying etiology. In Part III, we explore the role anchoring can play in the legal system, focusing specifically on its import in the courtroom and at the bargaining table. In Part IV, we describe our study. We first explain meta-

⁶ See, e.g., Adam D. Galinsky & Thomas Mussweiler, *First Offers as Anchors: The Role of Perspective-Taking and Negotiator Focus*, 81 J. PERSONALITY & SOC. PSYCHOL. 657, 660–65 (2001); Russell Korobkin & Chris Guthrie, *Opening Offers and Out-of-Court Settlement: A Little Moderation May Not Go a Long Way*, 10 OHIO ST. J. ON DISP. RESOL. 1, 11–13, 18–19 (1994).

⁷ See Jeffrey J. Rachlinski & Chris Guthrie, *Litigation Stakeholders: Repeat-Player Resistance to Cognitive Bias?* (Feb. 17, 2006) (working paper, on file with the authors).

⁸ See Linda Babcock & Greg Pogarsky, *Damage Caps and Settlement: A Behavioral Approach*, 28 J. LEGAL STUD. 341, 361–68 (1999).

⁹ See, e.g., Russell Korobkin, *Aspirations and Settlement*, 88 CORNELL L. REV. 1, 38–44 (2002).

¹⁰ See *infra* Part IV.

analysis, the statistical technique we employ in the paper. We then report our findings, documenting the impact of anchoring in negotiation. Finally, in Part V, we explore the implications of our analysis for negotiators, offering both “negotiation offense” and “negotiation defense” prescriptions.

II. ANCHORING

In the 1970s, two cognitive psychologists, Amos Tversky and Daniel Kahneman, set out to explore how people make judgments and decisions. Using classical experimental methods, they found that we do not follow the logical axioms of rational choice or expected utility theory when making choices. Instead, we tend to “rely on a limited number of heuristic principles,” including anchoring,¹¹ “which reduce the complex task of assessing probabilities and predicting values to simpler judgmental operations.”¹² Each of these heuristics can be quite useful; often, however, they can “lead to severe and systematic errors.”¹³ This is certainly true of anchoring.

A. Anchoring Explained

When estimating the objective or subjective value of an item—such as the price at which we can purchase a rug, the value at which a lawsuit will

¹¹ Initially, Tversky and Kahneman identified three basic heuristics: availability, representativeness, and anchoring. Tversky & Kahneman, *supra* note 4, at 1124, 1127–28. More recently, Kahneman and Shane Frederick have argued that the three basic heuristics are representativeness, availability, and the affect heuristic. Daniel Kahneman & Shane Frederick, *Representativeness Revisited: Attribute Substitution in Intuitive Judgment*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT* 49, 56 (Thomas Gilovich, Dale Griffin & Daniel Kahneman eds., 2002) (“It has become evident that an *affect heuristic* should replace anchoring in the list of major general-purpose heuristics.”) (citation omitted). *But see* Daniel T. Gilbert, *Inferential Correction*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT* 167 (Thomas Gilovich, Dale Griffin & Daniel Kahneman eds., 2002) (arguing that anchoring and adjustment “describes the process by which the human mind does virtually all of its inferential work”).

Most decision researchers use the phrase “heuristics and biases” loosely to refer to a long list of mental shortcuts that decisionmakers are likely to employ. *See, e.g.*, *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT*, *supra* (containing chapters describing several different phenomena); *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* (Daniel Kahneman, Paul Slovic & Amos Tversky eds., 1982) [hereinafter *JUDGMENT UNDER UNCERTAINTY*].

¹² Tversky & Kahneman, *supra* note 4, at 1124.

¹³ *Id.*

settle, or the damages a judge will award in a civil case—we have an automatic, unconscious tendency to “anchor” on the first number we encounter.¹⁴ That is, “the number that starts the generation of a judgment exerts a stronger impact than do subsequent pieces of numeric information.”¹⁵

In one classic illustration of anchoring, Tversky and Kahneman asked participants to estimate the percentage of African countries in the United Nations.¹⁶ Before doing so, however, they spun a “wheel of fortune,” which they had rigged to stop at 10 or 65. They asked the participants, whom they divided into two groups, whether the percentage of African countries in the U.N. was higher or lower than the number on the wheel. When the wheel stopped on 10, participants estimated that 25 percent of African countries were members of the U.N.; when the wheel stopped on 65, however, the other participants estimated that number at 45 percent.¹⁷ The arbitrary spin of the wheel influenced the participants’ estimates dramatically.

In a similar study, researchers asked two groups of auditors to estimate the amount of management fraud in companies audited by accounting firms.¹⁸ Beforehand, the researchers gave each group different anchors. The researchers asked one group whether fraud occurred in more than 10 of every 1,000 companies and asked the other group whether fraud occurred in more than 200 of every 1,000 companies. These anchors influenced the auditors’ estimates, as those in the former group estimated that there were 16.5 incidences of fraud, while those in the latter group estimated that there were

¹⁴ Daniel Gilbert argues that anchoring “describes the process by which the human mind does virtually all of its inferential work.” Gilbert, *supra* note 11, at 167. Gilbert explains:

[O]ne of psychology’s fundamental insights is that judgments are generally the product of nonconscious systems that operate quickly, on the basis of scant evidence, and in a routine manner, and then pass their hurried approximations to consciousness, which slowly and deliberately adjusts them. In this sense, anchoring and adjustment is a fundamental description of mental life.

Id.

¹⁵ Fritz Strack & Thomas Mussweiler, *Heuristic Strategies for Estimation Under Uncertainty: The Enigmatic Case of Anchoring*, in FOUNDATIONS OF SOCIAL COGNITION: A Festschrift in Honor of Robert S. Wyer, Jr. 79, 80 (Galen V. Bodenhausen & Alan J. Lambert eds., 2003).

¹⁶ Tversky & Kahneman, *supra* note 4, at 1128.

¹⁷ *Id.*

¹⁸ Edward J. Joyce & Gary C. Biddle, *Anchoring and Adjustment in Probabilistic Inference in Auditing*, 19 J. ACCT. RES. 120, 123 (1981).

43.1 incidences of fraud.¹⁹ Relative to the lower anchor (10 per 1000), the higher anchor (200 per 1000) drove estimates up by more than 250 percent.

Like all heuristics, anchoring is often adaptive.²⁰ For example, when estimating how much we will have to pay to purchase a house, it is usually reasonable for us to rely on the initial list price because it often conveys meaningful information about the actual market value of the home.²¹ Problems can arise, however, in two circumstances. First, we can get into trouble when we over-rely on an anchor. In the home purchase example, for instance, we are at risk of over-paying for the house if we are unable to adjust sufficiently away from its list price. Second, we can get into trouble if we rely on an irrelevant or uninformative anchor.²² If, for example, a newspaper article recounting the median home price in Honolulu influences the amount we are willing to pay for a small house in Des Moines, we are also at risk of over-paying for that home. (Likewise, if our estimate of African membership in the United Nations is influenced by the spin of a wheel of fortune, anchoring is obviously influencing our judgment in untoward ways.)

B. *Why Do We Anchor?*

Anchoring might be “the easiest [heuristic] to demonstrate” but “the hardest to explain.”²³ Psychologists have offered four theoretical accounts of anchoring: (1) the social implications theory; (2) the insufficient adjustment theory; (3) the numeric priming theory; and (4) the information salience theory. The latter of the four provides perhaps the most compelling explanation of anchoring, but each sheds some light on this phenomenon.

¹⁹ *Id.* at 122–26.

²⁰ For more on the adaptive properties of heuristics, see generally SIMPLE HEURISTICS THAT MAKE US SMART (Gerd Gigerenzer, Peter M. Todd & the ABC Research Group eds., 1999).

²¹ But see Gregory B. Northcraft & Margaret A. Neale, *Experts, Amateurs, and Real Estate: An Anchoring-and-Adjustment Perspective on Property Pricing Decisions*, 39 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 84, 87–93 (1987) (demonstrating that real estate agents’ judgments about the market price of homes were influenced by manipulations of the list prices).

²² Sometimes scholars define anchoring narrowly to refer solely to this circumstance. See, e.g., Daniel Kahneman, *Reference Points, Anchors, Norms, and Mixed Feelings*, 51 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 296, 308 (1992) (“Anchoring effects will be explained as cases in which a stimulus or a message that is clearly designated as irrelevant and uninformative nevertheless increases the normality of a possible outcome.”).

²³ Strack & Mussweiler, *supra* note 15, at 80.

