

ARTICLE

TAKING BEHAVIORALISM SERIOUSLY: SOME EVIDENCE OF MARKET MANIPULATION

Jon D. Hanson & Douglas A. Kysar

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Jon D. Hanson* & Douglas A. Kysar**

Over the last ten to fifteen years, economists and legal scholars have become increasingly interested in and sensitive to behavioralist insights. In a companion article, Jon Hanson and Douglas Kysar argued that those scholars have nevertheless given short shrift to what is, at least for policymaking purposes, perhaps the most important lesson of the behavioralist research: individuals' perceptions and preferences are highly manipulable. According to Hanson and Kysar, one theoretical implication of that insight for products liability law is that manufacturers and marketers will manipulate the risk perceptions of consumers. Indeed, to survive in a competitive market, manufacturers and marketers must do so.

In this Article, Hanson and Kysar present empirical evidence of market manipulation — a previously unrecognized source of market failure. The Article begins by surveying the extensive qualitative and quantitative marketing research and consumer behavioral studies that discern and influence consumer perceptions. It then provides evidence of market manipulation by reviewing common practices in everyday market settings, such as gas stations and supermarkets, and by examining familiar marketing approaches, such as environmentally oriented and fear-based advertising. Although consumers may be well-aware of those practices and approaches, they appear to be generally unaware of the extent to which those tactics are manipulative.

The Article then focuses on the industry that has most depended upon market manipulation: the cigarette industry. Through decades of sophisticated marketing and public relations efforts, cigarette manufacturers have heightened consumer demand and lowered consumer risk perceptions. Because consumers are aware that smoking may pose significant health risks, the tobacco industry's success in manipulating risk perceptions constitutes especially strong evidence of the power of market manipulation.

The Article concludes by arguing that the evidence of market manipulation may justify moving to a regime of enterprise liability. Indeed, according to Hanson and Kysar, the evidence of market manipulation confirms the intuitions of the first generation of product liability scholars, who worried about manufacturers' power to manipulate and called for just such a regime.

* Professor, Harvard Law School.

** Law Clerk, Judge William G. Young, United States District Court for the District of Massachusetts. B.A., Indiana University; J.D., Harvard Law School.

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INTRODUCTION

Only so far as current tastes and appetites are reliable indices of human utility, only so far as we can identify the desired with the desirable, is the evolution of customary standards of life a sound human art. But it is needless to cite the ample evidence of the errors and wastes that are represented in every human standard of consumption.

—John Hobson¹

A. *The Development of Products Liability Scholarship*

In recent decades, the law and economics paradigm has dominated products liability scholarship.² By applying microeconomic concepts of behavior to consumers and manufacturers within products markets, theorists have explored the efficiency ramifications of a variety of possible legal standards for products liability. Central to the dialogue has been the question whether enterprise liability — that is, a legal regime in which manufacturers are liable for the costs of all product-caused accidents — can be justified on efficiency grounds. In many respects, the evolution of products liability scholarship generally, and the debate over enterprise liability particularly, reflects the development and increasing sophistication of economic theory as a mode of legal analysis.

For instance, early products liability scholars and judges based their justification of enterprise liability largely upon their intuitive view of market conditions. They believed that consumers frequently lack vital information about product risks, and that manufacturers often exert exploitative market power that manifests itself in coercive sales practices and warranty terms.³ Given those premises, the case for enterprise liability was irresistible.⁴ As more complex and nuanced notions of microeconomic behavior infiltrated the legal academy, however, the tide began to turn against enterprise liability. A second gen-

¹ JOHN A. HOBSON, *WEALTH AND LIFE: A STUDY IN VALUES* 47 (1929). Although we agree with Hobson's thesis, we respectfully disregard his view that citation of evidentiary support is needless.

² See George L. Priest, *The Inevitability of Tort Reform*, 26 VAL. U. L. REV. 701, 704–05 (1992) (“[T]here are few articles within the last ten years and no articles of importance within the last five years written about modern tort law that have not addressed, either as the principal thesis or as the subject to which the thesis of the article is responding, the functional economic analysis [of law].”).

³ See Steven P. Croley & Jon D. Hanson, *Rescuing the Revolution: The Revived Case for Enterprise Liability*, 91 MICH. L. REV. 683, 706–10 (1993). Early advocates of enterprise liability also argued that product-accident insurance provided by manufacturers through the price mechanism could accomplish the otherwise infeasible spreading of accident risks. This contention, which some say has been rendered moot by the widespread availability of first-party insurance, such as health insurance, is revived in Jon D. Hanson & Kyle D. Logue, *The First-Party Insurance Externality: An Economic Justification for Enterprise Liability*, 76 CORNELL L. REV. 129, 137–59 (1990), arguing that there remain good economic justifications for mandating manufacturer-provided insurance.

⁴ See Croley & Hanson, *supra* note 3, at 712.

eration of products liability thinkers attacked enterprise liability for failing to provide consumers with sufficient incentives to take care.⁵ Indeed, some argued that allowing full recovery for product-caused accidents encourages consumers to make careless decisions, both in purchasing and in utilizing products.⁶ Those scholars rejected enterprise liability and instead called for policymakers to solve any imperfect information problems with product warning requirements.⁷ This second generation of products liability scholars saw themselves as engaged in a more sophisticated economic analysis than their predecessors.⁸ Indeed, as one of the most prominent second-generation scholars characterizes it, the second generation's arguments resulted from "careful, scientific study,"⁹ rather than the "extremely crude"¹⁰ models of early enterprise liability advocates.

In a companion article to this one,¹¹ we noted that in light of a growing body of evidence about human decisionmaking, the second generation's models have come to appear somewhat crude themselves. By exploring empirical evidence of individual decisionmaking processes, we highlighted several ways in which predominant assumptions about microeconomic behavior are wrong. More importantly, we also identified a crucial feature of markets that to our knowledge has never been recognized by law and economics scholars: because individuals exhibit systematic and persistent cognitive processes that depart from

⁵ See *id.* at 720-21; Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 YALE L.J. 353, 356 (1988) ("The imperfect information rationale for today's strict liability assumes that consumers cannot make rational investments in safety. This assumption is incorrect; consumers need to know fewer and simpler things to behave carefully than they need to know to choose among contract clauses allocating product risks. It is therefore a mistake to relax consumers' obligation to take care."). These scholars also took issue with the first generation's assumption that manufacturers are generally in a better position to evaluate product safety issues. See, e.g., Richard A. Epstein, *The Unintended Revolution in Product Liability Law*, 10 CARDOZO L. REV. 2193, 2205 (1989) ("[W]hy should manufacturers, out of possession of the product at the time of injury, be conclusively and universally presumed to be in a better position to avoid loss than 'helpless' consumers in possession of the goods? There is little reason to think that this odd balance of prevention capabilities has ever been true in the general case — possession gives both control and information."); George Priest, *Modern Tort Law and Its Reform*, 22 VAL. U. L. REV. 1, 5-6, 13 (1987) (citing the "growing empirical evidence that . . . the consumer's role in accident prevention swamps any effects of differential technological investments by providers" as reason to believe that expansions in manufacturer liability have caused an increase in product accidents).

⁶ See Steven P. Croley & Jon D. Hanson, *What Liability Crisis? An Alternative Explanation for Recent Events in Products Liability*, 8 YALE J. ON REG. 1, 23 n.89 (1991) (citing numerous examples).

⁷ See Croley & Hanson, *supra* note 3, at 787 n.420 (citing numerous examples).

⁸ See generally *id.* at 713-20 (summarizing the second generation's rebuttal of the first generation's case for enterprise liability).

⁹ George L. Priest, *The Best Evidence of the Effect of Products Liability Law on the Accident Rate: Reply*, 91 YALE L.J. 1386, 1400 (1982).

¹⁰ Priest, *supra* note 2, at 702.

¹¹ See Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 632 (1999) [hereinafter, Hanson & Kysar, *TBS I*].

axioms of rationality, they are susceptible to manipulation by those actors in a position to influence the decisionmaking context. Moreover, the actors in the dominant position *must* capitalize on this manipulation or eventually be displaced from the market. We believe that this problem of market manipulation represents a previously unrecognized threat to markets' allocative efficiency — a new source of market failure.

Our conclusion about incentives for manipulation also supports the notion of early products liability scholars that manufacturers engage in manipulative sales conduct and that enterprise liability is justified in part for that reason. Foes of enterprise liability have never squarely rebutted that contention. Instead, they have treated it as pure speculation emerging not from economic theory or empirical evidence, but from soft intuitions. In this Article and its companion, we address both the direct argument that product warnings suffice to overcome consumer information problems and the indirect argument that concern for manufacturer manipulation is theoretically and empirically unfounded. We argue that, because a multitude of nonrational factors influence individual decisionmaking, consumers cannot be expected to engage in efficient product purchasing analyses — regardless whether manufacturers are required to supply product warnings. More importantly, we provide evidence that, for the same reason, manufacturers do manipulate consumer perceptions and preferences, consistent with the hunches of early products liability scholars. Thus, we help to renew the case for enterprise liability by providing both the theoretical basis for and the empirical evidence of market manipulation.

B. The Problem of Market Manipulation

In our companion article, we introduced the concept of market manipulation. We began by reviewing the burgeoning literature of behavioralism, a body of research that lies at the intersection of economics and psychology. In this field, cognitive psychologists and behavioral researchers study the decisionmaking processes of individuals, with an eye toward comparing actual behavior with that of rationalistic ideals. It turns out that individuals frequently process information and make decisions in ways that depart from the expected-utility maximizer of economic models, both because maximizing expected utility is often not the goal of individual decisionmaking and because even when it is, errors of calculation and reasoning frequently prevent individuals from achieving that goal.¹² One significant and surprising feature of such departures from rationality is that they are consistent

¹² For a review of these departures, see Hanson & Kysar, *TBS I*, cited above in note 11, at section I.B.

and predictable — that is, they are “neither rational, nor capricious.”¹³ We noted that because those cognitive biases, as they are often called, are predictable, they also can be tractably modeled. Thus, many legal economists attempt to incorporate them into the classical economic conception of the rational actor. As three leading commentators put it, “behavioral economics allows us to model and predict behavior relevant to law with the tools of traditional economic analysis, but with more accurate assumptions about human behavior.”¹⁴

Although we are sympathetic to the goal of using more accurate assumptions about human behavior, we believe that the commitment of other scholars to maintain the tractability of basic economic models may have prevented them from seeing the more dramatic implications of the behavioral research. Whereas other scholars treat cognitive biases as essentially *exogenous* influences that must be incorporated into the individual decisionmaker model, we argued in our companion article that the presence of unyielding cognitive anomalies requires both inclusion of the biases in the model *and* restructuring of the model to capture the *endogenous* influence of other actors on the individual. For instance, we explained that one must account not only for the possibility of endowment effects¹⁵ altering an individual’s preferences (an exogenous application of behaviorist findings), but also for the possibility that other actors will take advantage of endowment effects to influence individual preferences for their own gain (an endogenous application). We argued, in essence, that the most significant message of the behavioral research is that individuals are vulnerable to manipulation by those in a position to influence the decisionmaking context.

Also in our companion article, we attempted to highlight this difference in approach through a careful review of products liability scholars’ previous assessments of the behavioral research. Those scholars tend to fall into one of two camps: one group emphasizes evidence that individuals *underestimate* product risks, and the other group emphasizes evidence that individuals *overestimate* product risks. Members of both camps share the same basic methodology: they review each of the cognitive biases in isolation, considering whether each particular anomaly would cause consumers to overestimate or underestimate product hazards, and then they attempt to sum the biases to determine their net effect. In short, they treat the cognitive biases as

¹³ Massimo Piattelli-Palmarini, *Probability Blindness: Neither Rational nor Capricious*, BOSTONIA, Mar./Apr. 1991, at 28, 28.

¹⁴ Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1474 (1998).

¹⁵ At the moment when an individual comes to possess an item and to feel as though the item is part of her endowment, she values that item more than she did prior to possessing it. Behaviorists refer to that phenomenon as the endowment effect. See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 192–99 and accompanying text.

fixed, exogenous influences on consumer perceptions.¹⁶ We argued that this methodology is ultimately futile because the behavioral research presents too many conflicting and overlapping biases to make confident overall predictions about consumer perceptions.

It is our view instead that the findings of behavioral research reveal the endogenous nature of consumer perceptions. Rather than simply asking how a particular anomaly will influence the typical consumer, the more probative question is how the presence of cognitive anomalies will influence *all* actors in the market. With that distinction in mind, we explained that manufacturers have every incentive to utilize cognitive biases to lower consumer appreciation of product risks. Such manipulation, we argued, is simply another form of cost externalization, a practice that manufacturers naturally pursue in an effort to avoid costs and increase profit margins. We noted also that this manipulation of consumer perceptions should occur *whether or not manufacturers are cognizant of it*. That is, the competitive forces of the market should drive manufacturers to act *as if* they are utilizing behavioral findings to exploit consumer perceptions, regardless of manufacturers' awareness of the processes. Thus, we argued that the relative indeterminacy of the behavioral research is irrelevant to products liability theory because manufacturers operating under the evolutionary influence of the market will untangle the various cognitive forces at play in the consumer's mind *even if behavioral researchers and legal scholars cannot*.

We concluded by presenting a theoretical account of more concrete ways in which manufacturers, consistent with our predictions, might manipulate consumer perceptions. In so doing, we drew frequently from articles in which marketing scientists specifically apply the findings of behavioral research in an effort to study and ultimately influence consumer behavior. The mere existence of such articles lends a degree of credibility to our theory of manufacturer manipulation. Nonetheless, ultimately to support such a theory, we need to offer market evidence of actual manufacturer manipulation of consumers. In this Article, we offer that evidence.

C. Overview

In Part I, we introduce the reader to the field of marketing research and consumer behavior studies. Although our treatment is basic, we believe it is the first serious attempt to consider the legal policy implications of that vast body of research. Our goal is to provide the reader with an appreciation for the type and volume of consumer behavior studies that manufacturers are conducting. We then provide case studies of apparently innocuous consumer markets and reveal sus-

¹⁶ See *id.*

tained and deliberate efforts by manufacturers and retailers to manipulate consumer product perceptions.

In Part II, we provide a history of industry practices in one not-so-innocuous consumer market — the market for cigarettes. In addition to recounting some of cigarette manufacturers' well-known manipulative practices, we also examine some industry conduct that has only recently been uncovered. After reviewing the history of cigarette marketing, we revisit the scholarly debate over how well consumers understand the health risks of smoking. We argue that our theoretical and empirical accounts of market manipulation help to explain the growing body of evidence that strongly indicates that consumers underestimate those risks. This evidence is of special importance to our thesis because it presents a strong case not only that manufacturers attempt to manipulate consumer risk perceptions, but also that their manipulation succeeds.

We conclude by arguing that our account of behavioral research and evidence of market manipulation vindicates the intuitions of early advocates of enterprise liability, who claimed that manufacturers exert undue influence over consumers within the product-purchasing context. One goal of this Article and its companion is to strengthen the case for enterprise liability by providing both a theoretical basis for and empirical evidence of the type of market manipulation envisioned by those early products liability thinkers. A key implication of our analysis for products liability law is that consumer susceptibility to manufacturer manipulation significantly weakens otherwise considerable market-provided incentives for safety. More specifically, because of the problem of market manipulation, many consumers are likely purchasing too many risky products. Consequently, the intellectual case for enterprise liability is, in our view, more compelling than ever.

I. SOME MODEST MARKET EVIDENCE OF CONSUMER MANIPULATION

Our thesis is admittedly a provocative one, requiring support beyond the theoretical argument that we offered in our companion article. In this Part, we provide some modest market evidence to show that manipulation of consumers is in fact occurring in product markets. We hope to demonstrate that the possibility of market manipulation is not only compelling in theory, but also borne out in practice. We do so by offering a brief overview in section A of the vast array of marketing research and consumer behavior analyses available to manufacturers. We do not intend to offer a comprehensive treatment of the science of marketing research; we hope merely to give the uninitiated reader a flavor of the type and degree of research that manufacturers undertake and apply to actual product markets.

In section B of this Part, we provide examples of how manufacturers manipulate general consumer perceptions — that is, product perceptions not specifically related to safety attributes — in the purchasing context, with particular attention to perhaps the ultimate achievement of marketing researchers, the modern supermarket. The evidence of manipulation of general product perceptions supports an inference of risk perception manipulation by manufacturers as well: if manufacturers manipulate perceptions of non-risk-related product attributes, they likely do the same for risk attributes.¹⁷ Ultimately, this Part goes further and begins to replace inference with empirical evidence. In section C, we examine specific examples of risk perception manipulation by manufacturers in a variety of industries. Taken together, the evidence reviewed in this Part suggests that the theoretical argument presented in our companion article is a plausible account of the actual operation of consumer product markets.

A. *An Overview of Marketing Research*¹⁸

Manufacturers spend \$8 billion per year studying consumer behavior and psychology.¹⁹ They hire researchers and marketing specialists to conduct “day after” phone surveys to gauge the effectiveness of advertisements, organize focus groups in shopping malls, and encourage fantasy role-playing among consumers of household products. They track customer search patterns within stores using hidden cameras, monitor eye responses to magazine ad layouts with ultrasensitive equipment, and target the \$150 billion annual spending power of children by seeking out “virgin respondents”²⁰ for interview sessions.

¹⁷ We are not the first to draw such an inference. George Priest took a similar logical step in his famous article on consumer product warranties. See George L. Priest, *A Theory of the Consumer Product Warranty*, 90 YALE L.J. 1297 (1981). By offering evidence that manufacturers and consumers efficiently allocate the risk of product service and repair needs, Priest argued that manufacturers and consumers could be expected to allocate product safety risks efficiently as well. See *id.* at 1307–13. Priest is also a proponent of the use of empirical evidence in legal scholarship. See Priest, *supra* note 9, at 1401 (“I am currently attempting to obtain more complete and direct data of the effects of modern products liability law, but to date no better data have been found. I challenge . . . others to find better data as well — data sufficiently detailed to support or cast doubt on our modern theories of product warranties.”).

¹⁸ The American Marketing Association defines marketing research as follows:

Marketing research is the function that links the consumer, customer, and public to the marketer through information — information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process.

Marketing research specifies the information required to address these issues, designs the method for collecting information, manages and implements the data collection process, analyzes the results, and communicates the findings and their implications.

NARESH K. MALHOTRA, *MARKETING RESEARCH: AN APPLIED ORIENTATION* 9 (2d ed. 1996).

¹⁹ See JOEL R. EVANS & BARRY BERMAN, *MARKETING* 17 (7th ed. 1997).

²⁰ SELINA S. GUBER & JON BERRY, *MARKETING TO AND THROUGH KIDS* 46 (1993) (advising that effective child marketing research requires using children who have not previously participated in focus groups).

They poke, prod, and ponder consumer subjects in order to determine how best to allocate the \$350 billion that they spend each year on advertising and promotion.²¹ Through this process, manufacturers amass an extensive body of research that they can use to manipulate consumer behavior in precisely the manner predicted by the theoretical discussion in our companion article.

1. *Quantitative Research: Listening to the Market.* — Most consumers are familiar with the A.C. Nielsen rating system. Most would probably also recognize that its purpose is to provide advertisers with information about the size of television audiences. How many would know, however, that the Nielsen system can also be used in conjunction with an electronic scanner diary in which participating households record all consumer product purchases? That this data is correlated with advertising records to measure ad effectiveness? That Nielsen technology even allows for the unnoticed transmission of test commercials into selected households?²²

All of these efforts are typical of marketing research firms in their drive to acquire objective data on consumer behavior. The resulting amount of data collected is staggering. For instance, consider the following description of a typical *tracking study* that manufacturers conduct to monitor product performance:

Every week these organisations capture, in their computers, fresh information on a new sample of consumers. The information covers all players in the market. It covers the state of play for that week in regard to people's behaviour, attitudes, brand awareness, brand image as well as direct communication effects such as advertising recall, advertising recognition and message take-out. This is then related to other information such as media data indicating what advertisers were on air during that week, at what times and at what advertising weight.²³

Tracking is a typical example of *quantitative marketing research*, by far the predominant form of marketing research. Broadly speaking, quantitative research entails the statistical measure of some data point — such as market share, advertisement recall, brand recognition, repeat purchasing behavior, lifestyle preferences, and income levels — relevant to the marketing of a product. The ubiquitous *marketing survey* is the most widely used form of quantitative research, though researchers often also rely on pre-existing data such as U.S. Census reports.²⁴ Whichever method is employed, the ultimate end of quantitative research is “the systematic and objective identification,

²¹ See EVANS & BERMAN, *supra* note 19, at 17.

²² See MALHOTRA, *supra* note 18, at 135–38.

²³ MAX SUTHERLAND, *ADVERTISING AND THE MIND OF THE CONSUMER* 112 (1993).

²⁴ See MICHAEL R. SOLOMON, *CONSUMER BEHAVIOR: BUYING, HAVING & BEING* 12 (4th ed. 1999).

collection, analysis, and dissemination of information for the purpose of improving marketing."²⁵

How does quantitative research improve the effectiveness of marketing? In addition to providing manufacturers with straightforward feedback on current product sales, quantitative research can be used to analyze advertising viewership and its effect on consumer purchasing decisions.²⁶ The well-known Starch Readership Survey assesses the effectiveness of print advertisements by data, such as ad recall rates, recognition rates, and percentage of copy read.²⁷ Similar surveys are conducted continuously for television, radio, and other media.

To keep an eye on competitors' products and to identify more general product usage trends, marketers also provide an extensive array of surveys of consumption behavior. For example, the Gallup Organization surveys fifteen thousand households annually about their consumer product purchases; the National Menu Census inquires about the consumption of food products in the home; and Trendex devotes its quarterly survey to uncovering data about the consumption of durable goods, such as appliances and electronics.²⁸

Surveys can also be used to uncover social trends far more subtle than simply who is watching and what they are buying. The Yankelovich Monitor, for example, is a widely used and frequently updated lifestyle survey of a nationally projectable sample of twenty-five hundred adults.²⁹ Its aim is to provide early identification of significant developments in the American lifestyle that marketers can incorporate into advertising themes. The makers of Campbell's Soup, for instance, adopted an advertising campaign featuring a husband preparing soup only after the Yankelovich Monitor reported that such gender role shifting was occurring and therefore was acceptable to audiences.³⁰ A competing service from the Roper Organization brags that its lifestyle survey is customizable: clients can take advantage of a "tack-on custom question service" to gather information from Roper's sample of

²⁵ MALHOTRA, *supra* note 18, at 8.

²⁶ Consider this example:

By obtaining single-source data on product consumption, media consumption, and demographic characteristics, Campbell [Soup Company] found that demographically similar TV audiences consume vastly different amounts of V-8. For example, on an index of 100 for the average household's V-8 consumption, [the audience for] *General Hospital* had a below-average 80 index while [the audience for] *Guiding Light* had an above-average 120 index. . . . Using this information, Campbell rearranged its advertising schedule to raise the average index.

Id. at 141. This example is striking not only because of the amount of detail that the marketing research provides, but also because of the casual tone that the author uses to report that the index could be raised merely by "rearranging" the advertising.

²⁷ *See id.* at 133.

²⁸ *See id.* at 133-34.

²⁹ *See id.* at 132.

³⁰ *See id.* at 133.

two thousand regularly interviewed adults.³¹ Manufacturers have used lifestyle surveys widely to respond to trends, such as the increased concern for conservation and the desire for a healthier diet. As social currents turn in new directions, manufacturers respond in kind: "A few years ago McDonald's introduced its McLean Deluxe reduced-fat beef patty with great fanfare, but now the chain is test-marketing the Mega Mac, a half-pound burger with cheese and sauce."³²

We argued in the first of these articles that the market evolves to reward manufacturers who manipulate consumer perceptions.³³ We also noted that manufacturers do not need to exploit these opportunities *consciously*: they merely need to recognize that a particular type of advertising produces superior results. Quantitative research provides manufacturers with precisely that information — any manufacturer who engages in manipulative advertising, even if inadvertently, will see the profit-maximizing results in "day after" ad recall surveys, brand loyalty polls, and weekly sales figures. Those manufacturers will in turn continue to engage in the manipulative ad campaigns.

2. *Qualitative Research: Manipulating the Market.* — Marketing research encompasses much more than simply tabulating advertisement data. Manufacturers and advertisers employ the social sciences to determine not just whether a particular advertisement failed or succeeded, but also why. Such *qualitative research* provides some of the most fascinating insights into consumer behavior.

For example, researchers have discovered that consumers have developed a system of *market beliefs* that enable them to reduce time spent searching for the right product.³⁴ Pervasive market beliefs include the following: large stores offer better prices than small stores; larger containers are cheaper per-unit than smaller ones; and when you are not sure what features you need in a product, it is a good idea to invest in the extra ones, because you will probably wish you had them later. Manufacturers, armed with knowledge of those market beliefs, can easily manipulate consumer perceptions. Consumers may buy larger containers without a per-unit cost reduction because they will still perceive the product as cheaper than the same product sold in smaller containers. Similarly, larger stores can capitalize on the perception that they are "discount" stores, while advertisers can emphasize "added" or "extra" product features on more expensive models because consumers will believe that they may someday desire those

³¹ *Id.* at 134.

³² SOLOMON, *supra* note 24, at 195.

³³ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 447–48 and accompanying text.

³⁴ See Calvin P. Duncan, *Consumer Market Beliefs: A Review of the Literature and an Agenda for Future Research*, in 17 *ADVANCES IN CONSUMER RESEARCH* 729, 729 (Marvin E. Goldberg, Gerald Gorn & Richard W. Pollay eds., 1990).

features.³⁵ In each case, the manufacturer is able to capitalize on the consumer's market beliefs instead of her empirical product analysis.³⁶

The similarity between those market beliefs and the cognitive heuristics identified by Daniel Kahneman and Amos Tversky, two principal founders of behavioral research, is striking.³⁷ Both market beliefs and cognitive heuristics allow people to simplify decisionmaking through short cuts or rules of thumb; both mechanisms, when manipulated by researchers or marketers, can also lead to consistently misguided decisionmaking.

Marketing experts employ a variety of methodological techniques when engaging in qualitative research. Perhaps most commonly used and well-known is the *focus group*. Researchers at several hundred facilities across the country continuously conduct focus group studies at a total cost of more than \$400 million a year.³⁸ Such studies typically involve a moderated discussion among "five to nine people who have been screened on some basis, often to represent demographic characteristics of the target market of interest."³⁹ Focus groups are designed to reveal "consumers' perceptions, preferences, and behavior concern-

³⁵ The manufacturer can sometimes convince consumers that they really do desire the added feature, even when the addition is objectively pointless:

Pepsi-Cola accomplished this by stamping freshness dates on soda cans. The company spent about \$25 million on an advertising and promotional campaign to convince consumers that there's nothing quite as horrible as a stale can of soda — even though it has been estimated that 98% of all cans are consumed well before this could be a problem. Six months after introducing the campaign, an independent survey found that 61% of respondents felt that freshness dating is an important attribute . . .

SOLOMON, *supra* note 24, at 287.

³⁶ Richard Thaler has conducted a fascinating experiment illustrating similar heuristic reasoning that could lead to exploitation. He gave two groups of subjects the following question, with the bracketed material varying between groups:

You are lying on the beach on a hot day. All you have to drink is ice water. For the past hour you have been thinking about how much you would enjoy a nice cold bottle of your favorite brand of beer. A companion gets up to go make a phone call and offers to bring back a beer from the only nearby place where beer is sold, [a fancy resort hotel] (a run-down grocery store). He says that the beer might be expensive and so asks how much you would be willing to pay for the beer. He says he will buy the beer if it costs as much or less than the price you state, but if it costs more than the price you state he will not buy it. You trust your friend, and there is no chance of bargaining with the [bartender] (store owner). What price do you state?

Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Fairness and the Assumptions of Economics*, 59 J. BUS. S285, S287–88 (1986) (summarizing the experiment). The median response for the fancy hotel beer was \$2.65, whereas the median response for the run-down grocery store version was \$1.50. *See id.* at S288. "Evidently, people are willing to pay different amounts for a beer to be consumed on the beach, depending on where it was purchased." *Id.* Preference structures like this allow the fancy hotel to charge a higher price than the grocery store for an identical product, even when that product will not be consumed on the premises and no benefit accrues from the store's atmosphere.

³⁷ *See* Hanson & Kysar, *TBS I*, *supra* note 11, at notes 134–63, 242–50 and accompanying text (reviewing those heuristics).

³⁸ *See* MALHOTRA, *supra* note 18, at 166.

³⁹ MICHAEL R. SOLOMON, *CONSUMER BEHAVIOR: BUYING, HAVING, AND BEING* 30 (3d ed. 1996).

ing a product category."⁴⁰ Sometimes focus groups are used for the benign purpose of gathering information on product improvements that almost everyone would agree have utility. A sugar manufacturer, for instance, recently used focus group interviews to learn that consumers would prefer sugar packaged in easy-pour containers similar to milk cartons.⁴¹ At other times, the researcher may probe beyond mere self-reporting of preferences and venture into psychological territory of which the consumer herself is only vaguely aware. After a cleaner, more efficient alternative to cockroach spray sold well below expectations in rural areas of the Southern United States, researchers assigned to the problem asked a focus group of representative women to draw pictures of cockroaches and describe their feelings about them. To the researchers' surprise, all the insects were drawn as males and the stories accompanying the drawings clearly revealed feelings about the men in the subject women's lives. Researchers learned that for these women, "killing the roaches with a bug spray and watching them squirm and die allowed [them] to express their hostility toward men."⁴²

The cockroach study is an example of the use of *projective techniques* in qualitative research: "A projective technique is an unstructured, indirect form of questioning that encourages respondents to project their underlying motivations, beliefs, attitudes, or feelings regarding the issues of concern."⁴³ Such methods are typically associated with *motivational research*, which attempts to discern "the identification of consumers' motives . . . [through] oblique techniques for exposing hidden motives."⁴⁴ Actual examples of this type of research might strike the reader as bizarre:

A group of housewives [is] standing in a room. Unknown to them, observers with video cameras are watching through a one-way glass window. One woman starts to advance on another only to be met with protests: "Go away, you rotter. You'll scratch me, upset me . . ."

. . . These women have been stopped in the street and persuaded to reveal their innermost feelings about kitchen cleaners. In this particular part of the session, they are gameplaying. The woman doing the protesting . . . is playing a kitchen sink! The objects of her words are women acting out the part of two competing brands, one of which she obviously does not like.⁴⁵

⁴⁰ *Id.*

⁴¹ See MALHOTRA, *supra* note 18, at 163. Squeeze bottle containers for ketchup might represent another example of the results of such benign information-gathering.

⁴² DAVID A. STATT, UNDERSTANDING THE CONSUMER: A PSYCHOLOGICAL APPROACH 107 (1997) (quoting C. Fischer, *It's All in the Family: Empty Nesters, Kids Moving Back Home*, ADVERTISING AGE, April 1992, at 27) (internal quotation marks omitted).

⁴³ MALHOTRA, *supra* note 18, at 178.

⁴⁴ GORDON R. FOXALL & RONALD E. GOLDSMITH, CONSUMER PSYCHOLOGY FOR MARKETING 160 (1994).

⁴⁵ ERIC CLARK, THE WANT MAKERS 79-80 (1988).

Not all motivational research is this esoteric, however. Often researchers use familiar techniques such as word association, sentence completion, role playing, or “psychodrawings” (in which subjects, like the women in the cockroach case described above, “draw” their feelings about certain products). The ultimate goal in each case is to uncover the subject’s true feelings or beliefs about the relevant product. A fabled (among marketing researchers) triumph of this type of research involved a Betty Crocker instant cake mix. Originally, the mix required the addition of only water. Then researchers showed women two grocery lists, one that included ingredients for a cake and one that substituted the mix. The women reported that users of the second list were more likely to be lazy or irresponsible. From those reports, the researchers concluded that women would feel guilty or inadequate using the instant cake mix if it only required the addition of water, so product engineers redesigned the mix to call for the addition of both water and an egg.⁴⁶ A more recent example of motivational research involved a firm that conducted a *picture response test* in which respondents were asked to describe a picture of people consuming high-calorie foods. “A significant number of the respondents defended the behavior of the people in the picture by explaining that the increased stress in everyday life has caused people to turn . . . to comfort foods.”⁴⁷ Among the “[m]any marketers [who] have capitalized upon” the absence of negative associations with fattening foods is Häagen-Dazs, which introduced an ultra-rich Exträas line of ice cream that raised the company’s market share by two percent.⁴⁸

Motivational research has its origins in psychoanalytic theory.⁴⁹ Other consumer behavior research draws from such disciplines as operant conditioning,⁵⁰ cognitive learning theory,⁵¹ cultural anthropol-

⁴⁶ Sales, of course, increased. *See id.* at 78.

⁴⁷ MALHOTRA, *supra* note 18, at 181.

⁴⁸ *Id.* at 181–82.

⁴⁹ *See* SOLOMON, *supra* note 39, at 136.

⁵⁰ *See id.* at 78–80. Insights gleaned from this subdiscipline include the importance of repetition in successful product advertising, the ability of manufacturers to generalize established stimuli (that is, well-known brands) through family branding or product line extensions, and the benefits to producers from providing positive feedback to consumers through product rebates or frequent flier points. *See id.* at 73–76.

⁵¹ *See* STATT, *supra* note 42, at 85–92. Researchers have applied cognitive learning theory in extensive studies on consumer memory to learn how the timing and frequency of advertising can be used to maximize campaign effectiveness, how mnemonic slogans aid consumers in product recall, and how picture placement increases the chance that consumers will read ad copy. *See* SOLOMON, *supra* note 24, at 88–91. One surprising application of cognitive psychology is in the use of *time compression* to accelerate commercial narration to about 120% to 130% of normal speaking pace. In addition to allowing marketers to convey more information in 30 seconds, some researchers claim that time compression “has been shown to increase persuasion in some situations.” SOLOMON, *supra* note 39, at 64.

ogy,⁵² and socialization theory.⁵³ Each subdiscipline advances a set of theories about consumer behavior and a corresponding methodology for studying that behavior. For instance, “retail anthropologist” Paco Underhill records about fifteen thousand hours of videotape per year monitoring customer behavior and maintains a video library of over one hundred thousand hours of noteworthy footage.⁵⁴ By studying the tape, Underhill has identified such phenomena as the “Decompression Zone,” in which customers “downshift” for approximately fifteen feet upon entering a store, and the “Invariant Right,” when customers “invariably and reflexively” turn to the right after making it through the Decompression Zone.⁵⁵ Because customers lack focus while “downshifting,” retailers tend to leave the Decompression Zone free of product displays; the area on the Invariant Right — where consumers regain their focus — is often so valuable that retailers can rent it to manufacturers at a significant premium.

Underhill has also vocally supported one of the latest explosions in marketing research: the study of child consumers.⁵⁶ Because children spend around \$7 billion and influence the expenditure of an additional \$150 billion annually, marketing researchers have begun to pay them a significant amount of attention.⁵⁷ Although marketers have applied conventional research methods to children, they have also learned that children require some special treatment: “Undertaking market research with children not only requires skill in framing questions, analyzing responses, and utilizing the other tools of the trade . . . [Kids] take spontaneity seriously. Marketers who venture into their world shouldn’t squelch that — it’s in those wonderful, spontaneous moments that smart marketers make the most amazing discoveries.”⁵⁸ Observing children, researchers have determined the following: toy store “real estate” near the cash register is the most valuable to manufacturers because parents have already removed their wallets⁵⁹ and are

⁵² See STATT, *supra* note 42, at 174–91. For a discussion of insights obtained from cultural anthropology methodologies in retail environments, see the discussion below on page 1436.

⁵³ See STATT, *supra* note 42, at 130–43. Socialization theory has played a major role in understanding consumer behavior, primarily in unraveling family, gender, age, and class influences on individual preferences. See *id.* at 113–73. A great deal of recent attention has centered on what causes some consumers to be “innovators” or “early adopters” (that is, willing to try new products and technologies). By understanding what motivates these consumers, manufacturers hope to capitalize on the social clout such individuals typically have within their peer groups. See SOLOMON, *supra* note 24, at 533–34.

⁵⁴ See Jean E. Palmieri, *Retail Consultant Paco Underhill on the State of the Store*, DAILY NEWS REC., Oct. 29, 1997, at 10.

⁵⁵ Malcolm Gladwell, *See Me Feel Me Touch Me Buy Me*, THE INDEP. (LONDON), Feb. 1, 1997, Shopping Section, at 8.

⁵⁶ See Paco Underhill, *Kids in Stores*, AM. DEMOGRAPHICS, June 1, 1994, at 22, 22.

⁵⁷ See GUBER & BERRY, *supra* note 20, at 3.

⁵⁸ *Id.* at 43.

⁵⁹ *Id.* at 121. Purchases resulting from temper tantrums at the cash register are representative of a broader phenomenon: “Parental yielding occurs when a parental decision maker is influenced

generally eager to dodge scene-causing tantrums; in order to avoid alienating parents who object to the hard-sell tactic of putting candy in the checkout aisle, retailers should place sugarless gums and trail mixes next to the candy;⁶⁰ and retailers of adolescent products should locate stores in shopping centers because the mall provides kids with an audience for their purchases “[a]t any age [when] peer approval is critical.”⁶¹ Because the study of children is a relatively new subdiscipline of marketing research,⁶² experts believe that the field will continue to grow and reveal extensive new marketing opportunities for manufacturers.

We could continue indefinitely to describe the various iterations of qualitative research and consumer behavior theory. Our aim, however, is not to bore (or scare) the reader but simply to show that manufacturers *are* studying consumer psychology and behavior, much as cognitive psychologists and behavioral economists are studying human decisionmaking behavior. Although we argued in our accompanying article that manufacturers need not deliberately attempt to manipulate consumer perceptions,⁶³ we believe that the existence and magnitude of qualitative research provides evidence that they *are* engaging in deliberate manipulation.

3. *Broader Implications of the Consumer Culture.* — Along with these increased efforts by manufacturers to understand the consumer, there has been a decline in the consumer protection movement. At least one commentator, John Kenneth Galbraith, believes that this decline is not merely coincidental:

With the development, perhaps one should say exploitation, of the modern consumer economy has come a marked change in social concern as regards consumer products. There was once the consumer movement — a determined investigation of, and report on, the value and utility of various consumer products and supporting public regulation and education. This continues but with a diminished sense of social urgency. The poor still need guidance on what they buy, including protection against consumer scams. For the more affluently supplied there is no similar urgency. There is no social need for according guidance on the purchase of a Cadillac or a Mercedes Benz. Or for that matter, designer jeans or a vast

by a child's request and 'surrenders.'" SOLOMON, *supra* note 24, at 388. Retailers seek to maximize parental yielding.

⁶⁰ See GUBER & BERRY, *supra* note 20, at 119. Note that the marketing researchers do not recommend removing *both* the candy and the healthy items from the checkout aisle — to do so would mean removing one of the most valuable instigators of unplanned purchases. See *infra* p. 1446.

⁶¹ GUBER & BERRY, *supra* note 20, at 122.

⁶² See *id.* (“[T]he demographic burst of baby boomers reaching parenthood has focused so much attention on children and family that marketers both of traditional children's products and service categories and of those from other fields are studying the market more closely than has ever been done before.”).

⁶³ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 542–43 and accompanying text.

range of other affluent products. *As consumer necessity yields to fashion and persuasion, concern for consumer protection and choice inevitably recedes.*⁶⁴

One need not take Galbraith's view to recognize that today's consumers face a difficult path if they desire to live up to the consumer sovereignty model.⁶⁵ Typical car lots, for example, are now filled with some 300 kinds of vehicles, and the average supermarket contains over twenty-one thousand different products.⁶⁶ Obtaining relevant quality and safety information about these products is often infeasible for consumers, especially when the search must occur amid the cacophonous din of \$350 billion worth of advertising each year.

Of course, one might object that consumers need obtain only information on the limited class of products that they need or want. However, "needs" and "wants" are complicated concepts that are influenced by factors both internal and external to the consumer: "A dominant, perhaps *the* dominant social and technological determinant of behavior in affluent societies has been summed up as 'consumer culture,' and, more specifically, 'retail culture.'"⁶⁷ Each day, eighteen billion display ads appear in newspapers and magazines throughout the United States;⁶⁸ each year, fourteen billion shopping catalogs are mailed to consumers' homes.⁶⁹ Inflation-adjusted per capita expenditures on advertising have increased eightfold since 1935.⁷⁰ Even if these pervasive advertising efforts do not artificially "create" consumer needs, they almost certainly do much more than merely convey information about products that consumers already desire. Some commentators have argued that the impact of advertising includes a dramatic rise in the incidence of clinical depression in developed countries as commodities are substituted for social networks,⁷¹ an acute sense of personal dissatisfaction among women and the elderly as advertisers idealize unrealistic body images and youth,⁷² and a reckless disregard

⁶⁴ John Kenneth Galbraith, *Foreword*, to THE CONSUMER SOCIETY at i, xxii (Neva R. Goodwin, Frank Ackerman & David Kiron eds., 1997) (emphasis added).

⁶⁵ The consumer sovereignty model, which depicts consumers as the ultimate dictators of the type and quantity of commodities purchased, assumes that consumers are well-informed and that the market is otherwise efficient.

⁶⁶ See STATT, *supra* note 42, at 13.

⁶⁷ FOXALL & GOLDSMITH, *supra* note 44, at 1 (citations omitted).

⁶⁸ See MICHAEL JACOBSON & LAURIE ANN MAZUR, *MARKETING MADNESS: A SURVIVAL GUIDE FOR A CONSUMER SOCIETY* 18 (1995).

⁶⁹ See ALAN THEIN DURNING, *HOW MUCH IS ENOUGH? THE CONSUMER SOCIETY AND THE FUTURE OF THE EARTH* 122 (1992).

⁷⁰ See JACOBSON & MAZUR, *supra* note 68, at 15.

⁷¹ See, e.g., Robert E. Lane, *The Road Not Taken: Friendship, Consumerism, and Happiness*, 8 CRITICAL REV. 521 (1994) (examining the destructive relationship between consumerism and societal depression).

⁷² See, e.g., Richard W. Pollay, *The Distorted Mirror: Reflections on the Unintended Consequences of Advertising*, J. MARKETING, Apr. 1986, at 18, 26-27.

for the environmental costs of consumption.⁷³ Whether these charges are accurate, they nonetheless indicate that the effects of the consumer culture are far more complicated than classical economics would admit. As Galbraith puts it, “[e]conomists, one could only conclude, did not (still do not) watch television.”⁷⁴

Although we find this debate over the ultimate impact of advertising fascinating, our purpose here is far more limited: to show that manufacturers have in place a well-funded and extensive research system for studying consumer behavior. In fact, they have the fruits of \$8 billion per year in marketing research expenditures when it comes to understanding consumer behavior and psychology.⁷⁵ The resulting studies and analyses provide the tools that manufacturers need to shape consumer perceptions of their products, to alter consumer behavior in the purchasing context, and to influence consumer-safety risk assessments.⁷⁶ Moreover, as one can see, this research substantially overlaps with general behavioral research. Sometimes this overlap is explicit: a recent textbook on consumer behavior, for instance, included an entire section on “Heuristics.”⁷⁷ Even without an explicit reference, perusal of the literature gives one a sense that marketing researchers are keenly aware of the works of Kahneman, Tversky, and other behavioral researchers. Indeed, Tversky once remarked that his findings would have been familiar to “advertisers and used-car salesmen,” even though his findings were not familiar to classical economists.⁷⁸

B. Evidence of Manufacturer Manipulation of General Product Perceptions

We have stressed that manufacturers invest \$8 billion per year studying consumer psychology and behavior, but do they ever put the resulting knowledge into practice? Do they, in other words, actually manipulate consumer risk perceptions and preferences? In this section, we offer evidence that they do. Our evidence is primarily con-

⁷³ See, e.g., DURNING, *supra* note 69, at 49–61.

⁷⁴ Galbraith, *supra* note 64, at xxi.

⁷⁵ See *supra* p. 1429.

⁷⁶ One might also argue that the competitive market drives out fruitless research investments, so that the continued practice of marketing research is evidence of its veracity. See *infra* pp. 1507–09.

⁷⁷ See STATT, *supra* note 42, at 228–301; see also Irwin P. Levin & Gary J. Gaeth, *How Consumers Are Affected by the Framing of Attribute Information Before and After Consuming the Product*, 15 J. CONSUMER RES. 374, 377–78 (1988) (framing effects); Itamar Simonson, *Choice Based on Reasons: The Case of Attraction and Compromise Effects*, 16 J. CONSUMER RES. 158, 170–72 (1989) (context effects); Itamar Simonson & Amos Tversky, *Choice in Context: Tradeoff Contrast and Extremeness Aversion*, 29 J. MARKETING RES. 281, 281 (1992) (context effects); Richard Thaler, *Toward a Positive Theory of Consumer Choice*, 1 J. ECON. BEHAV. & ORG. 39, 43–47 (1980) (endowment effects).

⁷⁸ Roger Lowenstein, *Outsider Who Challenged Dismal Science*, WALL ST. J., June 6, 1996, at C1 (quoting Tversky) (internal quotation marks omitted).

fined to two particular product markets: the gas station and the supermarket. We have selected these markets because intuition suggests that gas and grocery shopping would present relatively few opportunities for perceptual manipulation — after all, for most consumers, these purchases are the most frequent ones that they make. If there were any places where consumers should be savvy to manufacturer manipulation, they would be the supermarket and the gas pump.⁷⁹ The truth, however, is disappointing.

Before turning to those markets, we offer two examples of manipulation from a market that almost everyone recognizes as employing manipulative tactics — the market for used cars. As most used-car sellers know, potential customers should never be shown just one car.⁸⁰ When the seller introduces irrelevant options, the consumer becomes biased in favor of options that she originally disfavored.⁸¹ Thus, the car that did not seem attractive at first becomes more attractive as additional cars are added to the mix. An equally popular tactic among car dealers is to display a sticker price prominently on each car. Almost everyone knows that the eventual sale price will be less than the sticker price, but the dealer nonetheless gains an advantage from setting the initial price. Why? Because, as Kahneman and Tversky note, the final price will be biased *toward* the “anchor,” in the dealer’s favor.⁸² Unlike openly fraudulent tactics, such as turning back the

⁷⁹ We acknowledge that there is an alternative view: because grocery purchases tend to involve small dollar amounts, consumers’ incentives to ferret out exploitation may be comparatively weak. Our own view is that the repeat-purchase nature of gas and grocery shopping might counteract that factor. Uncovering a particular manipulative practice may save the consumer only a few cents per item, but over a year or a lifetime of purchases, the savings should add up significantly. In any event, other products liability scholars have maintained that the information problem facing consumers is not as great as it might seem because of the repeated purchases that consumers make of the same products. See, e.g., Patricia M. Danzon, *Comments on Landes and Posner: A Positive Economic Analysis of Products Liability*, 14 J. LEGAL STUD. 569, 572 (1985) (“Thus for many common consumer products, repeat purchase undermines the argument that it is not rational for consumers to process information about low-probability events.”); Epstein, *supra* note 5, at 2204 (“[T]he de minimis argument is flawed, for while the frequency of accidents may be low, the number of repeat purchases is very large, so that contracting with the consumer would be worthwhile if the manufacturers wanted to disclaim the risk.”). Moreover, even assuming that consumers might not recognize these long-term benefits (quite likely, given myopic discounting, see Hanson & Kysar, *TBS I*, *supra* note 11, at notes 211–18 and accompanying text), the sheer frequency and duration of the gas and grocery purchasing experiences should give the consumer ample opportunity to uncover manipulation, regardless of how small the potential savings. After all, what else does one do while waiting at the pump? Finally, we hasten to mention that when selling automobiles and homes — two consumer purchases presenting a far greater potential for savings — retailers appear to adopt many of the same practices found at supermarkets and gas stations. See *infra* p. 1442. Thus, it would appear that manipulative practices persist in both high-frequency, low-cost markets and in low-frequency, high-cost markets.

⁸⁰ See Lowenstein, *supra* note 78, at C1.

⁸¹ See Hanson & Kysar, *TBS I*, *supra* note 11, at note 483 and accompanying text.

⁸² See *id.* at notes 158–63 and accompanying text (describing the anchoring effect). For the same reason, consumer guides to automobile purchasing typically recommend that consumers ob-

odometer, those two tactics represent examples of more subtle, cognitive manipulation — manipulation that most consumers do not experience as such.

The consumer encounters similar tactics at the next stop after her car purchase, the gas station. Much attention has been given to the notion of offering cash discounts rather than credit card premiums.⁸³ “Indeed, the credit card lobby is said to insist that any price difference between cash and card purchases should be labeled a cash discount rather than a credit surcharge.”⁸⁴ The credit card industry does so because a “cash discount” takes advantage of framing effects. As we discussed in our companion article, the frame within which information is presented can significantly alter one’s perception of that information, especially when one can perceive the information as a gain or a loss.⁸⁵ By avoiding the perception that paying by credit card results in a loss, gas retailers also avoid a decrease in demand from credit card consumers.

Another notable pricing tradition among gas stations is the extra nine-tenths of a cent that retailers add to the price of each gallon of gas. It is a common tactic among all retailers to set prices below some “round” number (for example, \$1.99, \$4.95, \$0.99). Marketing researchers recently offered the following explanation for this phenomenon:

In the terms of [Kahneman and Tversky’s] prospect theory, the high accessibility of the 0-ending round-number price may cause a 9-ending price to be framed as a round-number amount along with a small gain. Because of prospect theory’s negatively accelerated function for the value of gains, the perception of a small gain would be expected to improve the

tain information on the dealer’s invoice price. These guides are arguably encouraging consumers, rather than dealers, to drop the bargaining anchor.

⁸³ See, e.g., Jimmy Thornton, *Law Bans Credit Surcharges, Not Cash Discounts*, SAN DIEGO UNION-TRIB., Oct. 31, 1985, at E2 available in LEXIS, News Library, SDUT File (noting that California has joined six other states in banning the practice of charging credit card premiums over and above a posted price, but not the practice of offering cash discounts below the posted price).

⁸⁴ Amos Tversky & Daniel Kahneman, *Rational Choice and the Framing of Decisions*, 59 J. BUS. S254, S261 (1986).

⁸⁵ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 242–43 and accompanying text. Some commentators have explained the discount/surcharge disparity in terms of prospect theory:

Station A wisely suggests a higher regular price (\$1.30) as an implicit reference point for buyers and then rewards buyers who pay cash with a discount, that is, a *gain* relative to the reference point. But station B unknowingly turns buyers away by framing its price differently. It establishes a lower regular price (\$1.20) as a reference point and then penalizes buyers who use credit cards with a perceived *loss*.

Gerald E. Smith & Thomas T. Nagle, *Frames of Reference and Buyers’ Perception of Price and Value*, 38 CAL. MGMT. REV. 98, 100 (1995).

evaluation of a price to a degree disproportionate to the perceived gain's small size.⁸⁶

In other words, consumers think they are getting a better deal than they really are. How else could one explain the fact that in one study unit sales of margarine increased only sixty-five percent when the price was reduced from \$0.89 to \$0.71, but soared a whopping 222% when the price was dropped to \$0.69?⁸⁷

The addition of *nine-tenths* of a cent, however, seems unique to gas stations. The custom appears to capitalize on what one commentator calls "probability blindness near the extremes."⁸⁸ This phenomenon can be explained with a simple illustration: "[W]e are ready to pay good money for a lottery ticket that gives us a 99 percent chance to win a coveted prize, but are *not* ready to pay a penny more to increase that probability to 99.9 percent. We do not *see* the difference."⁸⁹ Similarly, when gas retailers price their product at \$1.19⁹, they may be counting on consumers' inability to perceive the difference between that price and \$1.19, thereby exacting an extra nine-tenths of a cent from consumers with every gallon of gas. Indeed, if one considers that price blindness might extend to the second decimal place as well as the third, then gas station operators may be extracting far more. For instance, if consumers cannot perceive the difference between \$1.15 and \$1.19⁹, then they forfeit four and nine-tenths cents with every gallon.

Although one might think that this last example is less plausible than consumers' failure to see the superscripted "9" at the gas station, there are reasons to believe that consumers display price blindness in a variety of pricing contexts. Indeed, even in the contexts of car sales and home sales — probably the two largest and most deliberative purchases that most consumers make — we see the same pricing strategy that we find at the gas station. Casual perusal of home ads in any newspaper, for example, will reveal that home sellers typically ask an amount below some "round" number (for instance, \$195,000). In this manner, they take advantage not only of price blindness at the extremes, but also of consumers' mental accounting habit of setting a budget limit prior to searching for a house.⁹⁰ Because home buyers generally set this limit at a "round" number (for instance, \$200,000), the home will remain within the consumer's buying range. What is significant is that the home may be worth, and the consumer may value it at only, say, \$187,000. Through the combination of price blindness and mental accounting forces, however, the consumer will

⁸⁶ Robert M. Schindler & Patrick N. Kirby, *Patterns of Rightmost Digits Used in Advertised Prices: Implications for Nine-Ending Effects*, 24 J. CONSUMER RES. 192, 193 (1997) (citations omitted) (citing research by Kahneman and Tversky, as well as by Thaler).

⁸⁷ See Smith & Nagle, *supra* note 85, at 110 tbl.3.

⁸⁸ Piatelli-Palmarini, *supra* note 13, at 33.

⁸⁹ *Id.* at 33-34.

⁹⁰ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 506-23 and accompanying text.

find the \$195,000 price agreeable — or at least far more palatable than a price of, say, \$201,000.

The foregoing discussion of pricing customs highlights the somewhat imprecise nature of identifying manufacturer manipulation. Citing four prominent marketing researchers and a principal research associate at M.I.T.'s Center for Cognitive Science, we have offered three different explanations for the omnipresent practice of putting a "9" in the right-most digit of any price. Despite this lack of consensus among expert observers on the rationale for the practice, the reader should note that one group *is* in agreement about the *value* of the practice — manufacturers and retailers. For whatever reason, the market has evolved to a point at which only manufacturers who capitalize on the pricing practices have survived, an indication of the practices' ability to increase sales. We therefore believe that this pricing example illustrates the potential of manipulative manufacturer tactics to outpace the understanding of behavioral researchers, a possibility we raised in our companion article.⁹¹

One might object to the superscripted "9" at the gas station as a fairly tame example. Consumer demand may be inelastic over that nine-tenths of a cent anyway, such that the manipulation has no real impact. Consider, then, the case of high octane fuel: oil company advertising has led many consumers to conclude that such premium fuel will make their car start more easily, get better mileage, and last longer.⁹² Oil industry officials acknowledge, however, that only vehicles with high-performance engines (less than ten percent of the market) actually benefit from high-octane fuel.⁹³ The result is that consumers are sold between \$1 billion and \$3 billion worth of high-octane gas that they do not need.⁹⁴ The Federal Trade Commission (FTC) has been aggressively challenging this practice for some time. A recent settlement with Exxon required the company to undertake an educational marketing campaign that explains to consumers that high-octane gas will not improve performance in most vehicles.⁹⁵ The practice persists, however, and consumers continue to purchase high-octane fuel in far greater numbers than could possibly benefit from the premium gasoline. We suspect that this industry practice results in a so-

⁹¹ See *id.* at notes 448–49 and accompanying text.