1. *Social Implications Theory*

The social implications theory posits that anchoring is a product of social exchange.²⁴ On this account, anchoring influences us because we believe that people providing us with an anchor²⁵ would do so only if the anchor conveys meaningful information about the value of the item under consideration.²⁶ In other words, “the fact that one is provided with such information suggests that the true value is somewhere in the vicinity of the standard.”²⁷

In certain cases, the social implications theory undoubtedly has explanatory power. Assuming we have reason to trust the party providing the anchor, it seems plausible that we might be influenced by the anchor because that party provided it.²⁸ But in circumstances where there is reason to be suspicious of the party providing the anchor—as is often the case in negotiation—the social implications theory cannot account for its influence. Likewise, in circumstances where an anchor is arbitrarily generated—for example, where one party spins a wheel of fortune, lands on a seemingly arbitrary number, and then asks the other party to estimate the percentage of African nations in the U.N.—the social implications theory cannot account for the resulting influence on that party’s estimate.

2. *Insufficient Adjustment Theory*

The most commonly offered theory—which Tversky and Kahneman appear to have embraced in their original exploration of anchoring²⁹—posits that we anchor because we fail to adjust. According to psychologists Gretchen Chapman and Eric Johnson:

Anchoring effects have most often been explained in conjunction with the idea of insufficient adjustment away from the anchor. The name *anchoring and adjustment* implies a particular cognitive process whereby

²⁴ *Id.* at 81.

²⁵ Of course, anchors can also be self-generated. See, e.g., Nicholas Epley & Thomas Gilovich, *Putting Adjustment Back in the Anchoring and Adjustment Heuristic*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT*, *supra* note 11, at 139.

²⁶ Strack & Mussweiler, *supra* note 15, at 81.

²⁷ *Id.*

²⁸ See, e.g., Karen E. Jacowitz & Daniel Kahneman, *Measures of Anchoring in Estimation Tasks*, 21 *PERSONALITY & SOC. PSYCHOL. BULL.* 1161, 1162 (1995) (“At least in some experiments, the anchor can be taken as a hint from the experimenter, which subjects clutching at straws quite reasonably use.”).

²⁹ Tversky & Kahneman, *supra* note 4, at 1128–30.

decisionmakers first focus on the anchor and then make a series of dynamic adjustments toward their final estimate. Because these adjustments are insufficient, the final answer is biased toward the anchor.³⁰

To say that anchoring is a product of insufficient adjustment begs the obvious question of why we fail to adjust sufficiently in the first place. Some scholars have argued that we fail to adjust due to uncertainty; others have attributed it to a lack of cognitive effort.³¹ These accounts are plausible in some cases. For example, when estimating the average temperature in San Francisco or the average price of a college text, we might fail to adjust sufficiently due to our uncertainty about these values or our indifference to the accuracy of our estimates. But even in instances where we have more information about the value of an item and care about getting the answer right, anchoring can still influence our judgment.³² Moreover, in some experimental settings, researchers have used financial inducements to reward subjects for accurate estimates; by and large, these incentives have not eliminated or reduced anchoring effects.³³ Finally, research shows that anchoring can occur even where adjustment is not required.³⁴

3. Numeric Priming Theory

The numeric priming theory posits that anchoring influences judgment through a simple priming process. Once we learn of a numeric anchor, that number, regardless of its relevance to the item being evaluated, influences our estimates. As Fritz Strack and Thomas Mussweiler explain, "if a numeric value comes to mind, it should affect the judgment independent of the judgmental dimension."³⁵

Strack and Mussweiler have demonstrated that simple priming cannot fully account for the anchoring effect. In one of their studies, they asked participants to estimate whether Berlin's famous Brandenburg Gate was

³⁰ Gretchen B. Chapman & Eric J. Johnson, *Incorporating the Irrelevant: Anchors in Judgments of Belief and Value*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT*, *supra* note 11, at 120, 127.

³¹ *Id.*

³² See, e.g., Northcraft & Neale, *supra* note 21, at 87–93 (showing that experts with knowledge of the real estate market are nonetheless influenced by anchoring).

³³ See, e.g., Chapman & Johnson, *supra* note 30, at 128 ("[E]vidence about the effect of incentives is mixed but mostly negative. More broadly, several judgment phenomena that are attributed to anchoring, most notably preference reversals, do not diminish in the face of incentives.").

³⁴ *Id.* at 129.

³⁵ Strack & Mussweiler, *supra* note 15, at 83.

taller or shorter than 150 meters.³⁶ After priming participants with this anchor, they then asked some of them to estimate the Gate's *height* and others to estimate the Gate's *width*. They reasoned that, if anchoring is a product of numeric priming, the effect of the anchor would be the same in both cases. In fact, however, they found that it exerted a much more powerful influence on subjects' estimates of height than on their estimates of width.³⁷ They concluded that "the same anchor value may have different judgmental consequences," demonstrating that anchoring cannot be a product of mere numeric priming.³⁸

4. Information Accessibility Theory

The most widely accepted account of anchoring—the information accessibility theory—is essentially an enriched version of the numeric priming theory. According to the information accessibility theory, a numeric anchor contains semantic content, such as information about height, width, dollar amount, and so forth.³⁹ When we are presented with an anchor, we engage in a kind of explicit or implicit hypothesis testing of the accuracy of the semantic content of the anchor. We begin by looking for evidence consistent with the hypothesis; even if we can reject the hypothesis quickly, the fact that we have momentarily treated it as potentially true causes it to affect our judgment.⁴⁰ Strack and Mussweiler use the following example to illustrate:

[A]ssume that you are asked to decide whether the extension of the Mississippi River is between 3000 and 35000 miles. You take this as a hypothesis and seek information that is consistent with this possibility. You may for instance, construct a mental map that depicts the river as it flows from the Canadian border to the Gulf of Mexico (2350 miles). But knowing that this distance is below 3000 miles, you reject the hypothesis. Assume, in contrast, that the hypothesis is between 1000 and 1500 miles. While you

³⁶ Fritz Strack & Thomas Mussweiler, *Explaining the Enigmatic Anchoring Effect: Mechanisms of Selective Accessibility*, 73 J. PERSONALITY & SOC. PSYCHOL. 437, 439–40 (1997).

³⁷ *Id.* at 439–40.

³⁸ Strack & Mussweiler, *supra* note 15, at 84; *see also* Strack & Mussweiler, *supra* note 36, at 440 ("This finding of a diminishing assimilation effect for anchor values associated with a dimension other than the target dimension cannot be accounted for by numeric priming . . . [T]he present findings suggest that the strength of the anchoring effect depends on how applicable the activated information is perceived to be.").

³⁹ Strack & Mussweiler, *supra* note 15, at 81–83.

⁴⁰ *Id.*

will also reject the hypothesis, you may not think about the river in its full extension. Thus both types of rejections have different cognitive consequences. In the first case, information is activated that implies a big extension of the target, while the information that is activated in the second case implies a small extension. A subsequent assessment of length will therefore be based on different 'subsets of cognitions' and will result in judgments that are assimilated toward the values of the original hypothesis.⁴¹

None of these theories is altogether satisfying. Undoubtedly, each explains, at least in part, why we are susceptible to this peculiar cognitive phenomenon. Regardless of the underlying explanation, anchoring seems to influence our judgment, prompting us to over or underestimate such things as the temperature in San Francisco, the number of Beatles' records to make the top 10, and so forth.

III. ANCHORING IN THE LEGAL SYSTEM

It is not very surprising that an anchor might influence our estimates of the temperature in a given city or the number of Beatles' hits (although the extent of the influence remains impressive). We might not know much about these things or care much about the accuracy of our responses (though, as noted above, researchers have offered subjects incentives in some instances, and they haven't had much impact⁴²). If anchoring influenced judgment only in these silly cases, it would be an interesting, but not a very important, phenomenon. In fact, however, psychologists, legal scholars, and other researchers have found that anchoring exerts the same kind of influence in circumstances that matter, namely in the courtroom and at the bargaining table.

A. Anchoring in the Courtroom

Researchers have found ample evidence that anchoring can influence mock jurors. Several researchers have found, for instance, that the amount of damages a plaintiff's lawyer requests for her client affects the amount of compensatory or punitive damages that mock jurors will award in civil cases.⁴³ In one illustrative study, John Malouff and Nicolas Schutte gave

⁴¹ *Id.* at 82.

⁴² See, e.g., Tversky & Kahneman, *supra* note 4, at 1128.