⁹² See SOLOMON, *supra* note 24, at 22.

⁹³ See Matthew L. Wald, *Looking for Savings as Gas Prices Rise*, N.Y. TIMES, May 27, 1989, at 48, 48. Indeed, one advertising executive speculates that the only purpose for buying higher-octane fuel is "the use of premium as an expression of self-worth." *Id.*

⁹⁴ See, e.g., Chris Reidy, *FTC, Exxon Settle Gas Ad Dispute*, BOSTON GLOBE, Sept. 18, 1997, at C2 (quoting American Automobile Association estimates that "US motorists have spent \$1.7 billion a year more than necessary").

⁹⁵ See FTC, *Exxon Settles FTC Charges — Ground-Breaking Educational Ad Campaign Ordered* (June 24, 1997) (news release available at <<http://ftc.gov/opa/1997/9706/exxon.html>>) (on file with the Harvard Law School Library).

cial loss more serious than the nine-tenths of a cent described above. Equally serious, perhaps, is another way in which gas station operators may replicate behavioral research concepts to manipulate consumer perceptions: by offering several different grades of octane, gas station operators may be taking advantage of the irrelevant-third-option effect. For example, even if consumers prefer eighty-seven octane fuel when their choice is between eighty-seven and eighty-nine, they may opt in favor of eighty-nine when sellers introduce a third option, ninety-three octane fuel.⁹⁶

The lesson from this brief trip to the gas station is simple: in a very competitive market in which we all make routine yet significant purchases, there are numerous overt forms of manipulation that consumers do not perceive as manipulation. We find the fact that such practices are obvious yet undetected to be extremely revealing. In our view, it represents fairly strong evidence that manufacturers are capable of manipulating consumer perceptions in just the manner predicted by the model in our companion article.

The gas station, however, is marketing child's play when compared to the consumer's next stop, the modern supermarket. In large part because the market for groceries in the United States is so sizable and competitive, marketing researchers have devoted more attention to the supermarket than to any other retail environment. The cumulative result of their efforts is a marketing marvel, a shopping climate scientifically calibrated to induce as many unplanned purchases as can possibly be wrought from the "sovereign" consumer. We discuss this phenomenon in depth, because we believe it vividly illustrates consumer susceptibility to manipulation. A market capable of producing the modern supermarket is a market capable of untold manipulation.

The experience begins the moment one walks through the automatic doors. In that instant, one is first exposed to *atmospherics*, the "conscious designing of space to create certain effects in buyers."⁹⁷ The goal, of course, is to induce in the consumer a particular state predisposed to relaxed consumption: "[Atmospheric] factors . . . may be designed into or manipulated within retail spaces in order to produce emotional and, in turn, behavioral effects in consumers."⁹⁸ This design is not mere speculative showmanship on the part of retailers. By studying psychological analyses of mood states, marketers have determined that "a mood state (either positive or negative) biases judgments

⁹⁶ Many consumers would be surprised to learn that gas stations typically use only two different grades of fuel to deliver several options. Thus, a station offering 87, 89, 91, and 93-octane fuel might have only tanks containing 87 and 93 and blend those two grades to get 89 and 91. See IVAN L. PRESTON, *THE GREAT AMERICAN BLOW-UP: PUFFERY IN ADVERTISING AND SELLING* 106-07 (1996).

⁹⁷ Philip Kotler, *Atmospherics as a Marketing Tool*, 49 J. RETAILING, Winter 1973-1974, at 48, 50.

⁹⁸ FOXALL & GOLDSMITH, *supra* note 44, at 189.

of products and services in that direction."⁹⁹ Therefore, a consumer in a positive mood "pay[s] less attention to specifics of the message and *rel[ies] more on heuristic processing.*"¹⁰⁰ That is, by inducing the proper mood, retailers can encourage the use of heuristics, or market beliefs, in shoppers. As we observe in section A, the use of heuristics by consumers creates an opportunity for manipulation by manufacturers.¹⁰¹ Moreover, as we explained in our companion article, developing *positive affect* within consumers with respect to a particular product or a particular shopping venue can greatly enhance the perceived utility — and significantly lower the perceived risk — that those consumers attribute to the product or the shopping venue.¹⁰² Thus, when marketers seek to manipulate consumer "mood states," they are attempting to capitalize on the nonrational, experiential mode of information processing that consumers utilize when in affective response modes.¹⁰³

Atmospherics can encompass a wide range of manipulable factors: "The ability of physical surroundings to shape consumer behavior is nowhere greater than in retail environments. The range of social, physical and temporal features . . . which . . . impinge on consumer behavior in such environments is enormous: lighting, aisle width, store size, heating, crowdedness and so on."¹⁰⁴ Atmospherics involve more than just knowing that blue color schemes impart calm sensations¹⁰⁵ and that shoppers "walk more slowly and spend more time when the music is slow in tempo."¹⁰⁶ They also involve knowing that piped aromas (fake, of course) can increase bakery sales¹⁰⁷ and that a butcher's white apron should never be blood-stained.¹⁰⁸ They involve knowing that deli selections can be used to create the illusion of

⁹⁹ SOLOMON, *supra* note 24, at 311.

¹⁰⁰ *Id.* at 313.

¹⁰¹ See *supra* p. 1432.

¹⁰² See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 475-78 and accompanying text.

¹⁰³ *Id.*

¹⁰⁴ FOXALL & GOLDSMITH, *supra* note 44, at 175.

¹⁰⁵ See Joseph A. Bellizzi & Robert E. Hite, *Environmental Color, Consumer Feelings, and Purchase Likelihood*, 9 *PSYCHOL. & MARKETING* 347, 359-61 (1992).

¹⁰⁶ STATT, *supra* note 42, at 245-46. Although the effects of "functional music" such as Muzak on shoppers are fairly well-known, some applications are less familiar:

Research shows that workers tend to slow down during midmorning and midafternoon, so Muzak uses a system it calls "stimulus progression," in which the tempo of its music increases during those slack times. Muzak has been linked to reductions in absenteeism among factory workers, and even the milk and egg output of cows and chickens is claimed to increase under its influence.

SOLOMON, *supra* note 24, at 48.

¹⁰⁷ This phenomenon has been recognized by George Loewenstein, whose account of *visceral forces* provides an explanation of such consumer behavior; Loewenstein also proposes to incorporate those forces into standard economic analysis. See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 229-41 (summarizing Loewenstein's work on visceral factors).

¹⁰⁸ See Jack Hitt, *The Theory of Supermarkets*, N.Y. TIMES, Mar. 10, 1996, § 6 (Magazine), at 56.

choice¹⁰⁹ and that spraying water on waxed produce can cause visceral improvements in customer perception. In short, they are about “store gestalt.”¹¹⁰

The aim of atmospheric, like all supermarket sleights-of-hand, is to maximize unplanned purchases. Observers estimate that two out of every three supermarket purchases are not planned.¹¹¹ For some products the ratio is even higher: “[Approximately] 85 percent of candy and gum, almost 70 percent of cosmetics, and 75 percent of oral hygiene purchases are unplanned.”¹¹² However, just because a purchase is unplanned does not mean that it is irrational or suboptimal. Researchers attribute approximately one-third of unplanned buying to in-store recognition of new needs.¹¹³ Still, combining this figure with the earlier report that two-thirds of all supermarket purchases are unplanned indicates that fully forty-four percent of all supermarket purchases can be considered *impulse buying*, or *splurchases* as they are known in the trade. This statistic is not surprising because the average time to make buying decisions in a supermarket is a matter of seconds.¹¹⁴ Even when products require label reading, the decision to buy takes an average of only thirty-eight seconds.¹¹⁵ The aim of supermarket science, therefore, “is to use merchandising techniques that maximize the number of opportunities for impulse buying.”¹¹⁶ Careful manipulation of atmospheric is only the beginning of that odyssey.

An enormous amount of attention has also been paid to in-store advertising. For instance, manufacturers spend \$13 billion each year for *point-of-purchase stimuli* to induce impulse shopping.¹¹⁷ Point-of-purchase stimuli range from simple product displays or coupon dispensers to elaborate retail theaters.¹¹⁸ For example, the manufacturers of Charmin built on their “Don’t squeeze the Charmin” theme by deploying the Charmin Squeeze Squad to hide behind stacks of toilet tissue and jump out, blowing horns at unsuspecting squeezers. Marketers working for a rat poison company devised a rat funeral —

¹⁰⁹ See *id.* at 57 (describing the use of imported cheeses as visual stimuli rather than as potential sales because “the luxury of feeling consumed by that blizzard of choice only gained its pleasure from the security of not having to make one”); see also STATT, *supra* note 42, at 284 (noting that in Britain, nine different varieties of apples are typically available in supermarkets, although 2000 different varieties have actually been produced in Britain, reflecting a common “tendency to present the appearance of abundant choice while in fact drastically narrowing down the options available to the consumer”).

¹¹⁰ SOLOMON, *supra* note 24, at 317.

¹¹¹ See *id.* at 316.

¹¹² *Id.*

¹¹³ See *id.* at 317.

¹¹⁴ See K.W. Kendall & Ian Fenwick, *What Do You Learn Standing in a Supermarket Aisle?*, in 6 ADVANCES IN CONSUMER RESEARCH 153, 156 (William L. Wilkie ed., 1978).

¹¹⁵ See *id.*

¹¹⁶ STATT, *supra* note 42, at 247.

¹¹⁷ See SOLOMON, *supra* note 24, at 318.

¹¹⁸ See *id.* at 314.

complete with somber music and a black shroud for the deceased rodent — to promote its product. Elizabeth Arden designed a computer dubbed “Elizabeth” that allows customers to see their appearance with different makeup styles without actually applying the product.¹¹⁹ Although these point-of-purchase stimuli may seem to represent a lot of squandered creative energy, they have been shown to increase splurges by at least ten percent.¹²⁰ Other examples of in-store advertising include the following: audio product announcements over the supermarket’s existing Muzak system (Muzak claims that such techniques can increase sales by almost thirty percent in certain product categories, such as toothpaste and cold medicine);¹²¹ shopping carts with computer screens that automatically display advertisements in appropriate areas of the store;¹²² and the Checkout Channel, a television programming effort of the Turner Broadcasting System designed specifically for supermarkets.¹²³

Dead rats and toilet paper police seem like mere gimmicks when compared to the scientific exactitude with which the field of *product placement* is conducted. By now, many consumers understand that staples such as milk, bread, and eggs are placed at opposite extremes of the supermarket to force shoppers to cover as much store real estate as possible. Some consumers may also know that most produce aisles are designed as mazes to encourage meandering among the many fruits and vegetables on display (which are, of course, waxed and freshly sprayed for appearance). Of course, knowing of such techniques does not necessarily render one immune to their effects. Regardless, how many consumers would know that “many supermarkets have installed wider aisles to encourage browsing, and the widest tend to contain products with the highest margin”?¹²⁴ Or that aisle length is calibrated to encourage meandering down well-stocked corridors (because, of course, “customers within short aisled areas ma[ke] fewer impulse purchases”)?¹²⁵ Or that factors such as “block shape, aisle orientation, [and] linear checkout arrangements” are studied in order to determine the optimal tradeoff between store friendliness and traffic efficiency?¹²⁶ The point of these endeavors is simple: “Store managers use the layout of the store . . . to keep customers longer in the store with-

¹¹⁹ See *id.* at 320.

¹²⁰ See *id.* at 318; see also STATT, *supra* note 42, at 248 (“There is no question that sales of the products are often increased as a result of these displays.”).

¹²¹ See SOLOMON, *supra* note 24, at 319.

¹²² See *id.* at 320.

¹²³ See *id.*

¹²⁴ *Id.* at 318. Consumers purchase low-margin items frequently enough that they are willing to expend higher search costs; thus, these items are stacked inconveniently in narrow aisles. See *id.*

¹²⁵ FOXALL & GOLDSMITH, *supra* note 44, at 185.

¹²⁶ *Id.* at 184–85.

out irritating them."¹²⁷ Placing staples in the far corners of the store, although still a mainstay of supermarket management, is only the first step: "The layout and location of products in any retail outlet is used to lead shoppers along a particular route that will give them optimum exposure to what is on sale and maximum encouragement to buy it."¹²⁸

Having used store layout to maximize the customer's shopping time, managers turn to analyzing the effectiveness of shelves, aisles, and product displays within the selected layout. Some of this analysis is obvious: "At some point . . . [a] child will take the initiative to ask for a product or, if they have climbed out of the cart, toddle over and pick it out himself or herself. Grocers know this happens; *that's why children's brands are usually on the lowest shelves in the store.*"¹²⁹ Other shelving decisions require more thought: marketers have determined, through careful study, that the strongest selling areas in supermarkets are "the outer aisles, service areas (e.g., for vegetables, meat and bread), the start and end of the aisles, and the checkout area."¹³⁰ Readers will recognize immediately why the checkout area is a strong selling space — the inevitable checkout line wait encourages impulse buying. It is no coincidence that candy and gum, with an unplanned purchase rate of eighty-five percent, occupy the checkout gauntlet. The start and end of the aisles are prime store real estate for a similar reason: the process of turning between aisles forces shoppers to slow down, thereby garnering more eye exposure for the products lucky enough to occupy the corner space. Finally, it is common practice among supermarket retailers to place large items such as pet food, laundry detergent, and diapers in the final aisles that shoppers reach — because, of course, the large packages would otherwise have prevented the shopper from filling her cart with other items along the way.¹³¹

Even in the same aisle, not all space is equal. For example, the right side of the aisle is preferred to the left,¹³² and "[b]ecause the best viewing angle is 15 degrees below the horizontal, the choicest elevation on any aisle has been measured at 51 to 53 inches off the floor."¹³³ Not surprisingly then, "[s]tudies have shown that toothbrushes, if placed at eye level, will increase in sales by 8 percent."¹³⁴ Perhaps for such reasons, products with the highest per-unit price tend to be located on the right side of store aisles, at eye level. In addition, as we

¹²⁷ *Id.* at 185.

¹²⁸ STATT, *supra* note 42, at 248.

¹²⁹ GUBER & BERRY, *supra* note 20, at 117 (emphasis added).

¹³⁰ FOXALL & GOLDSMITH, *supra* note 44, at 185.

¹³¹ See WILLIAM RATHJE & CULLEN MURPHY, RUBBISH! THE ARCHAEOLOGY OF GARBAGE 152 (1992).

¹³² See FOXALL & GOLDSMITH, *supra* note 44, at 185.

¹³³ Hitt, *supra* note 108, at 59.

¹³⁴ *Id.*

mentioned in our previous article, marketing researchers have discovered that stocking soup cans out of alphabetical order can greatly increase sales by forcing customers to search through a variety of cans.¹³⁵ Perhaps mindful of this information, many supermarkets substantially rearrange all items throughout the store about twice a year. Yet another intra-aisle “behavior-triggering device[]”¹³⁶ consists of stocking merchandise in an “integrated” fashion, such as placing dips near chips. This technique can be especially effective when combined with other techniques. For example, high-margin crayons can be placed near lower-profit food items like children’s cereal (both on the lower shelves, of course).

Pricing has become still another method of manipulation. Supermarkets often price staples such as milk and eggs very competitively, counting on consumers to use the low milk or egg price as a proxy for other items in the store. This practice may be an example of Kahneman and Tversky’s law of small numbers; that is, the erroneous belief that a small sample of a population — the prices of milk and eggs — will yield representative results for the entire population — the prices of all items in the store.¹³⁷ A second type of price manipulation relies on what researchers have termed the *Just Noticeable Difference* (JND).¹³⁸ The JND refers to the fact that humans exhibit various thresholds of awareness such that a certain degree of change in a sensory stimulus is required before the change becomes noticeable to observers. Psychologists study these thresholds in labs using different degrees of light brightness or sound pitch; marketers use them to implement hidden price increases: “In order to keep the price of a product fairly stable manufacturers will often decrease its size, in increments carefully calibrated to be less than the consumer’s JND.”¹³⁹ Similarly, at the low end of certain product markets, where sensitivity to quality is less acute, manufacturers can respond to increased costs by degrading quality — again, below the consumer’s JND.¹⁴⁰

Marketers can even use price *discounts* to manipulate consumers. Apparently, “for many shoppers it is the *idea* rather than the actuality

¹³⁵ See Hanson & Kysar, *TBS I*, *supra* note 11, at note 545 and accompanying text; Hitt, *supra* note 108, at 58.

¹³⁶ FOXALL & GOLDSMITH, *supra* note 44, at 185.

¹³⁷ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 149–52 and accompanying text.

¹³⁸ See STATT, *supra* note 42, at 45.

¹³⁹ *Id.* This strategy of product down-sizing is ubiquitous. An investigation by the New York Attorney General’s office in 1991 discovered 29 down-sized products on grocery shelves next to their former, larger incarnations. See Martin Sloane, *Reducing Product Sizes Is a Growing Practice*, Hous. Chron., May 22, 1991, at 4. Culprits included Rice-a-Roni (down 15% from 8 to 6.8 ounces), Hershey’s chocolate milk mix (down 9.4% from 16 to 14.5 ounces), and Ragu spaghetti sauce (down 9.7% from 15.5 to 14 ounces). See *id.* In each case, the product’s price and package appearance remained the same. See *id.*

¹⁴⁰ See STATT, *supra* note 42, at 45 (describing the use of such a tactic for lowest-grade tea bags and instant coffee).

of the 'good deal' that seems to be important."¹⁴¹ Armed with this knowledge, marketers can employ a host of techniques to convey the idea of a good deal, without actually offering one. For instance, one can often find eye-catching signs marked "Special" placed on supermarket items that are not on sale. One study determined that forty percent of supermarket shoppers did not check the price of goods they chose, and less than half could identify the price of goods that they had just put in their shopping cart.¹⁴² Thus, one can see how a seemingly obvious tactic, such as marking products "Special," can nevertheless be an effective device for boosting sales. Manufacturers offer product rebates for a similar reason: only five to ten percent of product purchasers actually redeem them.¹⁴³ At the time of purchase, however, consumers anticipate the rebate and *perceive* the sticker price as lower.

The foregoing discussion indicates that the study of opportunities for supermarket manipulation is a serious and fruitful affair: "The potential of these sources of influence over consumer behavior should not be underestimated, as they are readily usable techniques. They are particularly appealing to store owners and managers as they form one of the most cost-effective tools for generating increases in sales."¹⁴⁴ We believe that this sustained and deliberate strategy to induce impulse purchases represents strong evidence of manufacturer manipulation of consumer perceptions. The problem is not simply that supermarkets attempt to bias consumer decisions, but also that they do so with a battery of behavioral studies and psychological analyses at their disposal.¹⁴⁵ There seems to be no reason that manufacturers could not employ this same methodology to shape consumer risk perceptions. Indeed, in light of consumers' apparent susceptibility to manipulation of other product-attribute perceptions, it would be inexplicable if manufacturers did *not* attempt to engage in similar manipulation of risk perceptions. In the next section, we provide some modest evidence of precisely that type of manipulation.

¹⁴¹ *Id.* at 248.

¹⁴² See P.R. Dickson & A.G. Sawyer, *The Price Knowledge and Search of Supermarket Shoppers*, J. MARKETING, July 1990, at 42, 42.

¹⁴³ See William M. Bulkeley, *Rebates' Secret Appeal to Manufacturers: Few Consumers Actually Redeem Them*, WALL ST. J., Feb. 10, 1998, at B1.

¹⁴⁴ FOXALL & GOLDSMITH, *supra* note 44, at 185 (citation omitted).

¹⁴⁵ Indeed, as we argue above on page 1427, one sometimes gets the impression that marketing researchers are discovering consumer behavioral quirks faster than behavioral researchers can explain them. For instance, although marketing researchers have discovered that placing a "limit" of twelve cans of soup per person can cause soup sales nearly to double, the behavioral literature does not seem to supply a ready explanation for this odd increase in demand. See Pamela Sebastian, *Three-for-\$3 and Other Numerical Pitches Work Marketing Magic in Stores*, WALL ST. J., Mar. 12, 1998, at A1 (summarizing a study by researchers at the University of Illinois, Urbana-Champaign). The simple idea that the "limit" creates an illusion of scarcity does not seem to capture the phenomenon.

*C. Evidence of Manufacturer Manipulation
of Product Risk Perceptions*

Although we believe that the evidence presented in sections A and B of this Part is strongly suggestive of manufacturer manipulation of product risk perceptions, we admit that the evidence is only indirect. We argue that because consumers display susceptibility to manipulation in many features of product perception, we can also expect them to be susceptible to manipulation of product risk perceptions. This conclusion may not follow if manufacturers face particularly strong disincentives to manipulate these perceptions in particular. For instance, manufacturers might restrain their manipulative impulses in the belief that FTC or Food and Drug Administration (FDA) regulations prohibit such manipulative practices. Or they might feel the pinch of morals that counsel against manipulative conduct. Our general response to that possibility, which we explore in Part III, is simple, if disheartening: no force exerts a more significant influence on manufacturer behavior than the force of the market. Neither the administrative rules of government nor the inner tenets of morality can match the power of market forces to compel manipulation by manufacturers — and the market, of course, demands manipulation of both risk and non-risk perceptions. The evidence that we present in this section supports that contention directly by recounting a variety of incidents of deceptive or manipulative conduct aimed squarely at influencing consumer risk perceptions.

1. *Food Products.* — One way in which “an adroit marketer can influence the buyer’s perception”¹⁴⁶ is through the use of framing effects, which refer to the tendency for information format (as opposed to content) to influence perceptions and behavior.¹⁴⁷ Manufacturers of food products, for instance, have learned that labeling a food product seventy-five percent non-fat instead of twenty-five percent fat can greatly increase sales.¹⁴⁸ If consumers behaved rationally with respect to product risk attributes, then sales figures would be unchanged regardless of the frame that marketers used to present nutritional information. Nonetheless, consumers do *not* behave rationally in this respect — frames *do* matter in product perceptions — and manufacturers are well aware of that fact. Consumers’ response to framing effects is of crucial importance to our analysis, because the fat content of a food product can pose a serious health risk to consumers. If consumers purchase more of a food item when it is framed as seventy-five percent non-fat rather than as twenty-five percent fat, then we have reason to suspect that manufacturers are framing consumer

¹⁴⁶ Smith & Nagle, *supra* note 85, at 114.

¹⁴⁷ See *supra* Hanson & Kysar, *TBS I*, *supra* note 11, at 242–50.

¹⁴⁸ See SUTHERLAND, *supra* note 23, at 21.

risk perceptions and that consumer consumption levels may be in excess of the optimal level.¹⁴⁹

As more consumers have become aware that food products raise health and safety issues,¹⁵⁰ manufacturers have attempted to depict their product as a "health food," even when that depiction is inaccurate. Consider three manufacturer claims, each of which recently prompted action by the FTC:

The operators of Pizzeria Uno, a national restaurant chain, reached a settlement with the FTC over claims that they had advertised their thin crust pizza as "low-fat" when in fact the pizza contained up to thirty-six grams of fat per serving — an amount well above both FTC and FDA guidelines for "low-fat" claims.¹⁵¹ When the makers of Mazola Corn Oil suggested that "eating chicken fried in Mazola oil or margarine reduces serum cholesterol,"¹⁵² the FTC stepped in to require that the company provide further relevant information to consumers, including the fact that only a diet generally low in saturated fats and cholesterol could achieve the claimed health effects.¹⁵³ The FTC also challenged the "Soup Is Good Food" advertising campaign of the Campbell Soup Company for claiming that Campbell's soups "may help reduce the risk of some forms of heart disease,"¹⁵⁴ when many of the extolled soups contained sodium levels above FDA recommended levels. Because the Campbell's campaign failed to disclose both the sodium levels of the soups and the link between high-sodium diets and heart disease, the FTC deemed it misleading.¹⁵⁵

¹⁴⁹ Such considerations may have led the state of Maryland to force the Mid-Atlantic Milk Marketing Association to agree to refrain from advertising that whole milk is "less than 4% fat" or otherwise representing that milk is a low-fat food. NATIONAL ASS'N OF ATTORNEYS GEN., CONSUMER PROTECTION REP., Oct. 1988, at 7. It seems that the "4%" refers to weight, not to calories, and that when the fat content of whole milk is measured as a proportion of calories, the product fails federal low-fat guidelines by a wide margin. Cf. Judith Blake, *2 Percent is Not as Lean as 'Lowfat' Label Implies*, SEATTLE TIMES, Sept. 20, 1995, at F1 (noting that 2% low-fat milk, when measured as a proportion of calories, becomes 38% fat milk).

¹⁵⁰ See, e.g., Richard M. Cooper, Richard L. Frank & Michael J. O'Flaherty, *History of Health Claims Regulation*, 45 FOOD DRUG COSM. L.J. 655, 657 (1990) (noting that "[t]here is no doubt that the growth of knowledge and information about the relationships between diet and health has resulted in important changes in the American diet").

¹⁵¹ See Charles R. Whitt, *Pizzeria Uno Restaurant Chain Settles FTC Charges of Misleading "Low Fat" Thin Crust Pizza Ads*, 9 LOY. CONSUMER L. REP. 2, 2-3 (1997).

¹⁵² Elisabeth A. Sachs, *Health Claims in the Marketplace: The Future of the FDA and the FTC's Regulatory Split*, 48 FOOD & DRUG L.J. 263, 277 (1993).

¹⁵³ See CPC International, Inc., 56 Fed. Reg. 5693, 5693 (F.T.C. 1991) (consent order); CPC International, Inc., 55 Fed. Reg. 25,371, 25,371-72 (F.T.C. 1990) (proposed consent agreement).

¹⁵⁴ Cooper, Frank & O'Flaherty, *supra* note 150, at 670.

¹⁵⁵ See Campbell Soup Co., 57 Fed. Reg. 39,687, 39,687 (F.T.C. 1992) (consent order); Campbell Soup Co., 56 Fed. Reg. 15,880, 15,880-81 (F.T.C. 1991) (proposed consent agreement).

Health claims¹⁵⁶ such as those described above are nothing new in advertising. In 1927, the William J. Wrigley Company penned this poem for its chewing gum:

Little Miss Muffet
Sits on a tuffet
Eating of curds and whey;
After she's through
She will Double Mint chew —
It keeps indigestion away!¹⁵⁷

Modern practices are somewhat more sophisticated. Advertisers frequently appeal to the authority of experts or to scientific studies because, “[t]o the modern consumer, information labeled as ‘scientifically proven’ often assumes a posture of ‘mystic infallibility.’”¹⁵⁸ This consumer reverence creates an opportunity for manipulation. For instance, the manufacturers of Gerber baby food products recently agreed to stop claiming that four out of five pediatricians recommended Gerber products, after an FTC investigation revealed that only twelve percent of surveyed pediatricians recommended Gerber. The company left out pediatricians who did not recommend using baby food at all.¹⁵⁹ Likewise, the nation’s largest food supplement manufacturer, General Nutrition, Inc., paid a fine of \$2.4 million to settle FTC charges that it “failed to substantiate disease-treatment, weight-loss, muscle-building, and endurance claims for over forty products.”¹⁶⁰

As a result of practices like these, the FTC and the FDA have developed a complex regulatory relationship in an effort to ensure that product labels and advertisements are not misleading or deceptive.¹⁶¹ Nevertheless, with health messages included in over \$1 billion worth

¹⁵⁶ Regulations promulgated under the Nutrition Labeling and Education Act of 1990, 21 U.S.C. §§ 321, 337, 343, 343-1, 345, 371 (1994), define “health claims”:

Any claim . . . that expressly or by implication, including “third party” references, written statements . . . , symbols (e.g., a heart symbol), or vignettes, characterize the relationship of any substance to a disease or health-related condition. Implied health claims include those statements, symbols, vignettes, or other forms of communication that suggest, within the context in which they are presented, that a relationship exists between the presence or level of a substance in the food and a disease or health-related condition.

²¹ C.F.R. § 101.14(a)(1) (1998).

¹⁵⁷ Cooper, Frank & O’Flaherty, *supra* note 150, at 656.

¹⁵⁸ Charles J. Walsh & Marc S. Klein, *From Dog Food to Prescription Drug Advertising: Litigating False Scientific Establishment Claims Under the Lanham Act*, 22 SETON HALL L. REV. 389, 392 (1992).

¹⁵⁹ See Gerber Prods. Co., 123 F.T.C. 1365, 1374-76 (1997).

¹⁶⁰ Justin Dingfelder & Sandra Brickel, *To Protect Consumers, the FTC Means Business*, 45 FED. LAW. 24, 27 (1998).

¹⁶¹ See generally Douglas W. Hyman, *The Regulation of Health Claims in Food Advertising: Have the FTC and the FDA Finally Reached a Common Ground?*, 51 FOOD & DRUG L.J. 191 (1996) (reviewing the regulations).

of food advertising in the United States each year,¹⁶² it is difficult for the agencies to conduct an adequate review of food product advertisements. The effect has been that “[d]eceptive ads for foods or supplements are a dime a dozen.”¹⁶³ The cumulative impact of these numerous health claims by food product manufacturers is staggering. As one consumer psychology textbook author writes, “not only do buyers have to ‘beware’, they really have constantly to scrutinize and assess all the advertising, labeling and packaging of virtually everything they pick up in the supermarket — and a PhD in nutrition would be of great help too.”¹⁶⁴ That informational onus complicates the consumer’s already daunting task, as we describe above in section B, of navigating the impulse-purchasing labyrinth created by supermarket managers.

Under those circumstances — packaged-foods manufacturers and supermarket retailers conspiring to create a weekly ritual of misguided consumption — it is naïve to presume that consumers can rationally process all the information necessary to optimize their purchases. Perhaps the informational challenge facing consumers partly explains why the incidence of obesity has risen in recent years to become one of America’s most significant health threats.¹⁶⁵ A national survey conducted by Dr. C. Everett Koop’s nonprofit organization, Shape Up America!, revealed that although sixty-seven percent of obese respondents knew that limiting fat intake could provide numerous health benefits, about seventy percent were unknowingly consuming foods high in fat.¹⁶⁶ The health threats presented by this type of misperception are not limited to obesity: in a survey conducted by the manufacturers of Green Giant products, ninety-five percent of respondents had difficulty identifying high-sodium foods.¹⁶⁷ Thus, consumer misperceptions could affect the occurrence of heart disease as well as obesity. Indeed, when “you find a household name like Quaker Oats willing to claim, untruthfully, that its bran cereals reduce the risk of heart attack,”¹⁶⁸ it is easy to see how consumers might become confused about many aspects of dietary health.

¹⁶² See *FDA’s Continuing Failure to Regulate Health Claims for Food: Hearings Before the Subcomm. on Human Resources and Intergovernmental Relations of the House Comm. on Gov’t Relations*, 101st Cong. 2 (1989) (statement of Rep. Ted Weiss, chairman).

¹⁶³ *Ad Nausea*, NUTRITION ACTION, Sept. 1997, at 3, 3.

¹⁶⁴ STATT, *supra* note 42, at 282.

¹⁶⁵ See David Schardt, *How’s Your Weight?*, NUTRITION ACTION, Dec. 1997, at 11 (summarizing studies indicating that 59% of men and 50% of women in America are “overweight” or “obese” under World Health Organization standards and collecting evidence of ill health effects of obesity).

¹⁶⁶ See Denise Mann, *Web Site Offers Hints on Dieting*, ARIZ. REPUBLIC, May 29, 1997, at HL4 (summarizing study) (available at <<http://newslibrary.krmediastream.com>>) (on file with the Harvard Law School Library).

¹⁶⁷ See Libby Clark, *Consumers Unaware of the Salt in Their Food*, L.A. SENTINEL, Dec. 4, 1997, at C7 (summarizing study).

¹⁶⁸ STATT, *supra* note 42, at 282.

Regardless whether manufacturers originally *caused* such consumer misunderstanding of dietary health issues, it is our contention that their packaging, labeling, and promotional efforts exacerbate it. This confusion poses serious health threats to consumers. As the FTC has warned, "false [health] claims may induce consumers to change their diets in a way that actually harms their health . . . [or] may discourage consumers from making essential dietary changes or seeking essential medical treatment."¹⁶⁹ At the very least, false health claims may induce consumers to pay a premium for products that should not command one.¹⁷⁰

2. *Pharmaceutical Drug Products.* — Another industry in which compelling examples of consumer manipulation exist is the pharmaceutical drug industry, in which both consumption and advertising levels have recently exploded. "The use of medicines in the United States has increased more than the use of any other health resource over the past thirty years."¹⁷¹ Nearly two-thirds of all patient visits in the United States now end with the doctor's writing a prescription.¹⁷² From 1988 to 1994, the amount spent annually on direct-to-consumer advertising increased by an order of ten to \$250 million.¹⁷³ Similarly, promotional efforts by pharmaceutical companies directed toward physicians now total approximately \$2.5 billion per year.¹⁷⁴ Those marketing efforts are relevant to our analysis because the pharmaceutical drug market poses obvious health and safety risks to consumers: "it is estimated that more than 125,000 Americans die annually as a result of ingesting prescription medicines,"¹⁷⁵ while millions of others experience health-related side effects. In short, with prescription medicine sales totaling as much as \$70 billion per year,¹⁷⁶ manipulation of both consumer risk perceptions and physician prescribing behavior presents manufacturers with a significant opportunity for gain.

In recent years, pharmaceutical companies have reversed long-standing practices and have begun marketing directly to consumers.¹⁷⁷

¹⁶⁹ Walsh & Klein, *supra* note 158, at 398.

¹⁷⁰ See *id.*

¹⁷¹ Susan Heilbronner Fisher, Note, *The Economic Wisdom of Regulating Pharmaceutical "Freebies"*, 1991 DUKE L.J. 206, 206.

¹⁷² See *id.*

¹⁷³ See Barbara J. Tyler & Robert A. Cooper, *Blinded by the Hype: Shifting the Burden When Manufacturers Engage in Direct to Consumer Advertising of Prescription Drugs*, 21 VT. L. REV. 1073, 1097-98 (1997).

¹⁷⁴ See Fisher, *supra* note 171, at 210.

¹⁷⁵ Bryan Christopher Moody, *Prescription Medication and Consumer Protection: A Time for Reform*, 5 J. PHARMACY & L. 19, 19 (1995).

¹⁷⁶ See Fisher, *supra* note 171, at 206.

¹⁷⁷ See Michael C. Allen, Comment, *Medicine Goes Madison Avenue: An Evaluation of the Effect of Direct-to-Consumer Pharmaceutical Advertising on the Learned Intermediary Doctrine*, 20 CAMPBELL L. REV. 113, 115 (1997) (noting the rise of direct-to-consumer pharmaceutical advertising).

Upjohn Company was the first drug manufacturer to do so. Its hair loss treatment, Rogaine, targeted male consumers by asking, "Can an emerging bald spot . . . damage your ability to get along with others, influence your chance of obtaining a job or date or even interfere with your job performance?"¹⁷⁸ Another ad featured an attractive female stating unequivocally, "I know that a man who can afford Rogaine is a man who can afford me."¹⁷⁹ Other drug manufacturers have followed suit: "Since the introduction of [direct-to-consumer] promotions and advertisements for prescription drugs in 1980, almost all pharmaceutical companies have engaged in this direct marketing practice."¹⁸⁰ As one commentator notes, these campaigns bring to "bear all the slick pressure of which Madison Avenue is capable."¹⁸¹

The difficulties that accompany this practice are manifest. "The marketing gimmick used by the drug manufacturer often provides the consumer with a diluted variation of the risks associated with the drug product."¹⁸² Even without such manipulation, "[t]elevision spots lasting 30 or 60 seconds are not conducive to 'fair balance' [in presentation of risks]."¹⁸³ Given such constraints, pharmaceutical ads often contain warnings of a general nature. However, "[r]esearch indicates that general warnings (for example, see your doctor) in [direct-to-consumer] advertisements do not give the consumer a sufficient understanding of the risks inherent in product use."¹⁸⁴ Consumers often interpret such warnings as a "general reassurance" that their condition can be treated, rather than as a requirement that "specific vigilance" is needed to protect them from product risks.¹⁸⁵ This lulling effect has been recognized by at least one court in refusing to shield a drug manufacturer from liability under the traditional *learned intermediary doctrine*:¹⁸⁶ "[Intrauterine device] (IUD) manufacturers, through mass advertising and merchandising practices, generated a general sense of product quality, making it difficult for consumers to fully understand the risks involved with the use of an IUD."¹⁸⁷ The Eighth Circuit Court of Appeals seems to have understood intuitively that creating

¹⁷⁸ Tyler & Cooper, *supra* note 173, at 1073-74.

¹⁷⁹ *Id.* at 1074.

¹⁸⁰ *Id.* at 1096.

¹⁸¹ Eric P. Cohen, *Direct-to-the-Public Advertisement Of Prescription Drugs*, 318 NEW ENG. J. MED. 373, 374 (1988).

¹⁸² Tyler & Cooper, *supra* note 173, at 1095.

¹⁸³ Cohen, *supra* note 181, at 374 (citation omitted).

¹⁸⁴ Tyler & Cooper, *supra* note 173, at 1097.

¹⁸⁵ *Id.*

¹⁸⁶ According to this doctrine, "the prescribing physician acts as a 'learned intermediary' between the manufacturer and the patient, and 'the duty of the ethical drug manufacturer is to warn the doctor, rather than the patient . . .'" *MacDonald v. Ortho Pharm. Corp.*, 475 N.E.2d 65, 69 (Mass. 1985) (quoting *McEwen v. Ortho Pharm. Corp.*, 528 P.2d 522 (Or. 1974)).

¹⁸⁷ *Hill v. Searle Labs.*, 884 F.2d 1064, 1070 (8th Cir. 1989).

positive affective responses in consumers toward IUDs could significantly dull the consumers' appreciation of the risks of the devices.¹⁸⁸

The most prevalent method for marketing pharmaceutical drugs, however, remains direct solicitation of physicians. The magnitude of such promotions should not be underestimated: the salespersons responsible for making personal visits to physicians and hospital staff, often called *detailers*, spent more than \$5000 for every physician in the United States in 1988.¹⁸⁹ Physicians meet with detailers an average of three to five times every week.¹⁹⁰ Detailers leave behind "reminders in the form of notepads, pens, rulers, and other useful 'freebies' engraved with the logo of the drug company and the product name."¹⁹¹ They frequently treat doctors and residents to lunches or dinners during which the detailers plug new pharmaceutical products. At other times, doctors are given large honoraria to speak at conferences sponsored by drug manufacturers.¹⁹²

Those practices seem fairly innocuous compared to the *frequent prescriber program* instituted by Wyeth-Ayerst after its blood pressure medication Inderal went off-patent: "To succeed in the tougher market [containing generics], the company offered frequent-flyer miles on American Airlines to physicians who prescribed the drug. Doctors who wrote fifty prescriptions would receive a free round-trip ticket to any destination in the continental United States."¹⁹³ Equally questionable is the practice of drug manufacturers' granting continuing medical education credits to physicians for attending lavish, all-expense-paid conferences in exotic locales with their spouses and other guests.¹⁹⁴ Apart from the dubious educational value of such conferences, the receipt of credits — which are often required by state licensing bodies — is sometimes contingent upon doctors' prescribing a product manufactured by the sponsoring company. When Janssen Pharmaceutical, a subsidiary of Johnson & Johnson, launched a new antihistamine, it gave "credits to doctors who prescribed the drug and read the company monograph."¹⁹⁵

These promotional efforts have an impact on physicians and their prescribing behavior.¹⁹⁶ Numerous studies have attempted to deter-

¹⁸⁸ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 475–78 and accompanying text.

¹⁸⁹ See Fisher, *supra* note 171, at 209–10.

¹⁹⁰ See *id.* at 210.

¹⁹¹ *Id.*

¹⁹² See *id.* at 211–12.

¹⁹³ *Id.* at 211.

¹⁹⁴ See *id.* at 212 & n.27 ("Drug companies spent \$5 million on symposia in 1974 and \$85 million in 1988. The locations now include resorts such as Palm Springs, Monte Carlo, and Acapulco. The drug companies provide rooms, meals, travel expenses, and, in some cases, cash honoraria as high as \$1000 to physicians who attend.")

¹⁹⁵ *Id.* at 212.

¹⁹⁶ There is, of course, a strong argument that these detailers serve a valuable information-providing purpose. Although we do not doubt this proposition as a theoretical matter, we do

mine the influence of pharmaceutical marketing practices on physicians, but most of those have relied upon physician self-reporting. One study tried to overcome this potential bias by comparing physicians' own opinions with objective records of their actual prescribing history.¹⁹⁷ The study selected two classes of drugs, the efficacy of which commercial messages trumpeted even though scientific sources such as medical journals indicated that the drugs were ineffective. By considering physician beliefs about the drugs alongside prescribing behavior, the study determined that physicians were significantly affected by pharmaceutical marketing practices: "Although the vast majority of practitioners perceived themselves as paying little attention to drug advertisements and detail men, as compared with papers in the scientific literature, their belief about the effectiveness of the index drugs revealed quite the opposite pattern of influence in large segments of the sample."¹⁹⁸ Other studies have supported this finding by observing that detailers generally provide a physician's first contact with a new product.¹⁹⁹

Questionable manufacturer advertisements may also exert persuasive influences on physician prescribing behavior. A study in the *Annals of Internal Medicine* determined that ninety-two percent of a sample of pharmaceutical advertisements in professional journals failed to comply with FDA criteria in one or more of the twenty-eight categories examined.²⁰⁰ Of those advertisements, twenty percent "were judged to have *no* educational value," thirty-seven percent had little, thirty-three percent contained some, and only four percent included a great deal of educational value.²⁰¹ Regarding the kind of impact such advertisements could have upon prescribing behavior, "[o]nly 44% of reviewers felt that the advertisement would lead to proper prescribing if a physician had no other information about the medicine other than that presented in the advertisement."²⁰² The reviewers also stated that

doubt whether it is borne out in practice. For instance, one study of detailer employment advertisements found that only four out of 99 advertisements for detailers stated that knowledge of drugs was an advantage. See Joel Lexchin, *Doctors and Detailers: Therapeutic Education or Pharmaceutical Promotion?*, 19 INT'L J. HEALTH SERVS. 663, 665-68 (1989). Consider also this rallying cry issued to detailers by Merck prior to a drug campaign: "Tell 'em [doctors] again, and again, and again. Tell 'em until they are sold and stay sold. . . . Take off the kid gloves. . . . Now every extra bottle of 100 Indocid that you sell is worth an extra \$2.80 in incentive payments. Go get it. Pile it in!!!" *Id.* at 667.

¹⁹⁷ See Jerry Avorn, Milton Chen & Robert Hartley, *Scientific Versus Commercial Sources of Influence on the Prescribing Behavior of Physicians*, 73 AM. J. MED. 4, 4 (1982).

¹⁹⁸ *Id.* at 7.

¹⁹⁹ See Dale B. Christensen & Patricia J. Bush, *Drug Prescribing: Patterns, Problems and Proposals*, 15A SOC. SCI. MED. 343, 346 (1981).

²⁰⁰ See Michael S. Wilkes, Bruce H. Doblin & Martin F. Shapiro, *Pharmaceutical Advertisements in Leading Medical Journals: Experts' Assessments*, 116 ANNALS INTERNAL MED. 912, 916 (1992).

²⁰¹ *Id.* at 917.

²⁰² *Id.*

only four percent of the ads would have been acceptable without change under peer review guidelines typical for professional journal articles.²⁰³ The physician-authors of this study deemed those discoveries especially significant: “[A]dvertisements profoundly influence the way prescription drugs are used in our society. . . . Yet, too often, they are the decisive source of information about new pharmaceutical products.”²⁰⁴

All of these findings suggest that drug manufacturer promotional efforts may influence physician prescribing behavior in ways that are possibly detrimental to optimal patient care. Several physicians note:

If we are to continue to practice medicine based on scientific data and its appropriate dissemination by medical journals and not industry-sponsored promotional medical education programs and/or public relations-inspired media efforts, we must take a stand against the type of prescribing pressure [that has been applied recently]. Otherwise, we might just as well give our prescription pads to our media and industry colleagues.²⁰⁵

Even if the situation is not as dire as those commentators suggest, one should at least consider the possibility that the combination of direct-to-consumer advertising and promotional efforts targeted at physicians has resulted in suboptimal prescribing and consumption of pharmaceutical drugs. When physical insecurities about baldness are consciously targeted in consumer ads, when fifty-seven percent of ads directed at physicians are judged to have little or no educational value, when physicians are rewarded with airline tickets for increasing the number of prescriptions they write — when those and other similar promotional efforts characterize the pharmaceutical drug market — one might justifiably surmise that the concomitant demand for medicines is excessive.

3. *Environmentally Marketed Products.* — Food and drug products present a ripe opportunity for manufacturer manipulation because they are “credence goods” possessing qualities that are difficult for consumers to evaluate through normal use.²⁰⁶ In such a setting, manufacturers “may be willing to incur risks that are socially unacceptable; and consumers have little ability to obtain or interpret risk information beyond that which the manufacturers supply.”²⁰⁷ Similar opportunities

²⁰³ See *id.*

²⁰⁴ Michael S. Wilkes, Bruce H. Doblin & Martin F. Shapiro, *In Response*, 117 ANNALS INTERNAL MED. 618, 618–19 (1992).

²⁰⁵ Marvin Moser et al., Commentaries, *Who Really Determines Your Patients' Prescriptions?*, 265 JAMA 498, 500 (1991).

²⁰⁶ Michael R. Darby & Edi Karni, *Free Competition and the Optimal Amount of Fraud*, 16 J. L. & ECON. 67, 68–69 (1973); see also Phillip Nelson, *Information and Consumer Behavior*, 78 J. POL. ECON. 311, 312 (1970) (distinguishing among “search goods,” the quality of which consumers can evaluate prior to purchase, “experience goods,” which consumers can evaluate only after purchasing and consuming, and credence goods, which consumers cannot reliably evaluate even after purchasing and consuming).

²⁰⁷ PETER ASCH, CONSUMER SAFETY REGULATION 55 (1988).

for manipulation exist for manufacturers of products that pose environmental threats. Consumers began to exhibit significant awareness of environmental safety issues in product markets in the early 1990s.²⁰⁸ As a consequence, manufacturers developed an entirely new promotional strategy, *green marketing*, which generally seeks to create the perception that a product is of some benefit to the environment or is less harmful to the environment than competitors' products. This trend has been highly influential,²⁰⁹ it has also led to many misleading claims by manufacturers.

Because consumers display a "lack of . . . knowledge about the meaning of vague environmental marketing claims such as 'recyclable,' 'degradable,' or 'environmentally friendly,'"²¹⁰ manufacturers have ample opportunity to manipulate consumer perceptions of environmental risks. For instance, McDonald's apparently printed on hash-brown containers the three-arrow symbol that generally denotes recycled paper, even though McDonald's officials conceded that the containers were not made of recycled paper, were not being recycled, and probably *could* not be recycled due to a promotional label glued to each package.²¹¹ Likewise, the manufacturer of Mr. Coffee boasted that its coffee filters were produced through a "chlorine-free process;" in fact, the company had merely switched from a process using pure chlorine to one using a chlorine compound.²¹² In other instances, the misrepresentations are more brazen: the Orkin Exterminating Company claimed that its lawn care pesticides were "practically non-toxic," and Safe Brands Corporation advertised its antifreeze as "essentially non-toxic" and "the ultimate in . . . environmental safety."²¹³ In both cases, the FTC found that the products actually created significant risks of harm to health and the environment.²¹⁴

We could provide many more examples. In each case, manufacturers are apparently attempting to dull consumer perceptions of the environmental risks posed by their products. Sometimes this manipula-

²⁰⁸ See Jeremy Rosen, Note, *Requirements for Environmental Marketing Claims Under the Federal Trade Commission's Guides*, 4 ENVTL. L. 241, 241 (1997) ("After 1990, the American public began to exhibit significant concern over manufacturers' promotion of the environmental benefits of their products and the products' packaging.").

²⁰⁹ "Green marketing has become the marketing strategy of the 1990s." Todd A. Rathe, Note, *The Gray Area of the Green Market: Is It Really Environmentally Friendly? Solutions to Confusion Caused by Environmental Advertising*, 17 J. CORP. L. 419, 420 (1992).

²¹⁰ Rosen, *supra* note 208, at 241.

²¹¹ See Rathe, *supra* note 209, at 421.

²¹² Rosen, *supra* note 208, at 245 ("Because the new process continued to release a significant amount of dioxins and furans associated with chlorine bleaching, the FTC objected to Mr. Coffee's use of the phrase 'chlorine-free.'").

²¹³ *Id.* at 247 (quoting *Guides for the Use of Environmental Marketing Claims*, 61 Fed. Reg. 53,311, 53,315 (1996)) (internal quotation marks omitted). We also feel obligated to call the reader's attention to the corporate name selected by the antifreeze manufacturer.

²¹⁴ See *id.*

tion simply capitalizes on existing consumer information asymmetries. A Proctor & Gamble magazine advertisement picturing a fertile "soil enhancer" claimed that "[n]inety days ago, [the soil enhancer] was a disposable diaper."²¹⁵ Consumers, unaware that the waste management technology necessary to accomplish such degradation of diapers was not available in most areas of the country, perceived Proctor & Gamble's diapers as less environmentally harmful than they really were.²¹⁶ In other cases, the manipulation creates its own informational problems: the manufacturer of Saab automobiles caused significant confusion among consumers when it made the scientifically unfounded claim that its catalytic converters removed "ozone-punching hydrocarbons."²¹⁷ Regardless of the mechanism by which consumer perceptions are manipulated, the implication is the same: as a result of the green marketing blitz by manufacturers, consumers are prone to underestimate the environmental hazards posed by many products.²¹⁸

4. *Products Marketed to Thrillseekers.* — The foregoing discussion explored how manufacturers might seek to blur consumer perceptions of product risks. Manufacturers might also market hazardous products by advertising only to those consumers who already underestimate the risk of the product or otherwise do not consider the risk to themselves significant. The widely used marketing tactic of targeting *thrillseekers* may reflect just such a strategy. Marketers have uncovered a valuable insight from psychology research regarding one class of consumers and their attitudes toward risk: "[A] personality type, Type T (for 'thrillseeker') has been identified in the United States" as a type who "actively looks for risk when making consumer decisions."²¹⁹

Estimated at twenty-five percent of the U.S. population,²²⁰ thrillseekers represent a substantial segment of consumers who are arguably under-appreciative of product risks and therefore susceptible to manipulation by manufacturers.²²¹ "Car ads emphasizing speed and ex-

²¹⁵ Rathe, *supra* note 209, at 425 n.53.

²¹⁶ *See id.*

²¹⁷ *Id.* at 423 (quoting Peter Knight, *Business and the Environment: Tarnish Forms of the Green Image*, FIN. TIMES, Apr. 17, 1991, at 12) (internal quotation marks omitted).

²¹⁸ Largely for this reason, the FTC has promulgated "Guides for the Use of Environmental Marketing Claims." *See* Rosen, *supra* note 208, at 243-56.

It is also worth noting that to the extent that some consumers are unconcerned with the environmental implications of their purchases, manipulation of those consumers' perceptions will not affect demand. The evidence indicates, however, that environmental marketing claims do significantly influence buying behavior. *See* John M. Church, *A Market Solution to Green Marketing: Some Lessons From the Economics of Information*, 79 MINN. L. REV. 245, 250-54 (1994) (describing evidence that "[n]early one in every two consumers has altered his or her purchasing decisions to help protect the environment").

²¹⁹ STATT, *supra* note 42, at 59.

²²⁰ *See id.*

²²¹ An alternative view would be that thrillseekers simply represent consumers who do not share the average person's aversion to risk. Although we believe that differing levels of risk aversion might partially explain the existence of the thrillseeker class, we also believe that cognitive

otic adventure are obviously aimed at this group,²²² as are the rash of in-line skating, mountain biking, snowboarding, and other adventure sport ads that have appeared in recent years to chase the \$40 billion that Americans spend annually on sporting goods.²²³ Like automobiles, these “extreme sports” — a moniker concocted by marketers²²⁴ — pose obvious safety risks: “In-line skating alone sent 105,000 people to the emergency room in 1995.”²²⁵ Consumers may inadequately account for such hazards in the wake of advertisements deliberately designed to appeal to the thrillseeking aspect of their behavior. Indeed, mindful of those efforts, one might conclude that the Chevrolet Corvette’s marketing rather than its machinery caused it to have the worst death rate of any automobile in the United States.²²⁶

5. *Products Utilizing Fear Appeals.* — In contrast to thrillseekers, some consumers might behave pessimistically with respect to safety risks. When consumers overestimate the safety risks associated with a particular product, manufacturers might attempt to transform that overestimation into a selling opportunity. Because those consumers display an excessive appreciation of the product risks, they may be especially responsive to marketing appeals that target consumer fears. In fact, evidence of marketing practices is consistent with this hypothesis: one widely used advertising strategy is the *fear appeal*.²²⁷ “Fear appeals highlight the negative consequences that can occur unless the consumer changes a behavior or an attitude.”²²⁸ Such appeals

bias factors, such as overconfidence, the illusion of control, and cognitive dissonance, contribute to the formation of the Type-T personality. See, e.g., Kim Pierce, *High Risk*, DALLAS MORNING NEWS, Mar. 24, 1998, at C1 (quoting Dr. Frank Farley, past president of the American Psychological Association and coiner of the term Type-T Personality, as saying that “T-types . . . tend to believe they are in control of their fate”). In that respect, marketing strategies that encourage consumer risk-seeking behavior among thrillseekers are at least partially inefficient insofar as they rely upon cognitive bias factors in their appeal.

²²² STATT, *supra* note 42, at 59.

²²³ See Brendan I. Koerner, *Extreeme: The Peril, the Thrill, the Sheer Rebellion of It All*, U.S. NEWS & WORLD REP., June 30, 1997, at 51, 52.

²²⁴ See *id.*

²²⁵ *Id.* at 53.

²²⁶ See Bill Adair, *Is Your Car Safe? Here Are Real Figures*, ST. PETERSBURG TIMES, Apr. 27, 1991, at 1A. Howard Latin specifically anticipated this conclusion. See Howard Latin, “*Good Warnings, Bad Products, and Cognitive Limitations*,” 41 UCLA L. REV. 1193, 1234 (1994) (“Consumers must evaluate many products with both positive and negative attributes: A Corvette, for example, may be fast and stylish but also dangerous and costly. If people are attracted by attributes such as style or power, dissonance may lead them to undervalue safety considerations.”).