⁴³ See, e.g., Gretchen B. Chapman & Brian H. Bornstein, *The More You Ask For, the More You Get: Anchoring in Personal Injury Verdicts*, 10 APPLIED COGNITIVE PSYCHOL. 519, 525–28, 532–33 (1996); Reid Hastie, David A. Schkade & John W. Payne, *Juror*

mock jurors information about a personal injury case in which the plaintiff suffered a debilitating leg injury at the hands of the defendant.⁴⁴ Because the defendant conceded liability, the only issue confronting the mock jurors was the amount of damages to be awarded. The researchers assigned the mock jurors to one of four conditions; in each, the participants learned that the plaintiff's lawyer had requested a different damage amount. These requests had a significant impact on damage awards. As Table 1 indicates, the more the plaintiff's lawyer requested, the more the mock jurors awarded, even though all of the mock jurors received exactly the same set of facts about the plaintiff's injury.⁴⁵

Table 1—Malouff & Schutte Results

<u>Damage Request</u>	<u>Mean Award</u>
\$100,000	\$90,333
\$300,000	\$188,462
\$500,000	\$282,868
\$700,000	\$421,538

Researchers have also found that statutory damage caps—ironically, a tool policymakers employ to produce more rational damage awards—can anchor juror's awards. In one experiment, for instance, Jennifer Robbennolt and Christina Studebaker presented mock jurors with a case involving a plaintiff who had developed HIV through a blood transfusion.⁴⁶ The mock jurors learned that the plaintiff had filed suit against the company that had

Judgments in Civil Cases: Effects of Plaintiff's Requests and Plaintiff's Identity on Punitive Damage Awards, 23 LAW & HUM. BEHAV. 445, 463–65 (1999); Verlin B. Hinsz & Kristin E. Indahl, *Assimilation to Anchors for Damage Awards in a Mock Civil Trial*, 25 J. APPLIED SOC. PSYCHOL. 991, 1009–10, 1016 (1995); John Malouff & Nicola S. Schutte, *Shaping Juror Attitudes: Effects of Requesting Different Damage Amounts in Personal Injury Trials*, 129 J. SOC. PSYCHOL. 491, 495 (1989); Allan Raitz, Edith Greene, Jane Goodman & Elizabeth F. Loftus, *Determining Damages: The Influence of Expert Testimony on Jurors' Decision Making*, 14 LAW & HUM. BEHAV. 385, 390–94 (1990); see also VALERIE P. HANS & NEIL VIDMAR, *JUDGING THE JURY* 80 (1986) (reporting an experiment in which a mock jury appeared susceptible to a damage amount suggested by an attorney).

⁴⁴ Malouff & Schutte, *supra* note 43, at 493.

⁴⁵ *Id.* at 495.

⁴⁶ See Jennifer K. Robbennolt & Christina A. Studebaker, *Anchoring in the Courtroom: The Effects of Caps on Punitive Damages*, 23 LAW & HUM. BEHAV. 353, 357 (1999).

provided the HIV-infected blood on the grounds that it had engaged in outrageous and irresponsible testing practices. The researchers asked the mock jurors to indicate the dollar amount they would award the plaintiff in both compensatory and punitive damages. Unbeknownst to the mock jurors, though, the researchers assigned them to different groups, each of which was told that the jurisdiction imposed a different statutory damage cap on *punitive* damages (\$100,000, \$5 million, and \$50 million, respectively). The mock jurors anchored on these damage caps. As Table 2 indicates, the punitive damage caps influenced *both* compensatory and punitive damage awards:⁴⁷

Table 2—Robbennolt & Studebaker Results

Punitive Cap	Mean Compensatory Award	Mean Punitive Award	Total Award
\$100,000	\$1,435,000	\$83,100	\$1,518,100
\$5 million	\$2,133,750	\$2,991,935	\$5,125,685
\$50 million	\$7,642,417	\$15 million	\$22,642,417

Like jurors, judges also appear to be susceptible to anchoring. In one study, Andrew Wistrich, Chris Guthrie, and Jeffrey Rachlinski presented trial judges with a lengthy vignette describing a civil case in which a plaintiff had suffered several injuries in a car accident caused by a negligent truck driver.⁴⁸ The truck driver's company admitted fault but disputed compensatory damages. At an unsuccessful pre-trial settlement conference, some of the judges learned that the plaintiff's lawyer demanded \$10 million on behalf of his client (the "High Anchor" condition), while other judges learned only that the plaintiff wanted a lot of money (the "No Anchor" condition). The researchers asked the judges in both conditions to indicate the amount of compensatory damages they would award. Consistent with the research on mock jurors, Wistrich and his collaborators found that the anchor had a significant impact on the judges. In the No Anchor condition, judges awarded a mean amount of \$808,000 and a median amount of \$700,000; in the High Anchor condition, judges awarded a much larger mean amount of

⁴⁷ *Id.* at 359. Note also that the researchers included a control condition with no cap on the punitive damages. In that condition, the mock jurors awarded \$5,431,724 in compensatory damages and \$5,038,833 in punitive damages. *Id.*

⁴⁸ Andrew J. Wistrich, Chris Guthrie & Jeffrey J. Rachlinski, *Can Judges Ignore Inadmissible Information? The Difficulty of Deliberately Disregarding*, 153 U. PA. L. REV. 1251, 1286–91 (2005). For another anchoring study involving judges, see Chris Guthrie, Jeffrey J. Rachlinski & Andrew J. Wistrich, *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 787–92 (2001).

\$2,210,000 and median amount of \$1 million.⁴⁹ Given that the information discussed in settlement conferences—like the plaintiff's lawyer's damage request in this vignette—is inadmissible at trial and is therefore inappropriate for the judges to consider, this result is particularly striking.⁵⁰

Researchers have also found that anchoring can influence outcomes in criminal cases. In one study, Birte Englich and Thomas Mussweiler presented German criminal trial judges with a lengthy vignette describing a criminal case involving an alleged rape.⁵¹ They assigned the participating judges to one of two conditions. In one condition, the judges learn that the prosecutor had demanded a two-month prison term for the defendant; in the other, the prosecutor had demanded a sentence of 34 months. The judges in the former group sentenced the defendant to less than 19 months in jail, while the judges in the latter group sentenced the defendant to nearly 30 months in jail.⁵² When exposed to the high anchor, judges increased their average sentence by roughly 50 percent.

This research suggests not only that jurors and judges are influenced by anchoring in *civil cases* but also that "judges use the sentencing demand as an anchor in making their sentencing decisions"⁵³ in *criminal cases*. In short, anchoring appears to influence outcomes in the courtroom.

B. Anchoring at the Bargaining Table

Anchoring can be pernicious in court. There, the state empowers juries and judges to impose binding decisions on litigants. If anchoring has an untoward impact on the jury's or judge's decisionmaking, the losing party must bear the brunt of that decision, perhaps paying an inappropriate amount in damages or serving an inappropriately long sentence in jail.

⁴⁹ Wistrich, Guthrie & Rachlinksi, *supra* note 48, at 1290. The researchers also conducted a "no anchor" versus a "low anchor" experiment with the judges and found a statistically significant difference between the responses of the two groups. *Id.* That is, the low anchor depressed the judges' damage awards.

⁵⁰ See, e.g., FED. R. EVID. 408.

⁵¹ Birte Englich & Thomas Mussweiler, *Sentencing Under Uncertainty: Anchoring Effects in the Courtroom*, 31 J. APPLIED SOC. PSYCHOL. 1535, 1538–41 (2001).

⁵² *Id.* at 1540.

⁵³ *Id.* at 1541. Of course, a prosecutor's demands are obviously relevant to a judge's sentencing decisions. In another study, though, Englich and Mussweiler found similar anchoring effects, even where they attributed the sentencing recommendation not to a prosecutor but to a computer science student. *Id.* at 1542–46.

In negotiation, by contrast, the state is largely absent,⁵⁴ and the parties generate their own outcomes. Although this suggests that there should be less concern about anchoring at the bargaining table, it may be even more insidious there than in the courtroom because negotiation is so much more common than adjudication. Many more disputes are resolved through negotiation—roughly two-thirds of all court cases—than through motions or trial.⁵⁵ Deals such as buying and selling goods and services, entering into real property transactions, merging and acquiring companies, and so forth are also negotiated on an almost constant basis. Thus, anchoring at the bargaining table may lead to much more inefficiency and inequity than anchoring in the courtroom.

Several studies have found evidence that anchors of various kinds—including opening offers/demands, statutory damage caps, insurance policy limits, negotiator aspirations, and so forth—can have an effect on both settlements and deals.⁵⁶ In one typical bargaining experiment, for example, William Bottom and Paul Paese assigned MBA students to play the role of a buyer or a seller in a negotiation over the sale of a used truck.⁵⁷ The researchers assigned the buyers to one of three conditions; in each, the researchers gave the buyers a “tip” about the seller’s best available alternative. Each tip included a different anchor; the researchers informed the buyers that the seller could sell the truck to another prospective purchaser for \$15,000, \$17,500, or \$20,000.⁵⁸ All of the participants reached agreement in the subsequent negotiation, but the anchors exerted a significant influence on the purchase price. Buyers paid \$18,110 for the used truck in the \$15,000 anchor condition; \$18,742 in the \$17,500 anchor condition; and \$19,733 in the \$20,000 anchor condition.⁵⁹

In a study of settlement negotiations, Jeffrey Rachlinski and Chris Guthrie gave insurance industry professionals a vignette involving a dispute

⁵⁴ We say “largely” absent because the state occasionally participates in negotiation. For example, many disputes settle due to the participation of a judge in a judicial settlement conference. See Marc Galanter & Mia Cahill, “Most Cases Settle”: *Judicial Promotion and Regulation of Settlements*, 46 STAN. L. REV. 1339, 1340 (1994). And in some instances—for example, class action settlements—judges must approve the deals that parties have entered into with one another. See FED. R. CIV. P. 23(e).