²²⁷ Economists also seem to be aware of this phenomenon. Professor Viscusi, for instance, has studied situations under which “[n]ew information about risks may generate alarmist actions that are not commensurate with the magnitude of the risks.” W. Kip Viscusi, *Alarmist Decisions with Divergent Risk Information*, 107 ECON. J. 1657, 1657–58 (1997). Viscusi, however, examined the implications of these alarmist reactions in the context of government policy toward disclosure of environmental hazards, see *id.* at 1658–59, rather than in the market context of manufacturer manipulation of consumer susceptibility to alarmist reactions.

²²⁸ SOLOMON, *supra* note 24, at 253.

are widespread, *appearing in over fifteen percent of all television ads.*²²⁹ Many of the ads emphasize the hazards that the product is designed to alleviate, to the exclusion of the often significant hazards posed by the product itself. The manufacturers of Contac cold medicine, for instance, conducted a survey of 800 consumers that revealed that people feel widespread anxiety over losing their jobs. The manufacturers quickly designed an advertising campaign featuring a construction worker wading through a rainstorm, saying that he needed to take Contac in order to get to work that day. Staring into the camera, the worker added the ominous message, "No work, no pay."²³⁰

We admit that one might view this type of advertising as manipulative of consumer risk perceptions generally but not manipulative of consumer *product* risk perceptions in particular.²³¹ This distinction, however, does not always render the manipulation irrelevant to products liability analysis. If the fear appeal is used to elevate demand for a product *that is itself risky*, then consumers may end up consuming too much of the risky product by virtue of the manufacturer's manipulative marketing.²³² A powerful illustration of this phenomenon can be seen in the gun industry's attempt to "capitaliz[e] on women's fears regarding personal protection and home defense."²³³ The National Rifle Association (NRA) has identified women as a potentially lucrative consumer group for gun manufacturers to target — some fifteen to twenty million women already own guns. To further increase demand, the NRA placed its own ads in national magazines, depicting a woman walking through a dark garage with her young daughter.²³⁴

Taking a similar approach, several manufacturers have introduced guns designed specifically for women: one company makes a .32 magnum model called a "Bonnie" to go with a .38 "Clyde" for couples shooting, and another introduced the LadySmith, a revolver with a slimmed-down grip.²³⁵ The manufacturers' advertisements, containing such lines as, "[t]he world is different today than when you grew

²²⁹ See Lynette S. Unger & James M. Stearns, *The Use of Fear and Guilt Messages in Television Advertising: Issues and Evidence*, in 1983 AMA EDUCATORS' PROCEEDINGS 16, 18 tbl. (Patrick E. Murphy et al. eds.).

²³⁰ SOLOMON, *supra* note 24, at 253.

²³¹ Nevertheless, it does show that when consumers appear to overestimate the severity of a threat, manufacturers can attempt to capitalize on that fear through a certain type of marketing. Such tactics are equally effective when the threat in question comes from the product itself.

²³² For instance, users of Contac cold medicine, in a heightened emotional state because of irrational fears about losing their jobs, may not properly account for costs associated with the product's side effects.

²³³ SOLOMON, *supra* note 24, at 254.

²³⁴ See Kevin Goldman, *NRA Says Its Ads Aimed at Women Are Educational*, WALL ST. J., Sept. 28, 1993, at B6.

²³⁵ See SOLOMON, *supra* note 24, at 254.

up" and "personal security is a very real issue," have been criticized for being directed unfairly at women's fears.²³⁶

From the perspective of products liability theory, the gun industry's advertising strategy is relevant because it seeks to increase weapon sales by utilizing one threat — the possibility of being a victim of violence by some third party — while ignoring another, possibly more significant safety threat — the possibility of being harmed by one's *own* gun, either by accident or through capture and use by an attacker. At least twelve hundred people die yearly as a result of handgun accidents.²³⁷ Moreover, "possession [of a gun] is [statistically] more likely to result in injury to one's self or to a loved one, rather than to an intruder."²³⁸ To compound the problem, research indicates that female gun owners display, on average, less concern than their male counterparts for proper gun care, operation, and storage.²³⁹ Not surprisingly, manufacturers avoid mentioning the dangers that may result from this lack of education: "While fear appeals and personal protection themes have been used quite often in a manner that heightens a woman's sense of insecurity, clearly the majority of handgun marketers have chosen to ignore the subject of education."²⁴⁰ Thus, by exploiting women's fear of violence to increase demand for weapons among female consumers, the gun industry may have caused women to discount, in a dangerous fashion, the intrinsic threat of death or injury from weapon ownership.

An analogous example of manipulation occurred when manufacturers of infant formula used a combination of fear appeals and other marketing techniques to increase the use of formula among mothers in developing countries. Beginning in the 1950s, Nestlé S.A. and other multinational corporations began marketing infant formula to those women.²⁴¹ Marketing efforts included supplying free formula to hospitals (to the extent that fifty percent of doctors and seventy-five percent of nurses interviewed by an international health organization believed it was a good idea for formula company representatives to visit newly delivered mothers²⁴²); employing widespread appeals to the desire of

²³⁶ Carrie Goerne, *Gun Companies Target Women: Foes Call It "Marketing to Fear"*, *MARKETING NEWS*, Aug. 31, 1992, at 1 (quoting Smith & Wesson ad) (internal quotation marks omitted).

²³⁷ See Debra Burke et al., *Women and Guns: Legal and Ethical Implications for Marketing Strategy*, 12 *ST. LOUIS U. PUB. L. REV.* 393, 394 (1993).

²³⁸ *Id.*

²³⁹ See *id.* at 395.

²⁴⁰ *Id.* at 396 (relying upon a study of 125 gun advertisements, all of which targeted women and none of which warned of the need for education).

²⁴¹ See Caryn L. Finkle, Comment, *Nestlé, Infant Formula, and Excuses: The Regulation of Commercial Advertising in Developing Nations*, 14 *NW. J. INT'L L. & BUS.* 602, 603 (1994).

²⁴² See Nancy Ellen Zelman, Comment, *The Nestlé Infant Formula Controversy: Restricting the Marketing Practices of Multinational Corporations in the Third World*, 3 *TRANSNAT'L LAW.* 697, 712 (1990).

women in developing countries to emulate “Western” or “modern” practices;²⁴³ and using women dressed as nurses to hand out free samples in villages.²⁴⁴ Nestlé and other manufacturers explicitly targeted mothers’ fears about the health of their infants. Advertisement slogans included, “Mother’s milk is sometimes deficient in providing the complete nutritional need,” “Give your baby the benefit of modern research,” and “Easy to digest Angel baby milk food is as gentle as your love.”²⁴⁵ Thus, at the very least, the marketing “campaign . . . gave the impression that the infant formula was a safe and easy-to-use substitute for breastmilk.”²⁴⁶

Unfortunately, this marketing strategy failed to account for a host of developing country problems — illiteracy, poverty, and unsanitary conditions — which resulted in tragic product misuse. Often, formula was mixed with contaminated water, bottles were not cleaned properly, and prepared formula was not refrigerated, all resulting in the growth of deadly bacteria.²⁴⁷ Poverty-stricken mothers, unable to read package instructions, mixed the formula with excessive amounts of water in order to stretch baby food dollars, grossly under-nourishing their infants in the process.²⁴⁸ Ultimately, an advisory group of the United Nations identified a strong “link between misleading formula promotion and infant mortality.”²⁴⁹ Just as the gun industry targeted female consumers, manufacturers of baby formula employed a variety of marketing techniques to increase demand for a product that posed significant inherent health and safety risks. We believe this case is especially instructive as an example of the way marketing practices might develop in unregulated markets. Indeed, it took an international boycott and a World Health Organization regulatory code for Nestlé to begin reforming its practices.²⁵⁰

While the gun and baby formula advertisements seized upon external fears, such as the threat of violence to women or medical risks to a child, other marketing strategies attempt to manipulate perceptions of

²⁴³ See *id.* at 711.

²⁴⁴ See Finkle, *supra* note 241, at 603.

²⁴⁵ CLARK, *supra* note 45, at 143 (quoting an ad that was published in Pakistan) (internal quotation marks omitted).

²⁴⁶ Finkle, *supra* note 241, at 603.

²⁴⁷ See *id.* at 603–04.

²⁴⁸ See *id.* at 604.

²⁴⁹ *Id.*

²⁵⁰ See Zelman, *supra* note 242, at 733–41. Nestlé’s infant formula troubles have not been limited to unregulated markets, however. After Nestlé introduced a new line of formula in the United States, Good Start H.A. (H.A. was intended to stand for hypoallergenic), many mothers mistakenly interpreted the product as being designed specifically for babies with severe milk allergies. See Laura Epstein, *Women and Children Last: Anti-Competitive Practices in the Infant Formula Industry*, 5 AM. U. J. GENDER & L. 21, 43 (1996). Because this misinterpretation had “dangerous consequences,” the FDA as well as several state attorneys general investigated Nestlé’s marketing practices. *Id.* In a settlement, Nestlé agreed to pay the costs of the investigation and to refrain from marketing Good Start as hypoallergenic. See *id.* at 43–44.

risks posed by the use of the advertised product itself. In those cases, manufacturers simply try to make their products appear safer than they actually are. An advertisement for Volvo automobiles vividly illustrates this approach. Volvo, a manufacturer of automobiles widely perceived by consumers as safe, endeavored to reinforce this image through an advertisement showing a pickup truck crushing a series of cars but not harming a Volvo. An investigation by the Texas Attorney General's office revealed that the Volvo car used in the ad had been mechanically reinforced for the commercial.²⁵¹ Thus, the manufacturer deliberately attempted to manipulate consumer risk perceptions by depicting its product with safety capabilities that the actual product simply did not possess.

D. Summary

Although the preceding evidence is far from systematic, we believe that it supports our basic claim that manufacturers manipulate consumer perceptions. The markets that we have described as evincing manufacturer manipulation — food products, pharmaceutical drugs, environmental pollutants, weapons, and automobiles — are all markets in which one would surmise intuitively that consumers are at least somewhat aware of the fact that health and safety issues are implicated by the product. When consumers are at least partially aware of health and safety risks, manufacturers have incentives to manipulate risk perceptions in the manner that benefits them most, whether that means creating alarmist fears about breast milk, understating a product's environmental costs, or falsely depicting an automobile's crash-worthiness.²⁵²

The preceding evidence should also show that actual product markets will be far more complicated than the predictions from our com-

²⁵¹ See SOLOMON, *supra* note 24, at 249; see also Volvo N. Am. Corp., 115 F.T.C. 87, 88 (1992) (alleging that the product demonstration was deceptive because the Volvo had been reinforced and the roof supports of the other cars had been severed).

²⁵² These incentives lead to what might be denoted the "Volvo Effect." Once the risks of a product are salient in consumers' minds, manufacturers begin advertising safety information — but not before. Prior to consumer recognition of the safety hazard, it is in the manufacturer's interest to remain silent on the issue. See AMERICAN LAW INST., 1 ENTERPRISE RESPONSIBILITY FOR PERSONAL INJURY 231 (1991) ("In addition, firms are often reluctant to call consumers' attention to safety hazards by instructing them as to how to avoid those problems."); STEPHEN BREYER, REGULATION AND ITS REFORM 28 (1982) (noting that in insufficiently competitive markets, firms may tacitly agree not to advertise safety); Bailey H. Kuklin, *The Asymmetrical Conditions of Legal Responsibility in the Marketplace*, 44 U. MIAMI L. REV. 893, 946 (1990) ("[Manufacturers] may be reluctant to advertise safety data for fear of alarming potential consumers."); Howard A. Latin, *Problem-Solving Behavior and Theories of Tort Liability*, 73 CAL. L. REV. 677, 731 n.227 (1985) ("There are numerous reasons why producers may be reluctant to disclose product-related safety hazards even when their goods are relatively safer than competing products."); Stephen D. Sugarman, *Doing Away with Tort Law*, 73 CAL. L. REV. 555, 562 n.15 (1985) ("Perhaps one reason for inadequate consumer information is that producers face disincentives to advertise safety.")

panion article suggest. Those ambiguities, however, do not render our central claim any less robust. It is our position that markets evolve to a point at which manufacturers behave as if they know and understand consumer's biases and cognitive shortcomings and can manipulate them accordingly. That market evolution occurs whether or not we as theoreticians can precisely describe manufacturers' methods. Indeed, it occurs whether or not the manufacturers *themselves* can describe the processes they are using. As the authors of a study in the *Journal of Consumer Research* note, "[the] shaping of managerial behavior by market forces is likely to occur *whether or not retail price setters are explicitly aware of . . . consumer effects.*"²⁵³ The evidence of market manipulation that we offer may therefore represent only the practices that have been around long enough and are pervasive enough to be identifiable. Market manipulation may be far more prevalent and problematic than we could ever demonstrate.²⁵⁴

II. A CASE STUDY IN MANUFACTURER MANIPULATION: THE TOBACCO INDUSTRY

In this Part, we devote careful study to the conduct of the tobacco industry. We have chosen to focus on cigarettes largely because, of all contemporary product markets, we believe that this one is, for several reasons, most likely to reveal manipulative manufacturer conduct. First, the industry's enormous cash flow from repeat purchases of tobacco products allows the industry to spend unparalleled amounts of money on the tools of manipulation — including marketing research, promotion, public relations, and advertising.²⁵⁵ Second, the public has for some time been aware that tobacco products may pose serious health risks.²⁵⁶ That awareness, coupled with the fact that cigarettes are far and away the most dangerous consumer product marketed today, means that the incentive for manufacturer manipulation of risk perceptions is perhaps nowhere more strongly felt than in the cigarette

²⁵³ Schindler & Kirby, *supra* note 86, at 192 (emphasis added).

²⁵⁴ Indeed, a possibly fruitful research project may be to *reverse* the methodology we have taken in this Article and its companion. We have begun with the cognitive anomalies identified by behavioral researchers in hopes of predicting the manipulative tactics of manufacturers. This approach, however, is limited by certain difficulties of application. See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 443–44 and accompanying text. A different approach might be to examine the actual market behavior of manufacturers in order to learn more about cognitive anomalies. Given the powerful market forces driving the manipulative practices of manufacturers, consumer product markets may represent the ultimate laboratory for behavioral researchers.

²⁵⁵ See W. KIP VISCUSI, SMOKING: MAKING THE RISKY DECISION 35 (1992) [hereinafter VISCUSI, SMOKING] (noting that "[i]n some years there have been more ads for cigarettes than for any other consumer product").

²⁵⁶ See Jon D. Hanson & Kyle D. Logue, *The Costs of Cigarettes: The Economic Case for Ex Post Incentive-Based Regulation*, 107 YALE L.J. 1163, 1181–83 (1998).

industry. Third, the concentrated nature of the industry might have a catalytic effect on the industry's ability to manipulate.²⁵⁷

We have chosen to focus on the tobacco industry also because the unprecedented litigation of recent years has had two major and related effects. First, it has transformed tobacco into perhaps the most significant products liability issue of the century, and it has placed tobacco near the top of national and state domestic policymaking agendas. In the litigation and in the policy debates, the question whether smokers are adequately informed is paramount.²⁵⁸ In short, we simply cannot imagine a more salient consumer product market to examine. Second, the litigation and resultant policymaking initiatives have uncovered enormous amounts of documentation and data regarding the once-secret details of industry conduct. Indeed, there is no other consumer product industry for which this amount of evidence is available. Thus, we as theorists are the beneficiaries of countless hours of research by public and private tobacco plaintiffs — research that is only just beginning to find its way into the law review literature or otherwise to be amassed for publication.²⁵⁹

Although this effort presents an extraordinary opportunity, it also creates a need for caution. Many of the documents that we cite below have been provided to us, upon our request, by lawyers representing various tobacco plaintiffs, particularly the State of Washington and the Commonwealth of Massachusetts.²⁶⁰ These documents may reflect a sampling bias. Additionally, some of the inferences that we draw from the documents regarding actual industry conduct mirror allegations made by those tobacco plaintiffs in their complaints and in other litigation documents. Thus, it is imperative that readers understand that some of our descriptions of industry conduct may turn out to be incomplete or even inaccurate, particularly in the details. Moreover, there is reason to suspect that any inaccuracies in our descriptions will tend to be biased against the tobacco manufacturers.

On the other hand, there are good reasons for assuming that the inferences we draw are, on the whole, reasonably accurate. After all, the

²⁵⁷ See *infra* pp. 1552–53.

²⁵⁸ See Hanson & Logue, *supra* note 256, at 1181–83.

²⁵⁹ There has, however, been some important work based on previously released documents, such as the Brown & Williamson documents that were leaked several years ago, and that work contains descriptions of the same type of conduct that we describe below. See, e.g., STANTON A. GLANTZ ET AL., *THE CIGARETTE PAPERS* (1996); PHILIP J. HILTS, *SMOKE SCREEN: THE TRUTH BEHIND THE TOBACCO INDUSTRY COVER-UP* (1996); RICHARD KLUGER, *ASHES TO ASHES: AMERICA'S HUNDRED-YEAR CIGARETTE WAR, THE PUBLIC HEALTH, AND THE UNABASHED TRIUMPH OF PHILIP MORRIS* (1996).

²⁶⁰ One of us has been involved as a consumer-information expert and consultant on several of the tobacco suits. However, that involvement began several years after we started this project and well after we had drafted the majority of this article and its companion. In any event, we are extremely grateful to the lawyers involved in those cases and several others for assisting us in locating potentially relevant documents and briefs from both sides of the cases.

industry's litigation strategy has been less to deny the accuracy of the plaintiffs' factual allegations regarding the sort of conduct we describe below and more to deny that the allegations, if true, have any legal significance. Furthermore, the fact that the industry went to great lengths to avoid disclosing the evidence, and appears to have attempted to destroy or otherwise render inaccessible this evidence (a topic that we address below), suggests to us that our descriptions, albeit unflattering, are neither unexpected nor generally unfair to the industry.

In section A of this Part, we provide a brief history of tobacco marketing, public relations, and other conduct that may have influenced consumers' risk perceptions and preferences. This history furnishes a fascinating case study in the relationship among consumer risk awareness, manufacturer market incentives, and regulatory measures designed to constrain those incentives. The ambition of this section is to analyze the tobacco industry's practices from the perspective of the flourishing behaviorist literature — to examine whether the industry's conduct appears likely to influence the risk perceptions and preferences of consumers. The relevant history and current evidence strongly suggest that industry practices have indeed created and reinforced consumer biases about the risks of cigarettes, and continue to do so — substantially lowering consumers' estimates of the risks of cigarettes and increasing their willingness to expose themselves to those risks. More importantly, the history makes it fairly clear that many consumers would not have begun smoking (or, having begun, would not have continued to smoke) cigarettes were it not for the manufacturers' successful and ubiquitous efforts to mislead via effective cognitive manipulation.

In section B, we reassess the scholarly debate over the accuracy of smoker risk perceptions. We review the evidence indicating the success of manufacturers' manipulations, including numerous recent social science surveys that measure smokers' perceptions of the risks of smoking. We conclude that the case is quite strong that consumers do tend to underestimate the risks of smoking and that they do so in ways that are unsurprising in light of consumer biases and manufacturers' efforts to tap into them. Finally, we summarize and criticize the evidence offered by the industry and its primary consumer-information expert indicating that consumers are adequately informed of the risks of smoking. In addition to its more explicit goals, section B provides further evidence of the fact that risk assessments are dependent upon variables that an industry can easily take advantage of and manipulate.

We wish to emphasize, at the outset of this Part, that our history of tobacco marketing and our review of the smoker risk perception literature are especially significant, as they provide the strongest evidence that manufacturer manipulation not only occurs, but also succeeds;

that is, in addition to offering, as we do in Part I, descriptive accounts of the types of manipulative practices that manufacturers use, here we are also able to advance actual empirical evidence that the manipulative efforts have resulted in lowered consumer risk perceptions. Thus, we believe that this case study in tobacco industry manipulation provides a degree of proof about consumer product markets greater than anything previously available in the academic literature.

A. *A Sample of Industry Conduct*

This section describes cigarette manufacturers' conduct by reviewing three strategies central to retaining and expanding the size of the cigarette market. These strategies include the following: first, a vast range of marketing efforts designed to enhance the desirability of cigarettes; second, a concerted public relations effort to create and perpetuate "controversy" over the question whether cigarettes are harmful to health; and third, a careful orchestration and eventual suppression of internal research into the health issues raised by cigarettes. What is most revealing about these practices is that they occurred despite the industry's extensive knowledge of the actual health risks of smoking. Tobacco manufacturers have long known that cigarettes cause cancer, emphysema, and lung disease. They have also long known that nicotine is addictive.²⁶¹ Nevertheless, tobacco manufacturers have adopted a public posture that shuns any mention of health risks (except perhaps to downplay them) and have gone to great lengths to counteract the effect of eventual recognition by public health officials that those risks do exist. Consider the following evidence, then, in light of the fact that the industry's private awareness was remarkably at odds with its public facade.

1. *Creating Demand: The Industry's Marketing Triumphs.* — No consumer product is as inexorably linked with modern advertising as is the cigarette. This section reviews a few of the tobacco industry's most striking marketing accomplishments, beginning with a selection of health-focused advertising campaigns from the first half of the century that, from a contemporary perspective, appear remarkable in their brazen attempts to deceive. Equally remarkable are the "health reassurance cigarettes" — filter-tipped and low-tar, low-nicotine cigarettes — that the industry developed to provide an appearance of being safer or healthier than "regular" cigarettes while simultaneously manipulating the new products to ensure that they were *not* safer or healthier than "regular" cigarettes. Finally, this section also discusses a few of the ways in which tobacco manufacturers have focused their marketing talents on attracting young smokers in an effort to safeguard the long-term vitality of their brands.

²⁶¹ This knowledge is discussed below on pages 1500–01.

(a) *The Ascendancy of Cigarettes.* — A major and constant challenge for cigarette manufacturers has been to create demand for their products among non-smokers — no easy task at the beginning of this century, when the tobacco industry was insignificant, cigarettes were sparse, and ours was not yet a smoking culture. Yet demand for the cigarette was successfully established by an aggressive industry strategy: not only improving the product and its underlying technology, but also actively cultivating a receptive market for the product. The cigarette, according to Allan Brandt, is a “twentieth century phenomenon” that would have remained obscure were it not for “[d]evelopments in agricultural technique, production technology, and industrial organization, as well as such factors as the introduction of the portable match. . . .”²⁶² More importantly, however, the cigarette culture was itself an industry-nurtured phenomenon, a combined product “of corporate capitalism, technology, mass marketing, and, in particular, the impact of advertising.”²⁶³

“Advertising promised consumers well-being and power” and thereby took the focus off the product, redirecting it toward “the moral and psychological value of the patron.”²⁶⁴ Brandt writes, “Creating demand for relatively undifferentiated, nonessential items . . . was the core of the new consumer culture, which the cigarette epitomizes.”²⁶⁵ Cleverly targeted ad campaigns, such as the now-famous Marlboro Man,²⁶⁶ succeeded in creating demand for Marlboros and other cigarettes by conveying to smokers a sense of independence, autonomy, and sexuality.²⁶⁷ Not surprisingly, consumers soon associated cigarettes with desirable, abstract traits of the sort that they almost certainly would not have perceived absent effective advertising.

(b) *Promotional Efforts to Solidify the “Smoking Lifestyle.”* — Despite the favorable conditions for the mass production and marketing of cigarettes, manufacturers still had to surmount the widespread view that their products were potentially harmful: “As long as there have been cigarettes there has been concern about their impact on health.”²⁶⁸ The nature and degree of that concern, however, have changed dramatically over time. During the early part of this century, the health risks of smoking were never clearly defined or understood, and the health concerns that were articulated tended to involve relatively trivial issues, such as whether cigarettes decreased smokers’

²⁶² Allan M. Brandt, *The Cigarette, Risk and American Culture*, in RISK 155, 157 (Edward J. Burger, Jr. ed., 1990).

²⁶³ *Id.*

²⁶⁴ *Id.*

²⁶⁵ *Id.*

²⁶⁶ *Cf. infra* note 344 (describing industry attempts to fashion such marketing icons to appeal to children).

²⁶⁷ *See* Brandt, *supra* note 262, at 157.

²⁶⁸ *Id.* at 156.

“mental efficiency” or stunted smokers’ growth. Nevertheless, the issue was significant enough for manufacturers to turn to the emerging advertising and public relations industries for assistance.²⁶⁹ The resulting marketing campaigns not only reassured any consumers who were mindful of the ill-defined risks of smoking, but they also transformed the potential threat into an enormous boon for the industry — the totem of “good health” had both a unifying and a competitive effect within the industry. Ironically, the threat raised by early health concerns and the industry’s aggressive response to that threat may have only helped to entrench the cigarette in the American psyche as a major cultural and lifestyle icon.

For instance, the health-oriented campaign by R.J. Reynolds Tobacco Company (RJR) for Camel cigarettes in the 1930s revealed the enormous potential of an aggressive, multi-faceted advertising strategy. Some campaign advertisements directly refuted potential health risks — “[Camels] don’t get your wind” and “So mild . . . you can smoke all you want.”²⁷⁰ Others ads portrayed Camels as a soothing health aid: “Get enough sleep and fresh air — find time for recreations. Make Camels your cigarette. You can smoke as many Camels as you please.”²⁷¹ RJR sometimes reinforced bold assertions like these with meaningless appeals to science: “A [fact]: Science Advances New Data That May Completely Change Your Ideas of Cigarettes.”²⁷² Still another method of reinforcing Camel’s health claims and defenses was through endorsements by the medical establishment itself. RJR reassured the public that “[d]octors recommend Camel.”²⁷³ Regardless of their veracity, these sorts of advertisements appear to have been extremely successful. By the end of 1937, Camels were outselling the main competition, Luckies and Chesterfields, by approximately forty percent.²⁷⁴

²⁶⁹ See HILTS, *supra* note 259, at 2–7. In fact, in doing so, cigarette manufacturers were to become one of the chief beneficiaries and stimulants of the advertising and public relations industries. See *id.* at 2.

²⁷⁰ KLUGER, *supra* note 259, at 87.

²⁷¹ *Id.*

²⁷² *Id.*

²⁷³ HILTS, *supra* note 259, at 2. Similarly, celebrity endorsements by actors such as Henry Fonda — who purportedly said, “My voice is important in my career. I smoke Camels because they’re mild and have such rich flavor” — were intended to reinforce public trust in the product. STAT, SIXTY YEARS OF DECEPTION: AN HISTORICAL ANALYSIS & COMPILATION OF CIGARETTE ADS 1925–1985, at 319 (quoting a 1951 RJR ad for Camels). After all, if tennis great Bill Tilden, the epitome of health and athleticism, believed that “[Camels] don’t get my wind or upset my nerves,” then any concerns by the average consumer were overstated. KLUGER, *supra* note 259, at 88.

²⁷⁴ See KLUGER, *supra* note 259, at 88. Camels’ competition, perhaps recognizing the power behind such advertising, adopted similar, if less intense, strategies. An advertisement for L & M Filter cigarettes featured the tag-line “Just What the Doctor Ordered.” *Id.* at 185. A typical ad for B & W’s mentholated cigarette in the 1930s read, “Like a week by the sea, this mild menthol smoke is a tonic to hot, tired throats.” *Id.* at 93.

But to date, the most effective and aggressive campaign came from Philip Morris, which boldly called their product “[t]he cigarette that takes the fear out of smoking.”²⁷⁵ In the early 1930s, Philip Morris financed a pair of studies that purported to demonstrate that its Marlboro brand had health advantages over its rival products because only Marlboro used diethylene glycol (instead of glycerine) as a humidifying agent.²⁷⁶ Soon thereafter, Philip Morris began claiming in advertisements that diethylene glycol was “the greatest achievement in cigarette manufactur[ing] since the introduction of cigarettes themselves.”²⁷⁷ By 1938, advertisements boasted that Philip Morris’s “research files” contained “exhaustive data from authoritative sources”²⁷⁸ supporting their health claims: “Recognized laboratory tests have conclusively prove[d] the advantage of Philip Morris over other cigarettes,”²⁷⁹ and studies have “proved conclusively that on changing to Philip Morris, every case of irritation due to smoking cleared completely or definitively improved.”²⁸⁰

The accuracy of those advertising claims, in hindsight, is laughable. Even at the time, however, there were critics. In 1938, Consumer Reports published the results from their taste and chemical tests of thirty-six brands of cigarettes. Despite Philip Morris’s claims to having produced a less irritating smoke, and notwithstanding “[t]he aura of science surrounding their ‘proofs,’” the magazine found that the substitution of glycol for glycerine “ha[d] probably little more than a psychological effect in reducing irritation felt by the smoker.”²⁸¹ According to Richard Kluger, “All that Philip Morris had really prove[d] was that in the creation of deceptive advertising, it could compete toe to toe with the big boys.”²⁸²

(c) *Health Reassurance Cigarettes.* — Following increased public awareness of the dangers of smoking in the 1950s, manipulation of consumer risk perceptions became a much more complicated process for cigarette manufacturers. A favorite tactic was the development of “revolutionary” new types of cigarettes that could be positioned as “safer” cigarettes. Like Phillip Morris’s “diethylene glycol” cigarette, these products were the result of industry advances in *marketing*, rather than technological expertise:

Recently released documents regarding a conference of tobacco company scientists in 1968 demonstrates that several of the scientists at the conference emphasized the distinction between a “[h]ealth image” or “health re-

²⁷⁵ HILTS, *supra* note 259, at 66.

²⁷⁶ See KLUGER, *supra* note 259, at 100–01, 131.

²⁷⁷ *Id.* at 102.

²⁷⁸ *Id.*

²⁷⁹ *Id.* at 131.

²⁸⁰ *Id.* at 102.

²⁸¹ *Id.*

²⁸² *Id.*

assurance cigarette," such as a "low tar-low nicotine cigarette which the public accepts as a healthier cigarette," and a "[h]ealth-oriented" cigarette, which is intended to be truly safer.²⁸³

By emphasizing the role of "health reassurance cigarettes," manufacturers could create the *perception* of a safer product, irrespective of whether the product actually was safer, thereby slowing or even halting the decline in consumer demand for cigarettes.

(i) *Filter-Tipped Cigarettes*. — The first such attempt was the industry's introduction of filter-tipped cigarettes. In the early 1950s, the cigarette companies marketed filters as "trapping the dangerous components of cigarette smoke but letting the 'flavor' through."²⁸⁴ Ironically, the most successful early filter, touted quite explicitly for its health protection properties, used asbestos as the filtering agent. Lorillard Tobacco Company (Lorillard) advertised the filter as removing "[seven] times more nicotine and tars" and offered demonstrations so "you can see the proof of Kent's health protection."²⁸⁵ Other tobacco companies followed suit. Brown & Williamson (B & W) advertised Viceroy by exclaiming, "... and thanks, doctor, for recommending Viceroy!"²⁸⁶ Liggett marketed its L & M brand as "Just What the Doctor Ordered," with no quotation marks, implying that the filters were actually of medically prescriptive value.²⁸⁷ However, in reality, to compensate for the taste that was lost to the filter, the new brands used stronger tobaccos that contained about as much tar and nicotine as the unfiltered brands, rendering the filters essentially "cosmetic mouthpieces."²⁸⁸

Affording smokers an apparent alternative to quitting, filters rapidly became the dominant product on the market. Indeed, their introduction and marketing quickly reversed the two-year decline in per capita cigarette consumption in 1953 and 1954, which had resulted from new evidence linking lung cancer to smoking.²⁸⁹ Because the manufacturers provided a new type of cigarette, consumers could reasonably assume that the risks of the old type of cigarette and the studies indicating the dangers of that cigarette were irrelevant. The industry was able to offer, in other words, the mechanism through which

²⁸³ Hanson & Logue, *supra* note 256, at 1190 n.106 (quoting GLANTZ ET AL., *supra* note 259, at 129 (emphasis omitted)).

²⁸⁴ Kenneth E. Warner et al., *The Emerging Market for Long-Term Nicotine Maintenance*, 278 JAMA 1087, 1088 (1997).

²⁸⁵ Robert J. Dolan, Expert Report on Tobacco Litigation to Massachusetts Attorney General 33 (July 15, 1998) [hereinafter Dolan Report] (on file with the authors).

²⁸⁶ *Id.*

²⁸⁷ KLUGER, *supra* note 259, at 155.

²⁸⁸ *Id.* at 188.

²⁸⁹ See *infra* p. 1484.

the smoker could find "self-justification" for his or her behavior.²⁹⁰ Such tactics continued, although legal restrictions and the adoption of the voluntary Cigarette Advertising Code in 1964 encouraged campaigns to become more implicit: to "alleviate" anxiety about health rather than to "provoke" it.²⁹¹ While Lorillard's campaign in the 1950s, for example, was "proof of Kent's health protection," Liggett later employed the less explicit slogan for Lark, "the pack-a-day smoker's best friend."²⁹²

(ii) *Low-Tar and Low-Nicotine Cigarettes.* — The industry's next technological "fix" was the low-tar and low-nicotine cigarette, which was marketed, often explicitly, as a viable alternative to quitting for health-conscious smokers. The move to ultra low-tar began in 1964 with the introduction of the Carlton brand, touted as an "unusual new cigarette" with a "unique Air-Stream Filter" that U.S. Government testing had found to be lowest in tar.²⁹³ Major brands responded by extending their lines, and by 1980, over fifty percent of cigarettes sold were "low-tar."²⁹⁴ Those health reassurance cigarettes quickly accomplished their aim: the public grew to view them as important, safer alternatives to "regular" cigarettes. "Consumer research showed those who smoked low-tar and -nicotine cigarettes largely did so because they saw them as 'safer.'"²⁹⁵ Cigarette companies even attempted to persuade physicians to prescribe their use for patients unable or unwilling to quit.²⁹⁶

Little evidence exists to support the industry's claim that these cigarettes were safer. Scientists have learned that smokers who switch from regular cigarettes to low-tar and low-nicotine brands frequently engage in "nicotine regulation" — compensatory behavioral changes that virtually eliminate any gap between high-yielding and low-yielding cigarettes. Significantly, this behavior was well-known to the industry when it developed and manufactured low-tar and low-nicotine products.

The industry has made other efforts to ensure that smokers, although believing that they are smoking "safer" cigarettes are, in fact, maintaining their addiction to nicotine. Specifically, the industry has manipulated the nicotine content of health reassurance cigarettes to

²⁹⁰ Dolan Report, *supra* note 285, at 33. Indeed, B & W noted in 1976 that "good cigarette advertising in the past has given the average smoker a means of justification." *Id.* (quoting B & W statement) (internal quotation marks omitted).

²⁹¹ *See id.* at 34.

²⁹² *Id.* at 34-35.

²⁹³ *Id.* at 35.

²⁹⁴ *See id.* The industry definition for a low-tar cigarette was one containing less than fifteen milligrams of tar. *See id.*

²⁹⁵ *Id.* at 36.

²⁹⁶ *See* GLANTZ ET AL., *supra* note 259, at 339.

provide the enhanced pharmacological effect that ensures even health-conscious smokers will remain addicted to the product.

For example, the industry studied smoker behavior to design cigarettes that allow smokers to block ventilation holes.²⁹⁷ Indeed, the industry has studied smoker behavior to design cigarettes that allow for this very feature.²⁹⁸ Manufacturers use a technique called "filter ventilation" in which nearly invisible holes are drilled in the filter paper, or the filter paper is made more porous.²⁹⁹ Many smokers of cigarettes advertised as low-tar and low-nicotine block the tiny, laser-generated perforations in ventilated filters with their fingers or lips; this results in greater tar and nicotine yields than those measured by the FTC smoking machine, which gauges the content of the smoke at the end of the cigarette shaft.³⁰⁰ The industry refers to this phenomenon as "elasticity" — the ability of a cigarette, whatever its FTC-measured nicotine yield, to deliver enough smoke to permit a smoker to obtain the nicotine she needs.³⁰¹

Cigarette manufacturers have also accomplished this enhanced nicotine content by developing raw tobacco with higher nicotine delivery. Testifying before the Subcommittee on Health and the Environment in the Summer of 1994, then FDA Director Dr. David A. Kessler described a program undertaken by B & W, which developed a tobacco plant known as "Y-1" with more nicotine content.³⁰² Over ten years, B & W secretly produced a genetically engineered plant with more than twice the level of nicotine found in regular tobacco.³⁰³ To conceal its work, B & W patented the plant in Brazil and shipped millions of pounds to the United States for use in five B & W brands, including three identified as "light" cigarettes.³⁰⁴ B & W also instructed

²⁹⁷ See Dolan Report, *supra* note 285, at 36.

²⁹⁸ See Group Research & Development Centre, British-American Tobacco Co. Ltd., Measurement of the Degree of Ventilation of Cigarettes at Various Flow Rates, Report No. RD.1576 Restricted (Apr. 4, 1978) (unpublished report, on file with the authors); cf. Memorandum from G. Berman to W. Dunn (May 7, 1998) (on file with the authors).

²⁹⁹ GLANTZ ET AL., *supra* note 259, at 87; Richard D. Hurt & Channing R. Robertson, *Prying Open the Door to the Tobacco Industry's Secrets About Nicotine: The Minnesota Tobacco Trial*, 280 JAMA, 1173, 1178 (1998).

³⁰⁰ See Hanson & Logue, *supra* note 256, at 119 n.104; Milo Geyelin, *Reynold's Paper Adds New Twist to Tar Debate*, WALL ST. J., Mar. 16, 1998, at B1.

³⁰¹ See Complaint at ¶155, *Massachusetts v. Philip Morris, Inc.*, (Mass. Sup. Ct. 1995) (No.95-7378) (on file with the authors).

³⁰² See *Regulation of Tobacco Products (Part 3): Hearings Before the Subcomm. on Health and the Env't of the House Comm. on Energy and Commerce*, 103d Cong. 4 (1994) (statement of David A. Kessler, Commissioner, FDA) [hereinafter *Kessler Testimony, Part 3*].

³⁰³ See *id.*

³⁰⁴ See *id.* at 4-5. But see *Regulation of Tobacco Products (Part 3): Hearings Before the Subcomm. on Health and the Env't of the House Comm. on Energy and Commerce*, 103d Cong. 142 (1994) (statement of Thomas E. Sandefur, Jr., Chairman and CEO, B & W) [hereinafter *Sandefur Testimony*] ("[I]t was suggested that there was something sinister or secretive about Y-1 because it was patented in Brazil In fact, it was grown in Brazil to prevent our competition from using it and because the growing conditions in Brazil were very good."); Memorandum from Mary Ar-

the DNA Plant Technology Corporation, which had worked on Y-1, to mislead FDA investigators who were seeking information on industry efforts to manipulate nicotine levels.³⁰⁵ Customs service invoices eventually exposed B & W by revealing that more than a half-million pounds of high-nicotine tobacco was shipped to B & W from abroad.³⁰⁶

Despite this high-profile industry exposure, and the resulting criticism, various other forms of nicotine manipulation persist. For instance, all American cigarette manufacturers except Liggett add ammonia compounds to their tobacco.³⁰⁷ The FTC smoking machine test does not detect this alteration because it does not distinguish between the slower-acting salt-bound nicotine and the potent "free" nicotine that ammonia helps to release. Thus, smokers consuming cigarettes containing an ammonia blend effectively inhale a higher level of nicotine per unit delivered.³⁰⁸ According to John Kreisher, a former associate scientific director of the Council for Tobacco Research, "[a]mmonia helped the industry lower the tar and allowed smokers to get more bang with less nicotine. It solved a couple of problems at the same time."³⁰⁹

Another method of enhancing nicotine delivery is known as "tobacco reconstitution." The process recycles tobacco stalks, stems, and other waste to form a sheet of tobacco material to which nicotine extractions are added at the discretion of the manufacturer. The tobacco industry's trade literature suggests that reconstitution enables manufacturers to triple or even quadruple the nicotine content of tobacco

onson 5 (Oct. 22, 1998) (on file with the authors) [hereinafter Aronson Memorandum] (reporting that the tobacco industry defends itself by claiming that "[o]ne method used to improve the safety of smoking was the development and use of a nicotine rich leaf (Y-1) which would keep the nicotine levels high while reducing the tars associated with smoking").

³⁰⁵ See *Kessler Testimony, Part 3, supra* note 302, at 5. But see *Sandefur Testimony, supra* note 304, at 142 ("Dr. Kessler stated that B & W authorized DNAP to state that Y-1 had not been commercialized. This is false. When DNAP called Brown & Williamson earlier this month and asked if it could discuss Y-1 with [the] FDA despite his confidentiality agreements with my company, Brown & Williamson gave permission to do so. We never told DNAP what to say.").

³⁰⁶ See *Kessler Testimony, Part 3, supra* note 302, at 10.

³⁰⁷ See P.L. AULBACH ET AL., *ROOT TECHNOLOGY: A HANDBOOK FOR LEAF BLENDERS AND PRODUCT DEVELOPERS* 9-10 [hereinafter *ROOT TECHNOLOGY*]; see also, e.g., Memorandum from Scott Appleton to Graham Smith 1-2 (Jan. 29, 1992) (on file with the authors) (referring to use of ammonia by B & W); Memorandum to W.B. Line 1 (July 30, 1981) (on file with the authors) (referring to the use of ammonia by Phillip Morris and RJR).

A 1991 B & W blending manual explained, "Ammonia . . . reacts with the indigenous nicotine salts and liberates free nicotine. . . . As the result of such change, the ratio of extractable nicotine to bound nicotine in the smoke may be altered in favor of extractable nicotine." *ROOT TECHNOLOGY, supra*, at 18-19.

³⁰⁸ See Alix M. Freedman, "*Impact Booster*": *Tobacco Firm Shows How Ammonia Spurs Delivery of Nicotine*, WALL ST. J., Oct. 18, 1995, at A1; see also *Kessler Testimony, Part 3, supra* note 302, at 20-22 (noting that adding ammonia compounds during the manufacturing process almost doubles the nicotine transfer efficiency of cigarettes).

³⁰⁹ Freedman, *supra* note 308, at A1.

and includes advertisements such as the following: "Nicotine levels are becoming a growing concern to the designers of modern cigarettes. [The] Kimberly-Clark tobacco reconstitution process . . . permits adjustments of nicotine to your exact requirements. . . . We can help you control your tobacco."³¹⁰

Of course, having studied the production and manipulation of nicotine this extensively, tobacco companies also gained significant insight into making cigarettes that contained less nicotine or were otherwise less addictive. But because manufacturers believed that nicotine was the product they actually were promoting, they declined to develop such cigarettes. The rationale was explained in a 1978 report to executives of Philip Morris: "If the industry's introduction of acceptable low-nicotine products *does* make it easier for dedicated smokers to quit, then the wisdom of the introduction is open to debate."³¹¹ Indeed, in a pattern repeated across the industry, both B & W and Philip Morris hired scientists to research and develop a nicotine analogue — artificial nicotine believed by some members of the industry to have the addictive properties of nicotine without the harmful effects on the heart — only to abandon the effort once the scientists discovered such an alternative.³¹²

The various industry elasticity projects described in this section appear to have been successful. Studies indicate that smokers tend to obtain nearly the same amount of nicotine from each cigarette despite differences in yield as measured by the FTC smoking machine.³¹³ In a 1974 British American Tobacco Company conference, researchers described the results of one such study: "The Kippa study . . . in Germany suggests that whatever the characteristics of cigarettes as determined by smoking machines, the smoker adjusts his pattern to deliver his own nicotine requirements (about 0.8 mg. per cigarette)."³¹⁴ Research recently commissioned by the FDA indicates that there is no necessary correlation between nicotine and tar levels and that low-tar

³¹⁰ *Regulation of Tobacco Products (Part 2): Hearings Before the Subcomm. on Health and the Env't of the House Comm. on Energy and Commerce*, 103d Cong. 17 (1994) (statement of David A. Kessler, Commissioner, FDA) (statement available in 9.2 TOBACCO PRODUCTS LITIG. REP. 7.27) (quoting a Kimberly-Clark Corporation ad). Tobacco industry patents also show that many technological advances have been made to control the nicotine content of cigarettes. See *Regulation of Tobacco Products (Part 1): Hearings Before the Subcomm. on Health and the Env't of the House Comm. on Energy and Commerce*, 103d Cong. 28, 80-81 (1994) (statement of David A. Kessler, Commissioner, FDA) [hereinafter *Kessler Testimony, Part 1*]. Several tobacco industry patent applications described an invention designed to release nicotine in controlled amounts and stated that tobacco could be made to provide a variety of nicotine levels. See *id.* at 82-83.

³¹¹ Memorandum from F.J. Ryan, Philip Morris U.S.A. Research Center 2 (Mar. 1978) (on file with the authors).

³¹² See Myron Levin, *Tobacco Lab: Science and Silence*, L.A. TIMES, July 19, 1994, at A1.

³¹³ See Lynn T. Kozlowski et al., *The Misuse of 'Less-Hazardous' Cigarettes and Its Detection: Hole-Blocking of Ventilated Filters*, 70 AM. J. PUB. HEALTH 1202, 1202-03 (1980).

³¹⁴ GLANTZ ET AL., *supra* note 259, at 87 (emphasis omitted).

brands have more nicotine by weight than "regular" brands.³¹⁵ But even those statistics may be misleading inasmuch as nominally low-tar cigarettes may, for familiar reasons, deliver more tar to the smoker than smoking machines register. The Players Ultra Mild, a cigarette that normally delivers 0.8 milligrams of tar, delivers 28.5 milligrams of tar when the perforations are blocked.³¹⁶ Results such as these have led some public health experts to conclude that "[o]n balance . . . [low-tar and -nicotine] cigarettes may well have increased the aggregate societal burden of smoking, primarily by reducing the number of people who would have quit in the absence of their availability, and secondarily by switchers smoking more cigarettes."³¹⁷

(d) *Recruiting New Smokers.* — After cigarette manufacturers survived the health revelations of the 1950s and 1960s, the 1970s became a period of marketing innovation for the more aggressive among them. The paramount goal of the industry changed from maintaining the existing smoking population to recruiting new smokers, especially *young* new smokers, a goal that remains paramount.³¹⁸ Although "the tobacco industry denies that it targets minors in its promotional campaigns, . . . evidence garnered from internal industry documents points to the contrary."³¹⁹ Indeed, examination of industry documents reveals a near obsession with marketing to the "pre-smoker."³²⁰

The industry's chief strategy for capturing this "pre-smoker" market is pervasive, relentless advertising. Cigarettes are among the most promoted consumer products in the United States.³²¹ The FTC re-

³¹⁵ See *Kessler Testimony, Part 1, supra* note 310, at 28, 96–97, 121 (showing that whereas one brand's Regular 100's contained 1.46% nicotine, its Low Tar 100's contained 1.67% nicotine and its Ultra Low Tar 100's contained 1.99% nicotine).

³¹⁶ See HILTS, *supra* note 259, at 61.

³¹⁷ Warner et al., *supra* note 284, at 1088.

³¹⁸ Unfortunately, other things being equal, the younger a person begins to smoke, the greater the risk of lung cancer and other smoking-related diseases. Studies have shown that lung cancer mortality is highest among adults who begin smoking before the age of 15. See Hanson & Logue, *supra* note 256, at 1327–29 & n.676.

³¹⁹ Graham E. Kelder, Jr. & Richard A. Daynard, *The Role of Litigation in the Effective Control of the Sale and Use of Tobacco*, 8 STAN. L. & POL'Y REV. 63, 66 (1997).

³²⁰ The importance of young people to the industry stems from the nature of the smoking addiction. Most cigarette use and addiction begins when users are children or teenagers. Eighty-two percent of daily smokers had their first cigarette before age 18, 62% before the age of 16, and 38% before the age of 14. See U.S. DEP'T OF HEALTH & HUMAN SERVS., YOUTH AND TOBACCO: PREVENTING TOBACCO USE AMONG YOUNG PEOPLE, A REPORT OF THE SURGEON GENERAL 49 tbl.7 (1995). The younger a person begins to smoke, the more likely she is to become a heavy smoker. Seventy percent of teenage smokers become regular adult smokers. See *id.* at 84. Because cigarettes are also a product characterized by intense brand loyalty, cigarette manufacturers have obvious and strong incentives to attract young smokers. *But cf.* Aronson Memorandum, *supra* note 304, at 5 (reporting on a recent class action tobacco trial and noting that the industry's defense is that "[t]he factors that most influence[] whether a kid will smoke is whether someone in his home smokes").

³²¹ See John P. Pierce et al., *Does Tobacco Advertising Target Young People to Start Smoking, Evidence from California*, 266 JAMA 3154, 3154 (1991).

ported to Congress that domestic cigarette advertising and promotional expenditures rose from close to \$4 billion in 1990 to more than \$6 billion in 1993.³²² Tobacco imagery — product brand names, logos, and advertising messages — is ubiquitous.³²³ It can be found on or in everything from billboards to magazines, and from city buses to race cars.³²⁴ The effect is to convey the message “to young people that tobacco use is desirable, socially acceptable, safe, healthy, and prevalent.”³²⁵ In fact, young people tend to buy the most heavily advertised cigarette brands, whereas many adults buy more generic or value-based cigarette brands, which have little or no image-based advertising.³²⁶ Similarly, merchandising, a favorite promotional tool of the industry,³²⁷ has also been linked to an increase in teen smoking rates, which occurred even as adult smoking rates were decreasing.³²⁸

These marketing practices have remained remarkably consistent, and successful, over the years. In 1967, for instance, new advertisement campaigns specifically targeting young girls coincided with a 110% jump in twelve-year-old starters.³²⁹ Perhaps more tellingly, Imperial Tobacco of Canada, sister company to B & W in the United States, used the focus group methodology described in Part I in a decade-long study beginning in 1976. The study was code-named “Project Sixteen,” for the age of the intended subjects.³³⁰ Project Sixteen was designed to determine how smoking starts, how high-schoolers felt about being smokers, and how they saw their use of tobacco in the future.³³¹ The subjects had to “be [sixteen] or [seventeen] years old, in high school, and professed smokers of [five] or more cigarettes per day.”³³² The youths were shown advertisements and questioned about them.³³³ The project revealed that the companies would profit from encouraging children to begin smoking between the ages of twelve and eighteen to ensure that the habit would become part of their self-image

³²² See FEDERAL TRADE COMM’N, REPORT TO CONGRESS FOR 1995 PURSUANT TO THE FEDERAL CIGARETTE LABELING AND ADVERTISING ACT 17 tbl.3D (1995).

³²³ See Regulations Restricting the Sale and Distribution of Cigarettes and Smokeless Tobacco Products to Children and Adolescents, 60 Fed. Reg. 41,314, 41,314 (1995).

³²⁴ See *id.*

³²⁵ *Id.*

³²⁶ See *id.*; KLUGER, *supra* note 259, at 702.

³²⁷ See Eben Shapiro, *Cigarette Makers Outfit Smokers in Icons, Eluding Warning and Enraging Activists*, WALL ST. J., Sept. 27, 1993, at B1.

³²⁸ See 139 CONG. REC. S3052 (daily ed. Mar. 17, 1993) (statement of Sen. Harkin). Sampling was a popular practice through the early 1990s. To give just one example of the massive merchandise giveaways conducted by the industry, RJR developed a beach shoe, alleged to appeal to young people, that leaves behind the word “Camel” in the sand as children stroll along the beach. See SOLOMON, *supra* note 39, at 411.

³²⁹ See HILTS, *supra* note 259, at 69.

³³⁰ *Id.* at 80.

³³¹ See *id.*

³³² *Id.*

³³³ See *id.* at 81.

as adults.³³⁴ The industry also learned that it should use ads that portrayed smoking as “cool” and “sophisticated.”³³⁵ The study emphasized that to appeal to youths the company must “re-establish clear, distinct images for Imperial Tobacco Limited brands with particular emphasis on relevance to younger smokers.”³³⁶

In the spring of 1972, Dr. Claude Teague, then assistant chief of research and development at RJR, wrote a memo discussing what motivates different groups of smokers to smoke, including the marketing of cigarettes to youths.³³⁷ The memo describes the profile of an ideal cigarette for a beginning smoker (between ages thirteen and seventeen) as mild tasting so as not to put them off in the beginning, containing lower-than-normal nicotine because children’s bodies have not yet acclimated to nicotine, and being promoted with a simultaneous emphasis on togetherness and individuality.³³⁸ The new campaign that RJR established as a result was Joe Camel, described by the ad copy as a “smooth character” and the “quintessential party animal,” who was “done up in a tuxedo and sunglasses, with a cigarette adangle from his pendulous lips and a bevy of adoring (human) beauties nearby.”³³⁹ The smooth character appears to have appealed to underage consumers. Studies published in a 1991 issue of the *Journal of the American Medical Association* found that Joe Camel is almost as familiar to six-year-old children as Mickey Mouse,³⁴⁰ that the campaign has enticed thousands of teens to smoke the brand, and that Camel’s popularity with twelve- to seventeen-year-olds has surged.³⁴¹ Those studies showed that roughly ninety percent of six-year-olds knew there was a connection between Joe Camel and cigarettes and ninety-eight percent of high school students understood, more specifically, the link between Joe and the Camel brand.³⁴² In three years, the brand jumped from

³³⁴ See *id.* at 82.

³³⁵ See *id.* at 82–87.

³³⁶ *Id.* at 84 (quoting Project Sixteen Report) (internal quotation marks omitted). In other research, an RJR affiliate studied in detail the motivations of young smokers. “Youth Target” was the first of a planned series of studies into the lifestyles and value systems of young men and women ages 15 to 24. The stated purpose of the study was to “provide marketers and policymakers with an enriched understanding of the mores and motives of this important emerging adult segment which can be applied to better decision making in regard to products and programs directed at youth.” Creative Research Group, Foreword, Youth Target 1987, at 1 (unpublished report, on file with the authors). The study focused on the “primary elements of lifestyles and values among the youth of today” to learn how to market products to children and teens. *Id.* at 4.

³³⁷ See HILTS, *supra* note 259, at 71–75.

³³⁸ See *id.* at 75.

³³⁹ KLUGER, *supra* note 259, at 701.

³⁴⁰ See Paul M. Fischer et al., *Brand Logo Recognition by Children Ages 3 to 6 Years: Mickey Mouse and Old Joe the Camel*, 266 JAMA 3145, 3147 (1991).

³⁴¹ See Joseph R. DiFranza et al., *RJR Nabisco’s Cartoon Camel Promotes Camel Cigarettes to Children*, 266 JAMA 3149, 3149 (1991).