⁵⁵ Galanter & Cahill, *supra* note 54, at 1340.

⁵⁶ See *supra* notes 6–9.

⁵⁷ William P. Bottom & Paul W. Paese, *Judgment Accuracy and the Asymmetric Cost of Errors in Distributive Bargaining*, 8 GROUP DECISION & NEGOT. 349, 358–62 (1999).

⁵⁸ *Id.* at 358.

⁵⁹ *Id.* at 360.

over an automobile accident.⁶⁰ They randomly assigned the participants to one of two groups, each of which received the same information about the case except for the liability insurance policy limit. One group learned the policy cap was \$150,000 and the other learned the cap was \$500,000. The participants read the following:

Suppose you are advising an insurance company client on a claim. The insurer has asked you for a settlement recommendation in the following case:

The insurer sold an auto insurance policy to a small package-delivery company. The policy provided a [\$150,000/\$500,000] limit on liability for each driver. Unfortunately, one of the drivers, named Dale, was recently involved in an automobile accident involving a 25-year-old graduate student named Perry. Dale's truck sideswiped Perry's car on a wet, spring morning. As a result of the accident, Perry broke three ribs and his right arm. He spent two days in the hospital and missed three weeks of classes. Fortunately, he has fully recovered from his physical injuries. However, he claims to be suffering from recurring nightmares, 'day sweats,' and other 'episodes of anxiety' as a result of the accident.

The parties have stipulated that the accident was caused solely by Dale's negligent driving. Thus, the only issue in the lawsuit is the amount of damages the insurer should pay pursuant to the liability policy. Trial is imminent.⁶¹

The researchers asked the participants whether they would recommend that "the insurer pay the full policy limit to settle the case."⁶² None of them recommended settlement for the full policy limit. The researchers then asked them to identify "the maximum amount" they would recommend the insurer pay to settle.⁶³ Even though none of the respondents agreed to pay the full policy amount, the policy limit still had a significant impact on their recommendations. Those who learned the policy limit was \$150,000 indicated that they would recommend a mean settlement offer of \$51,111 and a median settlement offer of \$50,000. Those who learned the policy limit was

⁶⁰ Rachlinski & Guthrie, *supra* note 7.

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Id.*

\$500,000 indicated that they would recommend significantly more, \$79,352 on average and a median award of \$60,000.⁶⁴

In another settlement study, Russell Korobkin and Chris Guthrie took a slightly different approach.⁶⁵ They presented student-subjects with a hypothetical dispute over a defective automobile and asked the subjects to respond to a final settlement offer from the defendant-seller in the amount of \$12,000. For some of the subjects, the final offer followed an opening offer of \$2,000; for other subjects, the final offer followed an opening offer of \$10,000. The researchers found that subjects in the former group were more likely to settle than those in the latter group.⁶⁶ They explained that those subjects who received the \$2,000 settlement offer from the defendant expected to settle for a relatively small amount, so the \$12,000 final settlement offer seemed generous by comparison. By contrast, those who received the \$10,000 opening offer expected to settle for relatively more, so the \$12,000 final offer seemed relatively stingy. The opening offers effectively “anchored subjects’ expectations” and influenced their settlement preferences.⁶⁷

These and other individual studies suggest that anchoring can affect negotiation. Opening offers, policy limits, damage caps, and other starting figures appear to influence outcomes at the bargaining table. Of course, any individual study has its limitations. Such studies often have small sample sizes, involve only novice negotiators, and use simplistic fact patterns. Meta-analysis can help us overcome some of these methodological and interpretive difficulties.

IV. ANCHORING META-ANALYSIS: METHODS AND RESULTS

Meta-analysis is a method of cumulating the results of individual studies to arrive at an overall result that is more accurate and credible than those obtained from any of the individual studies alone.⁶⁸ By aggregating the results of individual studies into a much larger sample with greater statistical power, meta-analysis minimizes bias or error that might be present in an individual study and generates a cumulative result that provides a more

⁶⁴ *Id.* In this article, Rachlinski and Guthrie report the results of another anchoring study involving insurers and found that anchoring did not have a statistically significant impact on their proposed settlement amounts. *Id.*

⁶⁵ Korobkin & Guthrie, *supra* note 6, at 11–13.

⁶⁶ *Id.* at 13.

⁶⁷ *Id.* at 19.

⁶⁸ R. Rosenthal & M. R. DiMatteo, *Meta-Analysis: Recent Developments in Quantitative Methods for Literature Reviews*, 52 ANN. REV. PSYCHOL. 59, 61 (2001).

conclusive answer to the research question posed. As Gregory Mitchell puts it, "A single meta-analytic study, using systematic techniques for the estimation of effect sizes and effect parameters over collections of studies, may provide more useful information for policymaking purposes than hundreds of individual studies."⁶⁹

Legal scholars routinely cite meta-analyses to support empirical claims they want to make about the legal world,⁷⁰ but few law reviews have actually published *original* meta-analyses. This is unfortunate because meta-analysis can provide "the basic facts needed to draw both practical and explanatory conclusions," and has accordingly become critical to the formulation of sound public policy.⁷¹

A. Conducting a Meta-Analysis

There is more than one way to conduct a meta-analysis.⁷² The two dominant approaches are those developed by John Hunter, Frank Schmidt, and Gregg Jackson⁷³ and those developed by Mark Lipsey and David Wilson.⁷⁴ Following either approach, the initial procedure is the same.

⁶⁹ Gregory Mitchell, *Tendencies Versus Boundaries: Levels of Generality in Behavioral Law and Economics*, 56 VAND. L. REV. 1781, 1792–93 (2003).

⁷⁰ See, e.g., Stephanos Bibas, *Plea Bargaining Outside the Shadow of Trial*, 117 HARV. L. REV. 2464, 2513 nn.207–08 (2004) ("These studies reveal that the framing of the question matters immensely."); Ramit Mizrahi, *Hostility to the Presence of Women: Why Women Undermine Each Other in the Workplace and the Consequences for Title IX*, 113 YALE L.J. 1579, 1595 n.83 (2004) (stating men are judged inherently better at jobs perceived as masculine, regardless of performance by female equals); Dan Simon, *A Third View of the Black Box: Cognitive Coherence in Legal Decision Making*, 71 U. CHI. L. REV. 511, 518 (2004) (explaining effects of involvement on attitude change); Christopher Slobogin, *A Jurisprudence of Dangerousness*, 98 NW. U. L. REV. 1, 49 n.215 (2003) ("People with serious mental disorders are no more likely to recidivate than other offenders."); Nancy C. Staudt, *Modeling Standing*, 79 N.Y.U. L. REV. 612, 652 n.169 (2004) (describing influence of a judge's ideology on decisionmaking).

⁷¹ John E. Hunter & Frank L. Schmidt, *Cumulative Research Knowledge and Social Policy Formulation: The Critical Role of Meta-Analysis*, 2 PSYCHOL. PUB. POL'Y & L. 324, 324–25 (1996).

⁷² Rosenthal & DiMatteo, *supra* note 68, at 68 (citing Judith Hall & Robert Rosenthal, *Interpreting and Evaluating Meta-Analysis*, 18 EVALUATION & HEALTH PROF. 393, 393–407 (1995)).

⁷³ See, e.g., JOHN E. HUNTER, FRANK L. SCHMIDT & GREGG B. JACKSON, *META-ANALYSIS: CUMULATING RESEARCH FINDINGS ACROSS STUDIES* (1982); JOHN E. HUNTER & FRANK L. SCHMIDT, *METHODS OF META-ANALYSIS: CORRECTING ERROR AND BIAS IN RESEARCH FINDINGS* (1990).

⁷⁴ See generally MARK W. LIPSEY & DAVID B. WILSON, *Practical Meta-Analysis*, in 49 APPLIED SOCIAL RESEARCH METHODS SERIES (2001).

Researchers begin by identifying the relevant individual studies. From these, they collect the reported statistical outcomes or “effect sizes.” Because individual studies often use different statistical measures of the effect size, the researchers convert them into a common statistical metric.⁷⁵ This metric is then used to perform a meta-analysis that weights the studies according to sample size, statistical significance, and similar factors. What results is a kind of weighted average effect size that summarizes the relationship between or among the variables in the analysis, supported by the weight and power of the meta-sample.

The Hunter, Schmidt, and Jackson method and the Lipsey and Wilson method differ primarily in the statistical metric each uses. The former generally uses a basic measure of correlation known as *Pearson's r*, while the latter uses a measure called the “standardized mean effect size,” which is employed primarily in meta-analysis. *Pearson's r* is the simplest and most commonly used measure of correlation. Using *Pearson's r* provides a number of methodological advantages, the most important of which is parsimony of information.⁷⁶ Writing in the *Annual Review of Psychology*, Robert Rosenthal and M. Robin DiMatteo observe, “[t]he simpler a meta-analysis, the more likely it is to be accurate; it is not possible to present one that is too simple.”⁷⁷ Mindful of this advice, we use the most straightforward metric—*Pearson's r*—employed by the Hunter, Schmidt, and Jackson approach to meta-analysis.⁷⁸

1. Locating Studies

To locate relevant studies, we conducted searches in the computer databases PsycInfo, JSTOR, Web of Science, Ingenta, ProQuest, and

⁷⁵ Proponents of the Lipsey & Wilson method have developed a powerful battery of techniques to convert effect sizes. These techniques are useful regardless of the final metric chosen for the meta-analysis. *Id.* at 59–61.

⁷⁶ See Rosenthal & DiMatteo, *supra* note 68, at 71 (discussing at length the advantages of *r*).

⁷⁷ *Id.* at 68.

⁷⁸ Use of *Pearson's r* in meta-analysis does have one drawback. In circumstances where it is used to report a relationship between categorical variables—i.e., variables that are not on a continuous scale—the use of *r* will tend to understate the magnitude of the effect that the independent variable has on the dependent variable. See Lipsey & Wilson, *supra* note 74, at 59–61 (discussing problems arising in meta-analyses of *r* derived from correlations between dichotomous (category) variables). In the meta-analysis we report below, however, we explore the relationship between two scale variables, i.e., a numerical opening offer and a numerical negotiated agreement. Accordingly, the use of *Pearson's r* will not lead to an understatement of the effect size. *Id.*

Westlaw by pairing the term “negotiation” with anchoring terms (e.g., “anchoring”, “adjustment”, “first-offer”, and “heuristic”). We also examined reference lists—i.e., bibliographies and footnotes—in a number of negotiation texts and articles as well as in the studies we identified. Finally, we attempted to find unpublished research, both by conducting Internet searches and by talking with selected authors who have published papers relevant to anchoring or negotiation.⁷⁹

2. Criteria for Inclusion in the Meta-Analysis

The touchstone for inclusion in this meta-analysis is whether a study reports a relationship between an anchor and a negotiated outcome in a simulated negotiation. Many of the anchoring studies rely on surveys that ask subjects to respond to negotiation hypotheticals.⁸⁰ Although this research is both useful and relevant, we focused our analysis on anchoring effects observed in simulated negotiations and, therefore, excluded those studies reporting survey results only.⁸¹ In nearly all of the studies in our meta-analysis, participants conducted live, face-to-face negotiations; in two instances, however, the negotiation occurred through the repeated exchange of written offers.⁸²

Once we identified the appropriate studies, we collected each study's reported effect size, as summarized in Table 3 and the accompanying notes.⁸³

⁷⁹ We completed our literature search in the spring of 2004, so our meta-analysis does not include studies published since then. See, e.g., Adam D. Galinsky, Geoffrey J. Leonardelli, Gerardo A. Okhuysen & Thomas Mussweiler, *Regulatory Focus at the Bargaining Table: Promoting Distributive and Integrative Success*, 8 PERSONALITY & SOC. PSYCHOL. BULL. 1087 (2005).

⁸⁰ See, e.g., Korobkin & Guthrie, *supra* note 6, at 6.

⁸¹ In those cases where authors used both methods, we excluded the survey results but included the simulated negotiation results. See, e.g., Bottom & Paese, *supra* note 57, at 353.

⁸² These studies are: Thomas S. Bateman, *Contingent Concession Strategies in Dyadic Bargaining*, 26 ORGANIZATIONAL BEHAV. & HUM. PERFORMANCE 212, 214 (1980); Robert M. Liebert, William P. Smith, J. H. Hill & Miriam Keiffer, *The Effects of Information and Magnitude of Initial Offer on Interpersonal Negotiation*, 4 J. EXPERIMENTAL SOC. PSYCHOL. 431, 434–35 (1968).

⁸³ In some studies, the researchers reported multiple effect sizes, demonstrating relationships between several different anchors and the outcome of a negotiation. As a consequence, we made some judgments about which effect sizes to include in our analysis. In one study, for instance, researchers asked subjects to negotiate the same problem with multiple negotiation partners. See Galinsky & Mussweiler, *supra* note 6, at 662–63. We included these in our meta-analysis as separate effect sizes. See Table 3, *supra*.

Table 3—Summary of Included Studies

<u>Citation</u>	<u>Subjects</u>	<u>Negotiation</u>	<u>Anchor</u>	<u>Outcome</u>	<u>N</u>	<u>R</u>
Bateman (1980)	College students	Collective salary increase	Opening offer	Negotiated increase	24	0.67
Blount, Thomas-Hunt & Neal (1996)	MBA students	Sale of a used stereo	Estimated value	Negotiated outcome	107	0.56
Bottom & Paese (1999)	MBA students	Sale of a used truck	Buyer's first offer	Sale price	29	0.78 ⁸⁴
Brodt (1994)	Business managers	Purchase of a car	First offer	Sale price	58	0.37
Chertkoff & Conley (1967)	College students	Sale of a car	Opponent's offer	Sale price	240	0.42
Claussen-Schulz (2003)	Law/MBA students	Sale of a pharmaceutical plant	First offer	Sale price	17	0.56

In three other studies, researchers reported effect sizes in situations where they exposed participants assigned to experimental groups to different experimental treatments. In those cases where the differences among these groups were irrelevant to our own research goals, we calculated a weighted average effect size, which we report in Table 3. See Lipsey & Wilson, *supra* note 74, at 112–13 (recommending weighted averaging of multiple effect sizes from the same sample). We did this to prevent the experimental treatment given to these groups from influencing our own results. See Bottom & Paese, *supra* note 57, at 358–60 (Study 2, assuming equal distribution among optimistic, pessimistic, and accurate anchor groups); Liebert et al., *supra* note 82, at 435–38 (average of counteroffer and non-counteroffer conditions).

In one study, however, researchers tested the hypothesis that information can reduce the effects of anchoring. See generally Galinsky & Mussweiler, *supra* note 6. In this study, the researchers provided the experimental groups—but not the control group—with additional information regarding their opponents' positions. Because the differences among these groups are relevant to our hypothesis that information mitigates anchoring, we included the results from the control group subjects in our primary meta-analysis and the results from the experimental group subjects in our secondary meta-analysis testing the mitigating impact of information.

⁸⁴ This assumes equal distribution among the optimistic, pessimistic, and accurate anchor groups.

<u>Citation</u>	<u>Subjects</u>	<u>Negotiation</u>	<u>Anchor</u>	<u>Outcome</u>	<u>N</u>	<u>R</u>
Diekman, et. al. (1996)	MBA students	Sale of a pharmaceutical plant	Seller's sunk costs	Sale price	26	0.32
Fobian & Christensen-Szalanski (1994)	Business students	Malpractice award settlement	Estimated value	Final settlement	32	0.43 ⁸⁵
Galinsky & Mussweiler (2001), x.1:	MBA students	Sale of a pharmaceutical plant	First offer	Sale price	19	0.93
x.2:	MBA students	Sale of a pharmaceutical plant	First offer	Sale price	16	0.80
x.3:	MBA students	Sale of a pharmaceutical plant	First offer	Sale price	20	0.85
Holmes, Throop & Strickland (1971)	College students	Sale of hypothetical commodity	Opponent's offer	Sale price	24	0.43
Kristensen & Garling (1997)	College students	Purchase of a condominium	First offer	Sale price	36	0.33
Liebert, et. al. (1968)	College students	Purchase of a car	Opponent's offer	Sale price	40	0.48
Mussweiler, Strack & Pfeiffer (2000)	Car experts	Estimate to repair a car	Independent estimate	Expert's estimate	60	0.39 ⁸⁶
Ritov (1996)	College students	Competitive market simulation	First offer	Negotiator profit	268	0.45 ⁸⁷

⁸⁵ Mean of the high and low anchor groups converted to R from Cohen's D.

⁸⁶ Average of counteroffer and no-counteroffer conditions.

⁸⁷ Reported effect is for initiators since they presented the first offer in the negotiation.

<u>Citation</u>	<u>Subjects</u>	<u>Negotiation</u>	<u>Anchor</u>	<u>Outcome</u>	<u>N</u>	<u>R</u>
Van Poucke & Buelens (2002)	Unspecified	Purchase of a water plant	Buyer's opening offer	Sale price	183	0.63 ⁸⁸
Yukl (1974)	College students	Sale of a car	Opponent's offer	Sale price	60	0.52

3. Coding

We were also interested in the mitigating effect two variables might have on anchoring. Specifically, we hypothesized that negotiators operating in an information-rich environment would be less likely to be influenced by an anchor than those operating in an environment with limited information. Additionally, we hypothesized that anchoring might exert less influence on experienced negotiators than on novices, despite research demonstrating that both experts and novices are susceptible to anchoring.⁸⁹ Thus, we further coded the studies according to the amount and kind of information available to the recipient of the anchor and according to the experience of the negotiator. We used these coded results to conduct two secondary meta-analyses.