³⁴² See KLUGER, *supra* note 259, at 702.

three percent to over thirteen percent of the market,³⁴³ and its consumer niche shifted from the over-fifty smoker to the under-twenty one smoker.³⁴⁴

None of those practices was permissible under the industry's self-imposed regulatory scheme — the Cigarette Advertising Code (the Code) — which was adopted in 1965 and was purportedly intended to restrict advertising to target only persons over twenty-one. The Code prohibited advertising in comic books, school papers, and children's television and radio programs, forbade distribution of samples to the underaged, and disallowed the use of models under the age of twenty-five in commercials or advertisements. But the Code had no real effect. Because of loopholes in its language, millions of children and teenagers watched programs sponsored by cigarette companies and read magazines filled with cigarette ads.³⁴⁵ A July 1995 report by the California Department of Health Services that surveyed tobacco advertisements in or around almost six thousand stores found that on average there were slightly more than twenty-five tobacco advertisements per store.³⁴⁶ The report also found that stores within one thousand feet of a school had significantly more tobacco advertising and promotions than stores that were not near schools.³⁴⁷ Marlboro was the most frequently advertised and promoted cigarette brand, with an average of ten advertisements per store.³⁴⁸ Camel was the second most frequently advertised and promoted cigarette brand and had an average of 4.84 advertisements and promotions per store.³⁴⁹

³⁴³ See HILTS, *supra* note 259, at 70.

³⁴⁴ See *id.* at 79–80. Joe Camel was not the only marketing icon invented to appeal to young people. The model who portrayed the “Winston Man” for RJR’s Winston brand cigarettes testified before Congress:

I was clearly told that young people were the market that we were going after. . . . It was made clear to us that this image was important because kids like to role play, and we were to provide the attractive role models for them to follow. I was told I was a live version of the GI Joe.

Hollywood Unions Take on Tobacco Firms: Talent Guilds' Lawsuit Seeking Smoking-Related Medical Costs, BOSTON GLOBE, Nov. 28, 1997, at A17.

³⁴⁵ See KLUGER, *supra* note 259, at 279.

³⁴⁶ See *Convenience Store Ads Geared Toward Youth, Study Finds*, in MEALY’S LITIGATION REPORTS: TOBACCO (Aug. 17, 1995) (summarizing California report).

³⁴⁷ See HILTS, *supra* note 259, at 93 (discussing California Dep’t of Health Servs., Operation Storefront: Youth Against Tobacco Advertising and Promotion). Stores near schools were also more likely to have at least one tobacco advertisement placed next to candy or displayed at a height of three feet or below, and a significantly higher average number of tobacco advertisements were found on the exterior of stores located in young neighborhoods (communities in which at least one-third of the population was 17 years or under). See *id.*

³⁴⁸ See *Convenience Store Ads Geared Toward Youth*, *supra* note 346.

³⁴⁹ See *id.*

Not surprisingly, Marlboro and Camel are the leading brands smoked by children.³⁵⁰

Despite these disturbing statistics, each of the cigarette manufacturers involved maintains that the effect of its pervasive advertising and promotion of cigarettes is limited to maintaining brand loyalty and that it has no role in encouraging adolescents to experiment with smoking.³⁵¹ That public position, however, is belied by the industry's private practices. Consider the fact that, unlike the health reassurance cigarette described above, tobacco products aimed at minors are not positioned as safer or less risky than other cigarettes. Cigarette manufacturers appear to have adopted this practice for deliberate (and dubious) reasons. There is growing evidence that cigarette warnings may actually give the product an enhanced gloss in the eyes of young consumers. Several studies have demonstrated a *forbidden fruit* appeal from television parental advisory warnings for violent shows.³⁵² Similar studies on the labeling effects of alcoholic versus nonalcoholic drinks also suggest that the warning itself may enhance the attractiveness of the product.³⁵³ Tobacco industry executives seem to have been well aware of that possibility. As early as 1973, Dr. Claude Teague of RJR noted that a new brand aimed at the young group "should not in any way be promoted as a 'health' brand" and perhaps should carry some implied risk. To the contrary, "*the warning label on the package may be a plus.*"³⁵⁴ Thus, just as tobacco manufacturers were able to devise seemingly safer cigarettes to appease risk-conscious adult smokers, they also seem able to take advantage of government-mandated product warnings as an appeal to children in their constant efforts to recruit new smokers.

2. *Creating Controversy: The Industry's Public Voice on Health Issues.* — Having focused in the previous section on the tobacco industry's advertising, promotion, and design efforts to create demand for a product long suspected to be harmful, we now shift to the industry's less traditional marketing maneuvers to counter this suspicion. Specifically, this section concentrates on the extraordinary decades-long

³⁵⁰ See Michael Schudson, *Symbols and Smokers: Advertising, Health Messages, and Public Policy*, in *SMOKING POLICY: LAW, POLITICS, AND CULTURE* 208, 217 (Robert L. Rabin & Stephen D. Sugarman eds., 1993); *Convenience Store Ads Geared Toward Youth*, *supra* note 346.

³⁵¹ See *Regulations Restricting the Sale and Distribution of Cigarettes and Smokeless Tobacco to Protect Children and Adolescents*, 61 Fed. Reg. 44,396 (1996) (summarizing industry arguments).

³⁵² See, e.g., Brad J. Bushman & Angela D. Stack, *Forbidden Fruit Versus Tainted Fruit: Effects of Warnings Labels on Attraction to Television Violence*, 2 J. EXPERIMENTAL PSYCHOL.: APPLIED 207, 208 (1996).

³⁵³ See, e.g., John M. Springer & Craig T. Nagoshi, *Magical Thinking and Alcohol Labels*, 69 PSYCHOL. REP. 767, 767 (1991).

³⁵⁴ John Schwartz, *1973 Cigarette Company Memo Proposed New Brands for Teens*, WASH. POST, Oct. 4, 1995, at A2 (emphasis added) (quoting Dr. Claude Teague) (internal quotation marks omitted).

campaign of the industry, acting in concert, to foster and perpetuate "controversy" over whether cigarettes cause disease and, more recently, whether they are addictive. This campaign followed a deliberate strategy of gaining public trust by appearing cooperative and concerned, providing the smoker with any and all "justifications" the industry could muster for disbelieving public health reports about smoking, and carefully monitoring and suppressing the industry's own knowledge about the risks of smoking.

(a) *The Big Scare and the Industry's Coordinated Response.* — It appears that before 1950, although smokers preferred brands marketed as healthful, they did not regard the health risks of even the most dangerous brands as particularly significant. The widely held sense seems to have been that the risks of smoking, though real, were insubstantial.³⁵⁵ The midpoint of this century, however, marked a sea change in scientific and public perceptions of smoking risks — what one commentator calls "the end of the age of innocence about the blithe charms of the cigarette."³⁵⁶ Several studies appeared at about this time strongly indicating that the dangers of smoking were substantial, especially with respect to lung cancer.³⁵⁷ Perhaps more damaging to the industry was the fact that the results of those studies were widely reported,³⁵⁸ leading to what cigarette company officials later called the "Big Scare"³⁵⁹ and a sudden, large drop in cigarette sales.³⁶⁰

The response to this mounting adverse publicity was swift. At the invitation of the president of the American Tobacco Company (ATC), Paul M. Hahn, the chief executive officers of the leading cigarette manufacturers met on December 15, 1953 at the Plaza Hotel in New

³⁵⁵ For instance, in a 1936 issue of the highly respected magazine *Scientific American*, one of the editors wrote that although smokers "are doubtless harmed to some extent, [the harm] is usually not great." KLUGER, *supra* note 259, at 105 (quoting a June 1936 article in *Scientific American*) (internal quotation marks omitted). The editor continued, smoking can be dangerous, but it is also dangerous "to climb mountains and stepladders, play football, cross the street, or merely to exist, but the risk is so small that we willingly accept it." *Id.* An editorial in the *Journal of the American Medical Association* stated the position even more clearly: "[M]ore can be said in behalf of smoking as a form of escape from tension than against it. . . . [T]here does not seem to be any preponderance of evidence that would indicate the abolition of the use of tobacco as a substance contrary to the public health." *Id.* at 132 (quoting a 1948 *JAMA* editorial) (internal quotations marks omitted); see also Lydia Saad & Steve O'Brien, *The Tobacco Industry Summons Polls to the Witness Stand: A Review of Public Opinion on the Risks of Smoking* 12 (May 15, 1998) (unpublished manuscript, prepared for presentation at the annual meeting of the American Association for Public Opinion Research, on file with the authors) (describing the results of a 1954 Gallup Poll, in which only 6.6% of respondents mentioned cancer-related maladies as a harm of smoking, only 30.1% mentioned lung-related illnesses, and only 4.2% mentioned heart ailments).

³⁵⁶ KLUGER, *supra* note 259, at 133.

³⁵⁷ See HILTS, *supra* note 259, at 3.

³⁵⁸ There had been previous studies that linked cigarettes to lung cancer, but the fact that they were not well publicized tempered the resulting damage to the industry.

³⁵⁹ Hill & Knowlton, *Public Relations Report to the Tobacco Industry Research Committee* 1 (Apr. 28, 1955) (unpublished memo, on file with the authors).

³⁶⁰ See *id.* (reporting an eight percent drop in cigarette consumption over just two years).

York City. Also in attendance was the public relations firm Hill & Knowlton, which was to play a central role in formulating and executing the industry's response. Hill & Knowlton's minutes of the meeting at the Plaza indicate that cigarette industry executives viewed the problem as "extremely serious" and "worthy of drastic action."³⁶¹ Despite the executives' initial fears that the "industry might have to acknowledge the hazard and make themselves ready to regulate tobacco," Hill & Knowlton's bold proposal for a counter-attack against the scientists convinced them that a strong public relations response from the industry was both feasible and necessary.³⁶²

From the beginning, the research linking smoking and cancer seems to have been viewed by the manufacturers as a public relations threat rather than a public health issue. In a memorandum circulated to the CEOs of other tobacco companies the day before the meeting at the Plaza, B & W's president, Timothy V. Hartnett, expressed the need to hire "the best obtainable public-relations counsel since none has ever been handed so real and yet so *delicate* a multimillion dollar problem."³⁶³ As the Hill & Knowlton memorandum details, the CEOs of all the leading companies, except Liggett, eventually decided that "[t]he industry should not engage in a merely defensive campaign."³⁶⁴ The memo continued, "They should sponsor a public relations campaign which is positive in nature and entirely 'pro-cigarettes.'"³⁶⁵ The CEOs were "also emphatic in saying that the entire activity" must be "a long-term, continuing program, since . . . the problem is one of promoting cigarettes and protecting them from these and other attacks that may be expected in the future."³⁶⁶

Just one week after the meeting, Hill & Knowlton presented a public relations proposal to the cigarette manufacturers recommending, among several actions, the formation and widespread announcement of a joint research committee for promoting "independent scientific research on the health effects of smoking."³⁶⁷ The proposal emphasized that if their strategy was to be successful, the industry would have to gain the public trust and avoid the appearance of bias.³⁶⁸ Two key

³⁶¹ *Id.* at 5 (internal quotation marks omitted).

³⁶² *Id.*

³⁶³ KLUGER, *supra* note 259, at 163-64.

³⁶⁴ HILTS, *supra* note 259, at 6 (quoting minutes of December 1953 meeting between tobacco industry executives and Hill & Knowlton officials) (internal quotation marks omitted).

³⁶⁵ *Id.*

³⁶⁶ Background Material on the Cigarette Industry Client 2 (Dec. 18, 1953) (unpublished memo, on file with the authors).

³⁶⁷ GLANTZ ET AL., *supra* note 259, at 33.

³⁶⁸ Hill & Knowlton recommended the following:

[T]he grave nature of a number of recently highly publicized research reports on the effects of cigarette smoking . . . have confronted the industry with a serious problem of public relations. . . . It is important that the industry do nothing to appear in the light of being callous to considerations of health or of belittling medical research which goes against ciga-

public relations goals for the industry, therefore, were to maintain the appearance of a "controversy" regarding the health effects of smoking and to pledge to consumers (and lawmakers) their own fidelity to consumer health in their own research into this "controversy."³⁶⁹

The first effort of this sort was made shortly after the formation of a public relations vehicle, the Tobacco Industry Research Council (TIRC). On January 4, 1954, member manufacturers announced the formation of TIRC with a full-page newspaper advertisement entitled "A Frank Statement to Cigarette Smokers."³⁷⁰ The statement appeared in 448 newspapers across the nation, reaching a circulation of 43,245,000 in 258 cities.³⁷¹ The Frank Statement included the following reassurances:

Recent reports on experiments with mice have given wide publicity to a theory that cigarette smoking is in some way linked with lung cancer in human beings.

....

We accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business.

....

We always have and always will cooperate closely with those whose task it is to safeguard the public health.

....

1. We are pledging aid and assistance to the research effort into all phases of tobacco use and health.

....

2. For this purpose we are establishing a joint industry group consisting initially of the undersigned. This group will be known as TOBACCO INDUSTRY RESEARCH COMMITTEE.

3. In charge of the research activities of the Committee will be a scientist of unimpeachable integrity and national repute. In addition there will be an Advisory Board of scientists disinterested in the cigarette industry. A group of distinguished men from medicine, science, and education will be invited to serve on this Board. These scientists will advise the Committee on its research activities.

rettes. . . . The situation is one of extreme delicacy. There is much at stake and the industry group, in moving into the field of public relations, needs to exercise great care not to add fuel to the flames.

Hill & Knowlton, Preliminary Recommendation for Cigarette Manufacturers 1-2 (Dec. 24, 1953) (unpublished memo, on file with the authors).

³⁶⁹ See GLANTZ ET AL., *supra* note 259, at 40.

³⁷⁰ Tobacco Industry Research Committee, *A Frank Statement to Cigarette Smokers*, BOSTON GLOBE, Jan. 4, 1954, at 13.

³⁷¹ See HILTS, *supra* note 259, at 12.

This statement is being issued because we believe the people are entitled to know where we stand on this matter and what we intend to do about it.³⁷²

By the Spring of 1955, it was fairly apparent that Hill & Knowlton's self-defense strategy had been successful. According to one 1955 memorandum, "Suspicion is still widespread but the lynching party seems to have been called off Even adverse stories now tend to carry modified statements."³⁷³ On an even more positive note, Hill & Knowlton reported to TIRC that "progress has been made" and "[t]he first 'big scare' continues on the wane."³⁷⁴ More specifically, "[t]he research program of [TIRC] has won wide acceptance in the scientific world as a sincere, valuable and scientific effort," and "[p]ositive stories are on the ascendancy."³⁷⁵ Since then, many of the claims and promises of the 1954 Frank Statement have been renewed and repeated in industry advertisements.³⁷⁶ Each of these advertisements served the obvious purpose of building public trust through an appearance of responsibility and concern on the part of the cigarette manufacturers. As we show in the following sections, however, creating this appearance was actually just the first step in the industry's long campaign to perpetuate misinformation and confusion over the health questions of most vital concern to smokers.³⁷⁷

³⁷² Tobacco Industry Research Committee, *supra* note 370, at 13; *see also* HILTS, *supra* note 259, at 12-13. On April 14, 1954, shortly after publishing the Frank Statement, TIRC sent a booklet to every doctor in the United States entitled *A Scientific Perspective on the Cigarette Controversy*. Despite some concern by TIRC lawyers that the booklet was using quotations of scientists improperly and without their permission, it was nevertheless sent to 176,800 doctors, members of Congress, and 15,000 members of the press. *See* GLANTZ ET AL., *supra* note 259, at 358.

³⁷³ HILTS, *supra* note 259, at 17.

³⁷⁴ Hill & Knowlton, Public Relations Report to the Tobacco Industry Research Committee 1 (Apr. 28, 1955) (on file with the authors).

³⁷⁵ *Id.*

³⁷⁶ For instance, one advertisement contained the following reassurances:

After millions of dollars and over 20 years of research: The question about smoking and health is still a question.

. . . .
In the interest of absolute objectivity, the tobacco industry has supported totally independent research efforts with completely non-restrictive funding.

In 1954, the industry established what is now known as CTR, the Council for Tobacco Research — USA, to provide financial support for research by independent scientists into all phases of tobacco use and health. Completely autonomous, CTR's research activity is directed by a board of ten scientists and physicians who retain their affiliations with their respective universities and institutions. This board has full authority and responsibility for policy, development and direction of the research effort.

The Tobacco Institute, *After Millions of Dollars and Over Twenty Years of Research: The Question About Smoking and Health Is Still a Question*, WASH. POST, Dec. 1, 1970, at A10.

³⁷⁷ The industry shows little sign of abandoning these tactics. In the early 1990s, the industry replicated the Frank Statement strategy of preempting emerging scientific research, this time fighting to keep alive the controversy concerning the link between second-hand smoke and lung cancer. The industry once again took out full-page advertisements and established a committee, this time called the "Center for Indoor Air Research," in an effort to duplicate its earlier success. The advertisements attempted to associate specific brands with the message that smoking was not

(b) *A Deliberate Effort to Confuse: "Doubt Is Our Product."* — Internal documents seem to demonstrate that the joint industry research efforts undertaken through TIRC and the Council for Tobacco Research (CTR) were self-consciously designed to promote favorable research, suppress negative research where possible, and attack negative research when it could not be suppressed, all in order to assuage smokers' fears. Perhaps the most succinct statement of these objectives comes from a memorandum, believed to have been written by J.V. Blalock, B & W's director of public relations: "Doubt is our product since it is the best means of competing with the 'body of fact' that exists in the mind of the general public. It is also the means of establishing a controversy."³⁷⁸

Creating and sustaining controversy over the risks of smoking became standard practice in the industry, as evidenced by a 1972 internal document from a TIRC official. The document described the importance of using joint industry research to maintain public doubt about the link between smoking and disease. This document represents a remarkably candid and revealing statement of industry policy:

For nearly twenty years, this industry has employed a single strategy to defend itself on three major fronts — litigation, politics, and public opinion.

While the strategy was brilliantly conceived and executed over the years, helping us win important battles, it is only fair to say that it is not — nor was it ever intended to be — a vehicle for victory. On the contrary, it has always been a holding strategy, consisting of

- creating doubt about the health charge without actually denying it
- advocating the public's right to smoke, without actually urging them to take up the practice
- encouraging objective scientific research as the only way to resolve the question of the health hazard

....

As an industry, therefore, we are committed to an ill-defined middle ground which is articulated by variations on the theme that, the case is not proved.

....

In the cigarette controversy, the public — especially those who are present and potential supporters (e.g., tobacco state congressmen and

dangerous. The first such advertisement was for Kool cigarettes and emphasized "the other side of the smoking and health controversy." GLANTZ ET AL., *supra* note 259, at 188 (quoting memorandum from J. Burgard to R. Pittman 5 (Aug. 21, 1969)) (internal quotation marks omitted).

³⁷⁸ *Id.* at 190-91 (noting that B & W sought not to refute, but to sustain a controversy).

heavy smokers) — must perceive, understand, and believe in evidence to sustain their opinions that smoking may not be the causal factor.³⁷⁹

This and other evidence³⁸⁰ indicates that the purpose of TIRC and CTR was to create public trust and then to manipulate the public's perception of the risks of smoking. There is every reason to believe that the strategy has been effective. As one industry executive has been quoted as saying, "CTR is [the] best [and] cheapest insurance the tobacco industry can buy and without it the Industry would have to invent CTR or would be dead."³⁸¹

(i) *Projecting Independence.* — Throughout their history, TIRC and CTR have been heavily influenced by tobacco industry lawyers. Indeed, some observers have claimed that these lawyers set the research agenda for the supposedly independent organizations. More specifically, they "encouraged scientific research to refute the scientific evidence about tobacco, to perpetuate controversy about the health effects of tobacco, and to provide results that could be used to respond to adverse publicity."³⁸² CTR "Special Projects" were not evaluated by independent scientists on their research merits but instead were directed by tobacco companies on advice from their legal departments.³⁸³ "Between 1972 and 1991, CTR awarded at least \$14,636,918 in special project funding," the recipients of which were selected by tobacco company executives and lawyers.³⁸⁴

In order for CTR effectively to serve its role as industry "insurance," however, the industry had to present it to the outside world as an independent and objective source of scientific information. Thus, in its annual reports, CTR stated that its Scientific Advisory Board funded peer-reviewed research projects, "judging them solely on the basis of scientific merit and relevance."³⁸⁵ In 1994, Dr. James F. Glenn, CEO and president of CTR, testified before the House Committee on Energy and Commerce: "The Council . . . sponsors research

³⁷⁹ Memorandum from Fred Panzer to Horace R. Kornegay 1-2 (May 1, 1972) (on file with the authors) (internal quotation marks omitted).

³⁸⁰ For instance, a 1978 memorandum addressed to the CTR file from a Philip Morris official characterized CTR as "an industry 'shield.'" *Haines v. Liggett Group*, 140 F.R.D. 681, 696 (D.N.J. 1992). The memorandum goes on to explain that "the 'public relations' value of CTR must be considered and continued. . . . *It is extremely important that the industry continue to spend their dollars on research to show that we don't agree that the case against smoking is closed. . . .*" *Id.* Furthermore, Ernest Pepples, vice president and general counsel of B & W, said in a private statement in 1978 that although CTR was originally "organized as a public relations effort," it "also discharged a legal responsibility." Letter from Ernest Pepples to J.K. Edens et al. 2 (Apr. 4, 1978) (on file with the authors). Pepples added, "[T]he industry research effort has included special projects designed to find scientists and medical doctors who might serve as industry witnesses in lawsuits or in a legislative forum." *Id.*

³⁸¹ HILTS, *supra* note 259, at 16 (quoting Addison Yeaman).

³⁸² GLANTZ ET AL., *supra* note 259, at 288.

³⁸³ *See id.* at 289.

³⁸⁴ *Id.*

³⁸⁵ *E.g.*, THE COUNCIL FOR TOBACCO RESEARCH—U.S.A., INC., 1984 REPORT.

into questions of tobacco use and health [Council] grantees . . . are assured complete scientific freedom in conducting their studies. . . . [P]ublication [of research results] is encouraged in all instances."³⁸⁶ In fact, the studies were often the product of industry scripts and irreconcilable financial conflicts of interest, and those studies that were not ran the risk of being suppressed by the industry. For example, the Kentucky Tobacco and Health Research Institute publicized itself as a taxpayer-funded, independent tobacco research program, but actually conducted research on the supposed benefits of smoking and on nicotine analogues, while it also helped to prepare congressional testimony in an attempt to influence public policy.³⁸⁷

Carl Seltzer, professor of public health at Harvard University, conducted research related to the hypothesis that genetic factors rather than smoking cause heart disease. During his retirement, he received more than \$750,000 in CTR Special Projects grants between 1976 and 1990.³⁸⁸ Seltzer traveled extensively to speak about his work, and the industry increased his grant to cover travel expenses.³⁸⁹ Asked to respond to unfavorable press about a particular study during the MacNeil/Lehrer NewsHour, he criticized the study, claiming that the scientist at issue, Dr. Castelli, made statements that were "biased, flawed and inaccurate."³⁹⁰ Professor Seltzer stated that, "I merely wanted you to get some idea of deliberate inaccuracies in the Castelli statements to you and the public. . . ."³⁹¹ He did not mention that B & W's lawyers requested him to write the letter or that the industry was funding him.³⁹²

³⁸⁶ *Regulation of Tobacco Products (Part 2): Hearings Before the Subcomm. on Health and the Env't of the House Comm. on Energy and Commerce*, 103d Cong. 340-43 (1994) (statement of James F. Glenn, CEO and president, CTR).

³⁸⁷ See GLANTZ ET AL., *supra* note 259, at 314-16. The industry also used a more subtle strategy to sway important organizations, such as the American Medical Association (AMA). In keeping with the realistic and strategic nature of the tobacco executives' campaigns, the aim was to maintain the neutrality of the AMA, and to encourage them to issue statements that would prove useful to the tobacco companies in their public relations campaign. See *id.* at 184. In fact, the AMA in the 1960s did not actively oppose the tobacco industry. Instead, the organization worked with the industry, "both to perpetuate the scientific 'controversy' about smoking and health and to keep federal regulation to a minimum." *Id.* at 181.

³⁸⁸ See *id.* at 293.

³⁸⁹ See *id.* at 294.

³⁹⁰ *Id.* at 295.

³⁹¹ *Id.*

³⁹² See *id.* at 295-96. Dr. Theodor Sterling likewise advanced the "constitutional hypothesis" of disease, and publication of his criticisms was part of an industry strategy to stimulate controversy about the dangers of second-hand smoke. In addition, he gave the industry material that it could cite to maintain the controversy regarding the causal link between cigarette smoke (be it active or passive) and disease. See *id.* at 301. Similarly, Dr. Henry Rothschild, professor of medicine at Louisiana State University, was awarded \$250,000 to conduct research on the role of genetics in the causation of cancer. Tobacco companies funded him through CTR Special Projects and used his work for congressional testimony. Rothschild kept tobacco company lawyers informed of his progress, and they were even able to review his manuscripts before Rothschild submitted those

Other researchers were not as cooperative and thus required a different brand of industry oversight. Dr. Frederick Homberger, for instance, received money to study smoke exposure on hamsters. As his research progressed, the initial grant was reformulated as a contract, "so [the industry] could control publication — they were quite open about that."³⁹³ The industry was particularly sensitive to the use of the word "cancer," which they did not allow Dr. Homberger to publish.³⁹⁴ In order to enforce such edits, the tobacco companies stopped funding his research.³⁹⁵ Frustrated with such tight control over his work, Dr. Homberger attempted to call a press conference to expose the suppression of scientific information. Officials working for the tobacco industry, however, were one step ahead of him. As detailed in an internal memo, rather than allowing such damaging allegations to reach the public, the tobacco officials "arranged later that evening for [the press conference] to be cancelled."³⁹⁶ Instead of revealing industry practices, "Homberger was given a cordial welcome and nicely hastened out the door."³⁹⁷ The bottom of the internal memo included a postscript: "P.S. I doubt if you or Tom will want to retain this note."³⁹⁸

Finally, the industry often resorted to publishing pro-cigarette propaganda pieces through "independent" writers to give the appearance of objectivity in the popular press. The tobacco industry paid people to write articles favorable toward cigarettes and unfavorable toward public health research,³⁹⁹ and paid them even more when national magazines published their articles. For instance, in 1969, two national periodicals published articles by the same author under different pseudonyms. The author, a sports writer named Stanley Frank, did not disclose that he had been hired by Hill & Knowlton.⁴⁰⁰ A month after one of the articles was published, six hundred thousand reprints were distributed with an attached note reading, "As a leader in your profession and community, you will be interested in reading

manuscripts for publication. Rothschild's *The Bandwagons of Medicine*, which was published in the scientific journal *Perspectives in Biology and Medicine*, contained the basic premise that physicians "jump on the bandwagon" of popular therapies, including the "complete elimination of cigarettes," when "there is no definitive evidence to support their value." *Id.* at 292. Rothschild sent the manuscript to an attorney, Timothy Finnegan of Jacob, Medinger & Finnegan, who then circulated the manuscript to counsel for the tobacco companies. *See id.* at 293.

³⁹³ Alix M. Freedman & Laurie P. Cohen, *Smoke & Mirrors*, WALL ST. J., Feb. 11, 1993, at A6.

³⁹⁴ *See id.*

³⁹⁵ *See* HILTS, *supra* note 259, at 11.

³⁹⁶ Memorandum from L.S.Z. to Henry & Tom 1-2 (Apr. 22, 1974) (on file with the authors).

³⁹⁷ *Id.* at 2.

³⁹⁸ *Id.*

³⁹⁹ *See* HILTS, *supra* note 259, at 106.