To code for information, we created three categories—low, moderate, and high-information—depicted in Table 4. What separates the categories from one another is the amount of information provided to the negotiator who received the anchor. The low-information category included studies where only limited information was provided. The moderate-information category included studies in which the negotiators received a second, relevant anchor, such as the “best alternative to a negotiated agreement” or BATNA.⁹⁰ (We made one exception to this coding rule where the experimenters deliberately supplied ambiguous and non-salient BATNAs to

⁸⁸ Reported effect was not averaged with seller's opening offer because buyer's offer was always first in the negotiation.

⁸⁹ See, e.g., Guthrie, Rachlinski & Wistrich, *supra* note 48, at 784–87 (discussing judges); Northcraft & Neale, *supra* note 21 (discussing realtors); Wistrich, Guthrie & Rachlinski, *supra* note 48 (discussing whether judges can ignore inadmissible information).

⁹⁰ See ROGER FISHER, WILLIAM URY & BRUCE PATTON, *GETTING TO YES: NEGOTIATING AGREEMENT WITHOUT GIVING IN* 99–106 (2d ed. 1991) (defining BATNA).

the participants in the study.⁹¹) Finally, the high-information category included studies where the negotiator received not only an independent anchor or BATNA relevant to her own position, but similar information about her opponent's position. This information could be knowledge of her opponent's costs, reservation price, aspiration price, BATNA, or, in one case, an inside "scoop" that the opponent was under unique time pressure to reach agreement.⁹²

Table 4—Information Conditions

<u>Citation</u>	<u>Information provided</u>	<u>Info.</u>	<u>TN</u>	<u>TR</u>
Bateman (1980)	Basic briefing materials	L	24	0.67
Blount, Thomas-Hunt & Neal (1996)	Reservation price	M	107	0.56
Bottom & Paese (1999)	Reservation price and BATNA	M	29	0.78
Brodt (1994)	"Scoop" of seller's time pressures	H	16	0.30 ⁹³
Chertkoff & Conley (1967)	Reservation price and BATNA	M	240	0.42
Claussen-Schulz (2003)	Independent appraisal price	M	17	0.56
Diekman, et. al. (1996)	Sunk costs and opponent's costs	H	26	0.32

⁹¹ We made this exception because the purpose of the ambiguous BATNA was to provide the negotiators with less clear information to base their positions on rather than more. See Dirk Van Poucke & Marc Buelens, *Predicting the Outcome of a Two-party Price Negotiation: Contribution of Reservation Price, Aspiration Price, and Opening Offer*, 23 J. ECON. PSYCHOL. 67, 72 (2002) ("The buyer's BATNA remained vague: it remained unclear whether or not building a new plant was a viable option. We made the seller's BATNA also vague . . .").

⁹² Susan E. Brodt, "Inside Information" and Negotiator Decision Behavior, 58 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 172, 184 (1994).

⁹³ Treatment group when buyers knew the inside scoop but sellers made the opening bid. This approximates our hypothesis that the presence of alternate information reduces the impact of an anchor.

NEW INSIGHTS FROM META-ANALYSIS

<u>Citation</u>	<u>Information provided</u>	<u>Info.</u>	<u>TN</u>	<u>TR</u>
Fobian & Christensen-Szalanski (1994)	Chance of winning BATNA	M	32	0.43
Galinsky & Mussweiler (2001), x.1:	Opponent's BATNA	H	19	0.30 ⁹⁴
x.2:	Opponent's reservation price	H	16	0.40 ⁹⁵
x.3:	Own reservation price	M	20	0.34
Holmes, Throop & Strickland (1971)	Aspiration price	M	24	0.43
Kristensen & Garling (1997)	BATNA and reservation price	M	36	0.33
Liebert, et. al. (1968)	Opponent's costs	H	40	0.48
Mussweiler, Strack & Pfeiffer (2000)	Opponent's BATNA and counterarguments	H	60	0.39
Ritov (1996)	None	L	268	0.45
Van Poucke & Buelens (2002)	BATNA	L	183	0.63
Yukl (1974)	Suggested opening offer	L	60	0.52

We also coded studies based on the experience level of the negotiators. The effect sizes included in this subsample are summarized in Table 5. For this subsample, we used two categories: novice and expert.⁹⁶ We coded those

⁹⁴ BATNA of negotiator who made the first offer was known by the offeror's opponent.

⁹⁵ Reservation price of negotiator who made the first offer was known by the offeror's opponent.

⁹⁶ Initially, we used a three-category coding scheme: novice, intermediate, and expert. The novice category included participants with no prior professional negotiation experience. The intermediate category included law and MBA students enrolled in a negotiation course. The expert category was defined as above according to prior professional negotiation experience or relevant professional experience. However, we found that the intermediate category was indistinguishable from the novice category. Accordingly, we decided to use a two-category coding system.

participants with no prior negotiation experience related to the subject matter of the negotiation as novices. The expert category included subjects with prior professional negotiation experience, such as experts in auto negotiations⁹⁷ or mid-level managers.⁹⁸

Table 5—Experience Conditions

<u>Citation</u>	<u>Experience of Negotiators</u>	<u>Exp.</u>	<u>SN</u>	<u>SR</u>
Bateman (1980)	None	N	24	0.67
Blount, Thomas-Hunt & Neal (1996)	MBA students in a negotiation class	N	107	0.56
Bottom & Paese (1999)	Mid-level managers in executive education	E	29	0.78
Brodt (1994)	None	N	58	0.30
Chertkoff & Conley (1967)	None	N	240	0.42
Claussen-Schulz (2003)	Law/MBA students in a negotiation class	N	17	0.56
Diekman, et. al. (1996)	MBA students in a negotiation class	N	26	0.32
Fobian & Christensen-Szalanski (1994)	None	N	32	0.43
Galinsky & Mussweiler (2001), x.1:	MBA students in a negotiation class	N	19	0.30
x.2:	MBA students in a negotiation class	N	16	0.40
x.3:	MBA students in a negotiation class	N	20	0.34

⁹⁷ Thomas Mussweiler, Fritz Strack & Tim Pfeiffer, *Overcoming the Inevitable Anchoring Effect: Considering the Opposite Compensates for Selective Accessibility*, 26 PERSONALITY & SOC. PSYCHOL. BULL. 1142, 1145 (2000).

⁹⁸ Brodt, *supra* note 92, at 182.

<u>Citation</u>	<u>Experience of Negotiators</u>	<u>Exp.</u>	<u>SN</u>	<u>SR</u>
Holmes, Throop & Strickland (1971)	None	N	24	0.43
Kristensen & Garling (1997)	None	N	36	0.33
Liebert, et. al. (1968)	None	N	40	0.48
Mussweiler, Strack & Pfeiffer (2000)	Car mechanics and dealers	E	60	0.39
Ritov (1996)	None	N	268	0.45
Van Poucke & Buelens (2002)	None	N	183	0.63
Yukl (1974)	None	N	60	0.52

B. Meta-Analysis Results

Our meta-analysis demonstrates that anchoring has a powerful influence on negotiation outcomes. Across the studies in our sample, we find a correlation of 0.497 between the initial anchor and the outcome of the negotiation. At first blush, this result may be unsurprising; after all, none of the 16 articles and 19 outcomes included in our meta-analysis reported an effect size lower than 0.30. However, by the standards commonly applied in the social and behavioral sciences, our finding is striking because it is unusually “large.”⁹⁹

In lay terms, the 0.497 correlation means that every one dollar increase in an opening offer is associated with an approximate fifty-cent increase in the final sale price.¹⁰⁰ A simple conversion provides another estimate of the impact anchoring can have on a negotiation. The square of a correlation provides an estimate of the amount of variance that it explains.¹⁰¹ The r-squared value of the correlation in our study is 0.247. In general terms, this

⁹⁹ Lipsey & Wilson, *supra* note 74, at 147 (citing JACOB COHEN, STATISTICAL POWER ANALYSIS FOR THE BEHAVIORAL SCIENCES (2d ed. 1988)).

¹⁰⁰ Although a correlation by itself does not denote causality, the fact that the anchor precedes the outcome in time creates an inference of causality. Still, there are likely other factors that influence both the anchor and the outcome. Not the least of these is the desire of both parties to reach an agreement.

¹⁰¹ THOMAS H. WONNACOTT & RONALD J. WONNACOTT, INTRODUCTORY STATISTICS 486–87 (5th ed. 1990).

means that nearly 25 percent of the difference in outcomes among negotiations can be accounted for as a function of an opening offer or other initial anchor. (This finding is consistent with other research showing that an opening offer and initial counteroffer account for 57.6 percent of the variance in negotiated outcomes.¹⁰²)

Meta-analyses, including this one, are generally based on *published* studies. Studies are more likely to be published if they report significant effects than if they do not. Thus, critics argue that meta-analyses are biased toward finding effects because they merely reflect these underlying studies. This is the so-called "publication bias" or "file drawer problem."¹⁰³

Researchers use two techniques to address this potential problem with meta-analysis. The first is to ensure that a meta-analysis includes relevant unpublished studies. Unpublished studies can be located through methods such as conversations with researchers in the relevant field and Internet searches. We attempted to locate unpublished studies to include in our meta-analysis, but we were able to identify only one.¹⁰⁴

The second technique is to conduct a "file drawer" test,¹⁰⁵ which assesses the significance of the meta-analysis relative to a hypothetical file drawer of unpublished studies. More specifically, it tells us how many studies reporting no effect (i.e., how many studies showing no statistically significant relationship) would have to be in such a file drawer to render the results of the meta-analysis statistically insignificant. We performed a file-drawer test, and we found that it would take 113 studies to negate the finding that an initial anchor influences the negotiated outcome. While any anchoring study reporting an effect size lower than 0.497 would reduce the magnitude of our reported effect, researchers would need to conduct 113 studies reporting no anchoring effect to produce a meta-analysis showing no effect.

1. Information

Although anchoring exerts a powerful influence in negotiation, our results suggest that this influence is somewhat diminished by the presence of additional information and negotiator experience. In contrast to our overall

¹⁰² Van Poucke & Buelens, *supra* note 91, at 70 ("Both opening offers together explain 57.6 percent of the variance.").

¹⁰³ Robert Rosenthal, *Writing Meta-Analytic Reviews*, 118 PSYCHOL. BULL. 183, 189 (1995).

¹⁰⁴ See Aletha Claussen-Schulz, *As Good As Your Word: The Effect of Expressed Commitment and First Offers on Outcomes in a Negotiation Simulation*, (Kellogg Graduate Sch. of Mgmt. Working Paper Series, Paper No. 209, 2003), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=400800.

¹⁰⁵ Rosenthal, *supra* note 103, at 189.

correlation of 0.497, we found that the correlation in the high-information category, when negotiators received some relevant knowledge regarding their opponent's position, fell to 0.38. Conversely, in the low information category, where the initial anchor was the only salient price, the initial anchor carried greater weight, rising to 0.54. Moderate-information negotiations showed a slightly, but not significantly, lower anchoring effect of 0.47 relative to the overall effect of 0.497.¹⁰⁶

2. Experience

Similarly, our results suggest that anchoring effects are somewhat less pronounced among experienced negotiators. As compared to the overall correlation of .497, we found a 0.37 correlation between the anchor and the negotiation outcome where the negotiators had relevant professional experience. This finding suggests that an experienced negotiator is still likely to be influenced by an anchor, but somewhat less so than a novice.¹⁰⁷

¹⁰⁶ Not surprisingly, we found no meaningful difference between our overall correlation (0.497) and the correlation in our moderate-information category (0.47). The standard error surrounding the medium information correlation is 0.04. Further, we note that the confidence intervals surrounding correlations for the information categories overlap (see below). The overlap is likely the result of two factors: first, the small number of studies in the high information category and second, it is likely that information could be more accurately measured not as a category variable but as a scale variable based on the number of additional salient anchors and whether the anchors were personal or provided information about the opponent.

Group	Point Est.	Std. Error	Lower Limit	Upper Limit	Z	P
High	0.38	0.07	0.25	0.50	5.34	0.00
Moderate	0.47	0.04	0.40	0.54	11.24	0.00
Low	0.54	0.04	0.48	0.60	14.18	0.00
Combined	0.49	0.02	0.45	0.53	18.70	0.00

¹⁰⁷ There were relatively few studies that included experienced negotiators. Because all other studies were coded into the novice category, the mean effect size in this category cannot be distinguished from the effect size in the overall sample. (0.51 among novices as compared to 0.49 overall). Overlap in the confidence intervals between the experienced and combined effects similarly suggests experience is also a scale rather than a category variable. *See id.*

V. IMPLICATIONS FOR NEGOTIATORS

Our meta-analysis demonstrates that anchoring has a powerful impact on negotiation, though this impact appears to be somewhat muted in information-rich environments and among expert negotiators. These results have important implications for negotiators, both “offensively” and “defensively.”

A. *Playing Offense*

Negotiators who are aware of anchoring can—and should—use this information to their advantage in at least two ways. First, negotiators can harness the power of anchoring by setting high goals for themselves prior to the negotiation. Second, negotiators can capitalize on anchoring by opening with high demands (or low offers) when they are at the bargaining table.

Prior to a negotiation, negotiators should prepare by focusing on their goals (without neglecting their interests, their counterpart’s interests, options, BATNAs, etc.¹⁰⁸). Negotiators who set high and measurable goals for themselves consistently outperform those who set more modest goals for themselves, in part because a high goal can serve to anchor the negotiator’s expectations about the outcome.¹⁰⁹ Psychologist Leigh Thompson explains that, “[N]egotiators who set high aspirations end up with more of the pie than those who set lower aspirations. And, negotiators whose aspirations exceed those of their opponents get more of the bargaining zone.”¹¹⁰

Once at the bargaining table, negotiators will generally fare better if they open with high demands (or low offers). Many scholars advise negotiators to open with the most self-serving position they can reasonably justify.¹¹¹

¹⁰⁸ See, e.g., ROGER FISHER & DANNY ERTTEL, *GETTING READY TO NEGOTIATE: THE GETTING TO YES WORKBOOK 3* (1995) (proposing a negotiation planning approach consistent with principled or problem-solving negotiation).

¹⁰⁹ See, e.g., Korobkin, *supra* note 9, at 38–44; Sally Blount White & Margaret A. Neale, *The Role of Negotiator Aspirations and Settlement Expectancies in Bargaining Outcomes*, 57 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 303, 309–11 (1994).

¹¹⁰ LEIGH L. THOMPSON, *THE MIND AND HEART OF THE NEGOTIATOR* 47 (3d ed. 2005); see also G. RICHARD SHELL, *BARGAINING FOR ADVANTAGE: NEGOTIATION STRATEGIES FOR REASONABLE PEOPLE* 26–27 (1999) (arguing that negotiators should convert their “goals” into “expectations” and explaining why this can lead to better negotiation outcomes).

¹¹¹ See, e.g., MAX H. BAZERMAN & MARGARET A. NEALE, *NEGOTIATING RATIONALLY* 29 (1992) (“To use anchoring to your advantage, you must decide what initial offer will attract the attention of the other party. It can’t be so extreme that the

Richard Shell, for example, advises negotiators to open with “the highest (or lowest) number for which there is a supporting standard or argument enabling you to make a presentable case.”¹¹² We agree with this advice, but it is worth observing that the research on anchoring suggests that negotiators might benefit from starting with even more self-serving positions, even positions that they cannot possibly justify. This seems particularly true when the opposing negotiator is relatively inexperienced in the kind of negotiation at hand and when the offeror expects the recipient of the offer to possess relatively little information about the value of the item being negotiated.

B. *Playing Defense*

It is a truism in sports that “defense wins championships.” Likewise, in negotiation, defense may be more important than offense. Negotiators aware of the research on anchoring can—and should—take steps to defend against its pernicious effects. Unfortunately, however, awareness alone is not enough; anchoring persists even when we are aware of its effects.¹¹³ Greater attention, effort, and concentration also appear to be insufficient to defeat anchoring.¹¹⁴ Rather, negotiators need to adopt “de-biasing” strategies to avoid, or at least minimize, the effects of anchoring.¹¹⁵

Negotiators should adopt both “inside” and “outside” de-biasing strategies.¹¹⁶ Inside strategies are those within the negotiator’s mind. An inside strategy, in other words, is “a voluntary reasoning process designed to improve the accuracy of judgment by creating a fertile corrective environment in the mind.”¹¹⁷ Researchers have developed a handful of inside strategies, the most successful of which appears to be the so-called “consider

opponent won’t even consider it. You want your offer to be attractive enough to your opponent to serve as an anchor for subsequent offers.”).

¹¹² SHELL, *supra* note 110, at 161.

¹¹³ See, e.g., Chapman & Johnson, *supra* note 30, at 125 (“Making participants aware of the anchor’s effect does not decrease anchoring.”).

¹¹⁴ See J.D. Trout, *Paternalism and Cognitive Bias*, 24 LAW & PHIL. 393, 420 (2005) (observing that “general admonitions to concentrate or attend to the evidence do not improve people’s performance”).

¹¹⁵ See, e.g., Baruch Fischhoff, *Debiasing*, in JUDGMENT UNDER UNCERTAINTY, *supra* note 11, at 422.

¹¹⁶ Philosopher J.D. Trout proposes this dichotomy. See Trout, *supra* note 114. This work builds on observations by Dan Kahneman and Dan Lovallo. See Daniel Kahneman & Dan Lovallo, *Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking*, 39 MGMT. SCI. 17, 24–27 (1993) (describing “inside” and “outside” perspectives on forecasting problems).

¹¹⁷ See Trout, *supra* note 114, at 418.

the opposite” strategy.¹¹⁸ Developed to de-bias overconfidence and the hindsight bias, this strategy calls for the negotiator to consider the opposite perspective before deciding whether to accept an offer. In other words, the negotiator should “stop to consider why [his or her] judgment might be wrong” in this instance.¹¹⁹ If the negotiator generates reasons not to reach agreement on the basis of the terms proposed by his counterpart, the negotiator may be able to resist the effects of anchoring.¹²⁰ Unfortunately, however, as J.D. Trout observes, inside de-biasing strategies like the consider-the-opposite strategy provide only limited protection.¹²¹

Outside de-biasing strategies offer more promise. These strategies change the problem dynamic entirely. “An outside strategy,” in other words, “identifies features of the environment whose presence can be manipulated to produce the most accurate or desirable available outcome.”¹²² Trout offers the following illustration:

This outside, ‘policy’ approach improves decision-making by changing the dimensions of the choice-set. A good example of an outside strategy is the prevention of ‘independent’ auditors from working with a bank or brokerage firm for more than, say, five consecutive years. Rather than simply advising auditors to be impartial, or expecting them to be professional and direct in delivering bad news to the company responsible for their employer’s financial growth, the outside strategy removes the threat to integrity by eliminating its source.¹²³

As noted above, we found evidence that information and expertise can mitigate the effects of an anchor. Relying on our findings, we recommend two outside de-biasing strategies, one of which focuses on information and the other of which focuses on experts. First, we recommend that negotiators strive to adopt an “outside” view, rather than an “inside” view, of the negotiation. An “inside” view “focus[es] on the case at hand,” while an outside view “essentially ignores the details of the case at hand” and “focuses on the statistics of a class of cases chosen to be similar in relevant respects to the present one.”¹²⁴ When negotiating a car purchase, for example,

¹¹⁸ See Charles G. Lord, Mark R. Lepper & Elizabeth Preston, *Considering the Opposite: A Corrective Strategy for Social Judgment*, 47 J. PERSONALITY & SOC. PSYCHOL. 1231, 1231 (1984).

¹¹⁹ PLOUS, *supra* note 1, at 228.

¹²⁰ See, e.g., Trout, *supra* note 114, at 420.

¹²¹ *Id.* at 418–20.

¹²² *Id.* at 420 (emphasis in original).

¹²³ *Id.* at 421.

¹²⁴ Kahneman & Lovallo, *supra* note 116, at 25.

negotiators should rely on statistical data available in such publications as *Consumer Report* or *Kelley's Blue Book* to help them determine an appropriate deal point, rather than relying solely on the initial demand made by the car dealer. Likewise, when negotiating a home purchase, a buyer should gather publicly available data regarding the sales of comparable homes and use that to help determine the price, rather than allowing the seller's initial demand to set the price. Similarly, negotiators involved in legal disputes should rely on settlement and verdict data from comparable cases—available on Lexis, Westlaw, morelaw.com, etc.—rather than allowing themselves to be unduly influenced by a demand or offer made by a counterpart. In short, negotiators should focus not on deciding whether to settle at or near terms proposed by an adversary but rather on gathering and using information from comparable cases to help determine an appropriate price.¹²⁵

In addition to adopting an outside view of the negotiation, we recommend that those who need negotiation services hire expert negotiators, namely lawyers. As reported above, experts are somewhat less susceptible to the effects of anchoring,¹²⁶ and lawyers are the consummate expert negotiators.¹²⁷ Moreover, lawyers appear to be more “rational” and analytical than many other members of the population.¹²⁸ This is not say that lawyers are pure “rational actors” who are impervious to the effects of anchoring and other heuristics and biases; in fact, lawyers, like others, are susceptible to such biases.¹²⁹ However, a growing body of experimental evidence suggests

¹²⁵ This prescription is similar to advice offered by Roger Fisher, William Ury, and Bruce Patton to use “objective criteria” in negotiation. See FISHER, URY & PATTON, *supra* note 90, at 56–80.

¹²⁶ See *supra* note 106 and accompanying text.

¹²⁷ See, e.g., ROBERT H. MNOOKIN, SCOTT R. PEPPET & ANDREW S. TULUMELLO, BEYOND WINNING: NEGOTIATING TO CREATE VALUE IN DEALS AND DISPUTES 95 (2000) (noting that “a lawyer may have comparative advantages simply because he is a better negotiator than his client” and that “clients often hire lawyers for their negotiating skills as well as for their knowledge or resources”); RONALD J. GILSON & ROBERT H. MNOOKIN, *Disputing Through Agents: Cooperation and Conflict Between Lawyers in Litigation*, 94 COLUM. L. REV. 509, 509–10 (1994) (observing that one key institutional feature of our legal system is that clients use lawyers to resolve their disputes).

¹²⁸ See, e.g., CHRIS GUTHRIE, *The Lawyer's Philosophical Map and the Disputant's Perceptual Map: Impediments to Facilitative Mediation and Lawyering*, 6 HARV. NEGOT. L. REV. 145, 156–57 (2001).

¹²⁹ See, e.g., LINDA BABCOCK et al., *Forming Beliefs about Adjudicated Outcomes: Perceptions of Risk and Reservation Values*, 15 INT'L. REV. L. & ECON. 289, 296–97 (1995) (finding that framing effects had a similar impact on lawyer and non-lawyer subjects); THEODORE EISENBERG, *Differing Perceptions of Attorney Fees in Bankruptcy Cases*, 72 WASH. U. L.Q. 979, 982 (1994) (finding that bankruptcy judges and lawyers

that lawyers may be better able than others to resist biases,¹³⁰ including anchoring.¹³¹ Finally, research suggests that those who feel “accountable” to others are more likely to resist anchoring.¹³² Lawyers are likely to feel accountable to their clients; indeed, the rules governing professional conduct require lawyers to be accountable to their clients.¹³³ This suggests that lawyers are more likely to avoid anchoring than their clients (and, indeed, that lawyers may be better able to avoid anchoring when negotiating on behalf of clients than when negotiating on their own behalf).

Because anchoring persists in the face of awareness, attention, and effort, it promises to be stubborn. The de-biasing strategies we recommend do not offer negotiators a foolproof way to defend against anchoring, but we believe that they increase the likelihood that negotiators will reach agreements that reflect the merits rather than an anchor proposed by an adversary.

VI. CONCLUSION

The value of meta-analysis is that it allows us to aggregate results from multiple, individual studies. Using meta-analysis, we have demonstrated that anchoring can have a significant impact on negotiation outcomes. We have also shown that it has a less pronounced—though still quite substantial—impact in circumstances where the recipient of the anchor is an experienced negotiator and where the recipient possesses a rich body of information containing competing anchor points. Thus, negotiators should both use anchoring to their advantage and adopt strategies to avoid being abused by anchoring in negotiation.

are prone to egocentric bias); Craig R. Fox & Richard Birke, *Forecasting Trial Outcomes: Lawyers Assign Higher Probability to Possibilities That Are Described in Greater Detail*, 26 LAW & HUM. BEHAV. 159, 167–69 (2002) (demonstrating decisionmaking biases when assessing probabilities).

¹³⁰ See, e.g., Russell Korobkin & Chris Guthrie, *Psychology, Economics, and Settlement: A New Look at the Role of the Lawyer*, 76 TEX. L. REV. 77, 137 (1997) (reporting experimental evidence showing that lawyers appear to be less susceptible than hypothetical litigants to several heuristics and biases); Rachlinski & Guthrie, *supra* note 7.

¹³¹ Korobkin & Guthrie, *supra* note 130, at 103–07.

¹³² See Arie W. Kruglanski & Tallie Freund, *The Freezing and Unfreezing of Lay-Inferences: Effects on Impression Primacy, Ethnic Stereotyping, and Numerical Anchoring*, 19 J. EXPERIMENTAL SOC. PSYCHOL. 448, 458–62 (1983) (finding that anchoring effects were more pronounced among high school subjects when they expected to be evaluated). See generally Jennifer S. Lerner & Philip E. Tetlock, *Accounting for the Effects of Accountability*, 125 PSYCHOL. BULL. 255, 270 (1999).

¹³³ See, e.g., MODEL RULES OF PROF'L CONDUCT R. 1.2(a) (2003) (“A lawyer shall abide by a client’s decision whether to settle a matter” and “consult with the client as to the means by which [the client’s objectives] are to be pursued.”).