⁴⁰⁰ *See* GLANTZ ET AL., *supra* note 259, at 179.

this story."⁴⁰¹ Nowhere on the note was it indicated that tobacco money had paid for the reprints.⁴⁰²

(ii) *Denying Causation.* — In addition to this effort to control and suppress scientific research into the ills of smoking, while simultaneously projecting an image of independence, the cigarette industry also steadfastly maintained a campaign to create controversy and doubt surrounding all outside research that indicated a causal link between cigarettes and disease. Many of the public health studies had shared the same basic methodology: they observed general trends and noted the strong correlation between smoking and disease, particularly cancer. Because none of the studies could establish a specific causal relationship between smoking and an individual smoker's cancer, the industry repeatedly invoked the argument that correlation does not prove causation. Indeed, the tobacco companies exploited this general truism by issuing bold statements that there was no link at all. The Frank Statement of 1954 stands as an exemplar of their approach: "Although conducted by doctors of professional standing," the widely disseminated text read, "these experiments are not regarded as conclusive in the field of cancer research."⁴⁰³ Further, the Frank Statement asserted that "there is no proof that cigarette smoking is one of the causes [of lung cancer]," and "[w]e believe the products we make are not injurious to health."⁴⁰⁴

This approach became the basic line of defense for the industry, and it repeatedly appeared over several decades. For instance, after the respected Dr. Clarence Cook Little assumed leadership of TIRC's Scientific Advisory Board in 1954, he received a memorandum from Hill & Knowlton that emphasized the importance of stressing the absence of a proven causal link. The memo instructed Dr. Little that "[n]o evidence within our knowledge has yet established cigarette smoking as a causal factor in lung cancer," and "[r]esearch reports have definitely NOT produced to date a fragment of conclusive evidence."⁴⁰⁵ Dr. Little dutifully followed these instructions a few days later during an interview on Edward R. Murrow's television show. In response to a query about whether "cancer-causing agents" had been

⁴⁰¹ KLUGER, *supra* note 259, at 324.

⁴⁰² *See id.* This practice of reprinting supposedly independent articles continued through the shift from concern about active smoking to deepening awareness about the dangers of passive smoking. *See* GLANTZ ET AL., *supra* note 259, at 180–81. After the Environmental Protection Agency's 1992 report detailed the dangers of passive smoking, the tobacco industry reprinted articles criticizing the report. Philip Morris reprinted one of these articles as a full-page ad for four successive days. The ad's bold caption read, "If We Said It, You Might Not Believe It." Philip Morris did not disclose that the author's employer received a \$10,000 donation from Philip Morris or that the author himself received \$5000 from RJR for the rights to use his writings. The industry also made similar attempts to attack the FDA. *See id.* at 181.

⁴⁰³ GLANTZ ET AL., *supra* note 259, at 34 (reproducing the actual advertisement).

⁴⁰⁴ *Id.*

⁴⁰⁵ HILTS, *supra* note 259, at 10.

identified in cigarettes, Dr. Little replied, "No. None whatever, either in cigarettes or in any product of smoking"406

In 1983, Dr. Sheldon Sommers, then the scientific director of the CTR, testified before Congress: "Cigarette smoking has not been scientifically established to be a cause of chronic diseases, such as cancer, cardiovascular disease, or emphysema. Nor has it been shown to affect pregnancy outcome adversely."⁴⁰⁷ An advertisement placed by RJR in 1984, styled like an editorial, averred that "[s]tudies which conclude that smoking causes disease have regularly ignored significant evidence to the contrary" and that "reasonable people who analyze [the evidence] may come to see this issue not as a closed case, but as an open controversy."⁴⁰⁸ The advertisement continued: "Like any controversy, this one has more than one side. We hope the debate will be an open one."⁴⁰⁹ Continuing the theme, in 1990 RJR sent a letter including the following paragraph to the principal of a school whose fifth graders had written to the company: "Despite all the research going on, the simple and unfortunate fact is that scientists do not know the cause or causes of the chronic diseases reported to be associated with smoking. The answers to the many unanswered controversies . . . we believe can only be determined through much more scientific research."⁴¹⁰

Occasionally, in its zeal to convey the message that no one had shown causation, the industry even overtly misrepresented the conclusions of studies.⁴¹¹ The Multiple Risk Factor Intervention Trial was a government funded, \$100 million, twenty-year study that ended in 1982.⁴¹² The study found that "those who quit smoking had signifi-

⁴⁰⁶ *Id.*

⁴⁰⁷ GLANTZ ET AL., *supra* note 259, at 20.

⁴⁰⁸ RJR, Editorial, *Can We Have an Open Debate About Smoking?*, N.Y. TIMES, Jan. 30, 1984, at A11.

⁴⁰⁹ *Id.*

⁴¹⁰ Dolan Report, *supra* note 285, at 14 (quoting a letter from RJR public information manager Jo Spach) (omission in original). This practice of denying that the science indicated anything more than correlation continued as recently as 1994, when the heads of the major tobacco companies testified before Congress. At that hearing, Andrew Tisch, CEO of Lorillard, maintained that "[w]e have looked at the data and [it] has all been statistical data that has not convinced me that smoking causes death." HILTS, *supra* note 259, at 123 (quoting testimony). At the same hearing, the chief executives of the seven major tobacco companies swore under oath that nicotine and cigarettes are not addictive. *See id.* at 122.

⁴¹¹ In one recent instance, Philip Morris attempted to debunk the EPA's conclusions that second-hand smoke is a prime carcinogen by taking out a full-page advertisement stating that a study in the *American Journal of Public Health* found "no overall statistically significant link between second-hand smoke and lung cancer," and asking the question, "Why did the EPA not include this study?" HILTS, *supra* note 259, at 106. The ad thus implied an intentional manipulation of information by the EPA. In reality, the study concluded that passive smoking suggests a "small but consistent elevation in the risk of lung cancer in nonsmokers due to passive smoking" and the "proliferation of federal, state and local regulations that restrict smoking in public places and work sites is well founded." *Id.*

⁴¹² *See* KLUGER, *supra* note 259, at 572.

cantly lower rates of [coronary heart disease] and, for the most part, total mortality."⁴¹³ RJR took out an advertisement that ignored this unequivocal finding, stating: "After 10 years, there was no statistically significant difference between the two groups in the number of heart disease deaths."⁴¹⁴ In addition, RJR drove home the causation theme by flatly stating that the link between cigarettes and disease was "an opinion" or "[a] judgment."⁴¹⁵ The link was "not scientific fact."⁴¹⁶

(iii) *Attacking the Opposition.* — In addition to these efforts to play on the public health advocates' lack of specific causation evidence, the industry also attempted to create the appearance of an anti-smoking conspiracy. Tobacco manufacturers tried to portray scientists who reached conclusions about the adverse effects of smoking as zealots who would do anything, including conducting flawed science, to put the industry out of business.⁴¹⁷ Pursuant to such goals, the industry devised a system to keep track of scientists and physicians who were considered dangerous because they were informing the public of anti-tobacco evidence.⁴¹⁸ The practice involved establishing an "active intelligence crew" to listen to papers presented at medical meetings and responding if possible when the reports seemed damaging.⁴¹⁹ This well-organized system also included the labeling of certain territories as "red territories," where the industry needed to be most watchful for the problem of spreading anti-tobacco messages.⁴²⁰

To resist the increasing threat of government regulations in 1969 and 1970 and to draw attention away from the mounting body of scientific evidence attesting to the dangers of smoking, the tobacco industry eventually shifted the focus of its advertising from science to political "rights."⁴²¹ Advertising campaigns were "designed to equate any attack on the tobacco industry with an attack on freedom itself."⁴²² Buzzwords included "scare-tactics," "freedom," "legal product," "truth,"

⁴¹³ *Multiple Risk Factor Intervention Trial*, 248 JAMA 1465 (1982).

⁴¹⁴ KLUGER, *supra* note 259, at 574 (quoting RJR ad) (internal quotation marks omitted).

⁴¹⁵ *In re R.J. Reynolds Tobacco Co.*, 111 F.T.C. 539, 554 (1988) (Oliver, Chairman, dissenting) (quoting the advertisement "Of Cigarettes and Science") (emphasis omitted) (internal quotation marks omitted).

⁴¹⁶ *Id.*

⁴¹⁷ See, e.g., *infra* p. 1495.

⁴¹⁸ See GLANTZ ET AL., *supra* note 259, at 197-98.

⁴¹⁹ HILTS, *supra* note 259, at 14.

⁴²⁰ GLANTZ ET AL., *supra* note 259, at 198. The "red territory" system involved keeping the companies in these territories informed of imminent industry action and included a check-list of major scientific papers with industry comments, a list of particularly favorable or unfavorable scientists and doctors, and a warning system for when these professionals traveled to a particular territory. *Id.* (quoting Letter from A.D. McCormick, BAT research and development, to B.G. Pearson, BAT attorney (June 27, 1968)) (internal quotation marks omitted). The tobacco industry implemented this practice worldwide and formalized it through a London-based organization called INFOTAB. See *id.*

⁴²¹ See *id.* at 184-85.

⁴²² *Id.* at 185.

“free speech,” “fair play,” and “free and responsible enterprise.”⁴²³ The attempt to frame the issue in political terms was evident in the slogans themselves, which included the following pithy statements:

It's more than cigarettes being challenged here. It's freedom.

We will continue to bring to the American people the story of the cigarette and any other legal product based upon truth and taste.

We believe that free speech and fair play are both the heritage and promise in our society of free and responsible enterprise.⁴²⁴

Finally, when the foregoing tactics proved unavailing, the industry often resorted to nuisance litigation, a tactic that has appealed to the industry at least since the Big Scare. Around that time, for example, John Hill, of Hill & Knowlton, recommended suing Dr. Alton Ochsner, a pioneering authority on the health effects of cigarettes, because Hill wanted to have a “peg on which to hang an attack upon Ochsner and his ilk in making irresponsible and panicky statements under the cloak of scientific authority.”⁴²⁵ In recent years, the tactic has been employed with renewed vigor. In 1997, for example, Californians for Scientific Integrity, a new citizens group funded mostly by the tobacco industry, filed a suit charging Dr. Stanton Glantz, a statistician and professor of medicine at the University of California at San Francisco, with scientific misconduct in an influential study concluding that smoking bans in fifteen communities produced no adverse economic impact on restaurants.⁴²⁶ RJR was similarly aggressive and litigious in its reaction to Dr. Paul Fischer's famous study⁴²⁷ demonstrating the recognizability of Joe Camel among young children.⁴²⁸ These sorts of

⁴²³ *Id.*

⁴²⁴ *Id.* at 186 (citation omitted). Similarly, in 1986 Philip Morris placed an advertisement “in major magazines and newspapers throughout the country” soliciting essays and promising prizes, including a \$15,000 prize for the first-place national winner. AMERICAN VOICES: PRIZE-WINNING ESSAYS ON FREEDOM OF SPEECH, CENSORSHIP AND ADVERTISING BANS at ix (Philip Morris ed., 1987) (containing the 54 prize-winning essays). The ad's headline read, “Is Liberty Worth Writing For? Our Founders Thought So. And We Think So Too.” The ad also contained a reproduction of the First Amendment. *Id.*

A 1985 internal Philip Morris document may help to explain the company's fawning affection for the constitutional doctrine of commercial speech: the document notes that one of the company's marketing goals was “to establish a *mind set* in the public at large that bankrupting huge industries such as tobacco is unthinkable.” Dolan Report, *supra* note 285, at 19 (quoting Philip Morris document) (internal quotation marks omitted).

⁴²⁵ HILTS, *supra* note 259, at 14.

⁴²⁶ See Bill Richards, *Pro-Tobacco Groups Step up Attacks on a Longtime Foe*, WALL ST. J., July 23, 1997, at B1. A court granted Dr. Glantz's motion to dismiss the complaint. See *Tobacco Litigation at a Glantz: A Lawsuit to Silence an Industry Antagonist Is Thrown out of Court*, S.F. EXAMINER, Dec. 8, 1997, at A20. Dr. Glantz is also the author of a book summarizing the contents of the B & W documents that were leaked in the early 1990s, see GLANTZ ET AL., *supra* note 259, and an outspoken foe of the cigarette industry.

⁴²⁷ See Fischer et al., *supra* note 340, at 3146-47.

⁴²⁸ See Suein L. Hwang, *Fire Fight: Doctor Whose Study Tied Joe Camel to Kids Takes an Odd Journey*, WALL ST. J., Feb. 21, 1997, at A1.

lawsuits serve not only to intimidate those people who would dare to criticize the industry, but also to comfort smokers looking for evidence that "anti-tobacco" studies are flawed or unscientific.

3. *Suppressing Evidence: The Industry's Private Knowledge of Health Issues.* — The industry's public campaign of creating controversy was accompanied by an intense and fruitful internal investigation into the nature and degree of cigarette risks. One thing that is startling about this internal research is the sheer extent of knowledge that cigarette manufacturers amassed, often well before public health researchers acquired the same information. Equally startling is the degree to which the internal knowledge contrasted with the industry's public statements on health issues. This section reviews the industry's early and comprehensive knowledge of the health risks of smoking, as well as its equally broad efforts to suppress and conceal such knowledge from the public.

(a) *The Link Between Cigarettes and Disease.* — The tobacco industry, despite its representations to the contrary, knew that cigarette smoking caused cancer. Beginning as early as 1946, the tobacco companies internally acknowledged the mounting evidence of the causal link between smoking and cancer.⁴²⁹ By the late 1950s, the company's internal documents revealed increasing acceptance of a causal link. In 1958, Dr. H.R. Felton of British American Tobacco's (BAT) Research Center and two other scientists visited a number of American and Canadian researchers, including those from the tobacco company research groups, to review the current science on causation. Dr. Felton's report concluded that "the individuals whom we met believed that smoking causes lung cancer if by 'causation' we mean any chain of events which leads finally to lung cancer and which involves smoking as an indispensable link."⁴³⁰ Dr. Felton dismissed the reasoning of the only scientist who disputed a causal connection as "nowhere thought to be sound."⁴³¹ That same year, a memorandum sent to the vice-president of research at Philip Morris explained that "the evidence . . . is building up that heavy cigarette smoking contributes to lung cancer either alone or in association with physical and physiological factors."⁴³²

⁴²⁹ Lorillard chemist H.B. Parmele, later vice-president of research and a member of Lorillard's board of directors, wrote that certain scientists "have claimed for many years that the use of tobacco contributes to cancer development in susceptible people." KLUGER, *supra* note 259, at 149 (quoting a 1946 memorandum from Parmele to the secretary of Lorillard's committee on manufacturing) (internal quotation marks omitted). Parmele also indicated that "[j]ust enough evidence has been presented to justify the possibility of such a presumption." *Id.* (internal quotation marks omitted).

⁴³⁰ H.R. Bentley et al., Report on Visit to U.S.A. and Canada 2 (June 11, 1958) (on file with the authors).

⁴³¹ *Id.*

⁴³² Memorandum from R.N. DuPuis to C.U. Mace 1 (July 24, 1958) (on file with the authors).

A few years later, in 1961, a Philip Morris Research and Development Committee document included a section entitled "Reduction of Carcinogens in Smoke,"⁴³³ which made the following conclusion:

To achieve this objective will require a major research effort, because . . . [c]arcinogens are found in practically every class of compounds in smoke. This fact prohibits complete solution of the problem by eliminating one or two classes of compounds. The best we can hope for is to reduce a particularly bad class, i.e., the polynuclear hydrocarbons, or phenols.⁴³⁴

Liggett also received unambiguous notice from researchers that cigarettes contained "biologically active materials" that were "a) cancer causing[,] b) cancer promoting[,] c) poisonous[,] and] d) stimulating, pleasurable, and flavorful."⁴³⁵ Thereafter, tobacco industry research repeatedly confirmed that cigarettes caused disease. In 1965, BAT began a long-term biological testing program, code named "Project JANUS," that consisted of experiments in which smoke condensate was painted on the backs of mice.⁴³⁶ BAT and its researchers acknowledged that mouse-skin painting was "the ultimate court of appeal on carcinogenic effects" and had "developed into a dependable technique to grade smoke condensates."⁴³⁷ The unambiguous results of Project JANUS "repeatedly found that tobacco caused tumors when painted on mice skin."⁴³⁸

This knowledge, however, was never shared with the public as the industry repeatedly promised. Instead, cigarette manufacturers practiced a multifold campaign of concealment and suppression, the overarching strategy of which involved a steadfast refusal to release the results of research indicating any negative effects of smoking. As one former employee of CTR put it, "[W]hen CTR researchers found out that cigarettes were bad and it was better not to smoke, we didn't

⁴³³ Dr. H. Wakeham, Tobacco and Health — R&D Approach 17 (Nov. 15, 1961) (unpublished manuscript, on file with the authors).

⁴³⁴ *Id.*

⁴³⁵ Arthur D. Little, Inc., Report to Liggett, Inc. 159 (Mar. 15, 1961) (on file with the authors).

⁴³⁶ See GLANTZ ET AL., *supra* note 259, at 143–46 (summarizing the results of Project JANUS); Chronology of Brown and Williamson Smoking and Health Research 6 (Oct. 25, 1988) (unpublished report, on file with the authors).

⁴³⁷ Minutes of Conference Held at Kronberg 3–4 (June 23, 1969) (on file with the authors).

⁴³⁸ HILTS, *supra* note 259, at 150; see also Memorandum from M.H. Bilimoria to R.S. Wade 1 (Jan. 24, 1980) (on file with the authors) (reviewing results of JANUS experiments). Similar internal reports show advance industry knowledge of the link between smoking and emphysema. For instance, a 1963 memorandum to Philip Morris's president and CEO from the company's vice-president of research enumerates compounds in cigarette smoke that are "very carcinogenic." Memorandum from H. Wakeham to Hugh Cullman of Philip Morris 2 (Oct. 24, 1963) (on file with the authors). In this document, the vice-president related the following:

Irritation problems are now receiving greater attention because of the general medical belief that irritation leads to chronic bronchitis and emphysema. These are serious diseases involving millions of people. Emphysema is often fatal either directly or through other respiratory complications. A number of experts have predicted that the cigarette industry ultimately may be in greater trouble in this area than in the lung cancer field.

Id. at 3.

publicize that."⁴³⁹ Equally dramatic was the industry's practice of abruptly shutting down research programs that produced adverse information. RJR, for instance, established a facility, known as the "mouse house," to investigate the health effects of smoking on mice but shut down the program on a single day in December, 1970.⁴⁴⁰ RJR laid off all of the workers at the laboratory and confiscated their materials. The Surgeon General was already "slitting our throats," one of the dismissed workers was told, and "we don't need to do it ourselves."⁴⁴¹ Another researcher reflected that "[t]hey decided to kill [the adverse studies on causation]."⁴⁴²

Additionally, any internal researcher who suggested that a tobacco company alter its public stance on causation met with severe repercussions. Dr. Sidney J. Green, head of research and development at BAT,⁴⁴³ believed that the position of the industry was irresponsible. For Dr. Green, "company arguments about scientific proof and cause-and-effect . . . were 'disastrous.'"⁴⁴⁴ As early as October 1976, he wrote an internal memorandum arguing that the position of BAT was scientifically unsound: "[The] problem of causality has been inflated to enormous proportions. The industry has retreated behind impossible demands for 'scientific proof' whereas such proof has never been required as a basis for action in the legal and political fields."⁴⁴⁵ Dr. Green went on to note that "for social policy purposes it is sensible and totally relevant to use the experimental evidence pertaining to large groups and also to select the simplest hypothesis. It may therefore be concluded that for certain groups of people smoking causes the incidence of certain diseases to be higher than it would otherwise be."⁴⁴⁶ BAT did not tolerate the open admission of such views. Following a 1980 appearance on British television during which he admitted that causation had been proved, Dr. Green "retired," after twenty years of service to BAT.⁴⁴⁷

⁴³⁹ Complaint of Massachusetts at 2, *Massachusetts v. Philip Morris, Inc.* (Mass. Super. Ct. 1995) (No. 95-7378).

⁴⁴⁰ HILTS, *supra* note 259, at 40 (internal quotation marks omitted).

⁴⁴¹ *Id.*

⁴⁴² Complaint at 3, *Philip Morris* (No. 95-7378). Research in Great Britain ended under similarly abrupt circumstances in 1974. See HILTS, *supra* note 259, at 40. Philip Morris kept its labs open longer, until April 5, 1984, but its eventual shutdown was just as quick. See *id.*

⁴⁴³ Dr. Green was the head of BAT research and development. See GLANTZ ET AL., *supra* note 259, at 441.

⁴⁴⁴ HILTS, *supra* note 259, at 19.

⁴⁴⁵ S.J. Green, *Cigarette Smoking and Causal Relationships I* (Oct. 27, 1976) (on file with the authors).

⁴⁴⁶ *Id.* at 4.

⁴⁴⁷ See HILTS, *supra* note 259, at 41. Dr. Green had claimed that smoking causes disease: "I'm quite sure it can, and does. . . . I'm quite sure it's a major factor in lung cancer in our society." *Id.* (omission in original).

In addition to intimidating researchers and canceling projects, the industry developed elaborate methods to deal with the adverse evidence that was generated before it was able to halt projects. For instance, B & W sought to avoid production of causation-related documents during litigation by entirely removing such documents from the United States.⁴⁴⁸ As part of this removal project, lawyers for B & W's British parent company screened all information in studies that did not directly relate to the marketability of cigarettes in the United States.⁴⁴⁹ Tobacco companies also created complex systems for limiting internal access to damaging causation information. B & W reformulated its document circulation policy in 1985 so that in-house lawyers reviewed all documents relating to the health effects of smoking for dangerous statements, which could then be protected from disclosure within the company.⁴⁵⁰ The final and most well-known approach that the tobacco industry employed to prevent disclosure of causation information was the creative use of the attorney-client privilege. For instance, CTR assigned control over all research projects that could possibly yield negative results to its attorneys in hopes that the privilege would apply to the results of such projects.⁴⁵¹

⁴⁴⁸ In early 1985, J.K. Wells, a lawyer for B & W, outlined a procedure by which potentially damaging materials and documents would be consolidated and then moved out of the United States. See Memorandum from J.K. Wells (Jan. 17, 1985) (on file with the authors). Describing the procedure as removing "deadwood" from the company files, Wells articulated a system by which designated documents should be "pulled, put into boxes and stored" so that they could be shipped. *Id.* at 2. Wells suggested that the supervisor of the "deadwood" reduction program make sure that "neither he nor anyone else in the department should make any notes, memos or lists." *Id.* Included in this "deadwood" removal were the results of the Project JANUS series of experiments. See *id.* at 1.

⁴⁴⁹ See Memorandum from J.K. Wells to E. Pepples 1 (Nov. 9, 1979) (on file with the authors).

⁴⁵⁰ See Memorandum from H.F. Frigon to T.E. Sandefur 1, 4 (Feb. 1, 1985) (including attachments) (on file with the authors).

⁴⁵¹ See *Haines v. Liggett Group*, 140 F.R.D. 681, 695 (D.N.J. 1992) (quoting notes of general counsel committee meeting dated Sept. 10, 1981). Two B & W documents from 1979 most clearly demonstrate the attempt to protect documents from discovery through attorney-client privilege. The first memorandum spells out the steps for shielding documents:

Continued Law Department control is essential for the best argument for privilege. At the same time, control should be exercised with flexibility to allow access of the R&D staff to the documents. The general policy should be clearly stated that access to the documents and storage of the documents is under control of the Law Department and access is granted only upon approval of request.

. . . The abstracts of the documents should be circulated only for the less sensitive categories and then only to a list given prior approval by the Law Department.

Memorandum from J. Kendrick Wells to Ernest Pepples 1-2 (June 15, 1979) (on file with the authors); see also GLANTZ ET AL., *supra* note 259, at 241-46 (quoting at length from related documents). Five months later, on November 9, 1979, a second "privileged" memorandum explained that this procedure would provide work product coverage for documents under federal and Kentucky law:

Regardless of the initial recipient of the documents, in order to be covered by the rules of civil procedure they must be "prepared in anticipation of litigation." Appropriate paper work should be established with BAT, including any amendments to the cost sharing agreement to establish that documents of a certain nature are prepared for B & W in an-

(b) *The Role of Nicotine and Addiction.* — If evidence that smoking causes disease has posed a serious threat to tobacco manufacturers since the 1950s, then a more recent medical finding — that cigarettes are addictive — has provided the industry with further incentive to engage in manipulative market practices. Not surprisingly, the industry response has paralleled the defensive strategy it continues to employ against the causal-link evidence.

Cigarette manufacturers were well aware of nicotine's addictive potential even in 1964, when the Surgeon General referred to cigarettes as "an habituation rather than an addiction."⁴⁵² Recently disclosed internal reports provide considerable evidence that cigarette manufacturers have known about the addictive properties of cigarettes since at least the early 1960s. In 1962, a BAT executive announced that "smoking is a habit of addiction," adding that "[n]icotine is not only a very fine drug, but the technique of administration by smoking has considerable psychological advantages . . ."⁴⁵³ A research report commissioned the following year by B & W detailed withdrawal effects:

[E]ver-increasing dose levels of nicotine are necessary to maintain the desired action. . . . If nicotine intake . . . is prohibited to chronic smokers, . . . these individuals are left with an unbalanced endocrine system. A body left in this unbalanced status craves for renewed drug intake in order to restore the physiological equilibrium. This unconscious desire explains the addiction of the individual to nicotine.⁴⁵⁴

Two months later, Addison Yeaman, the general counsel at B & W, came to the same conclusion in an internal memorandum: nicotine is "an addictive drug effective in the release of stress mechanisms."⁴⁵⁵

Philip Morris has held a particularly acute view of the role of nicotine. Internal reports prepared in 1972 and 1978 identify customers as

icipation of litigation. I have in mind paper work which would make this statement as a policy between the parent and sibling, but that in the operational context BAT would send documents without attempting to distinguish which were and were not litigation documents.

Memorandum from Wells, *supra* note 448, at 1–2.

⁴⁵² GLANTZ ET AL., *supra* note 259, at 15 (quoting U.S. DEP'T OF HEALTH, EDUC. & WELFARE, SMOKING AND HEALTH: REPORT OF THE ADVISORY COMMITTEE TO THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE 34 (1964)).

⁴⁵³ Charles Ellis, Smoking and Health: Policy on Research, Remarks at the Southampton Research Conference 4, 16 (1962) (transcript on file with the University of California San Francisco Library).

⁴⁵⁴ C. Haselbach & O. Libert, A Tentative Hypothesis on Nicotine Addiction 1–2 (1963) (unpublished essay, on file with the University of California San Francisco Library).

⁴⁵⁵ Addison Yeaman, Implications of Battelle Hippo I & II and the Griffith Filter 4 (July 17, 1963) (unpublished report, on file with the University of California at San Francisco Library). BAT did not hesitate to share its discoveries with its competitors. BAT officials circulated reports stemming from Project Hippo, a study of physiological and pharmacological effects of nicotine that began in 1961, to other U.S. cigarette manufacturers, including B & W. See GLANTZ ET AL., *supra* note 259, at 69.

"nicotine seekers": "We think that most smokers can be considered nicotine seekers, for the pharmacological effect of nicotine is one of the rewards that come[s] from smoking. When the smoker quits . . . [t]he change is very noticeable, he misses the reward, and so he returns to smoking."⁴⁵⁶ According to a more recent document drafted by Philip Morris, nicotine may be even more addictive than cocaine and morphine:

Different people smoke cigarettes for different reasons. But the primary reason is to deliver nicotine into their bodies. . . . It is a physiologically active, nitrogen containing substance. Similar organic chemicals include nicotine, quinine, cocaine, atropine and morphine. While each of these substances can be used to affect human physiology, nicotine has a particularly broad range of influence.

During the smoking act, nicotine is inhaled into the lungs in smoke, enters the bloodstream and travels to the brain in about eight to ten seconds.⁴⁵⁷

Although the tobacco industry's research into the addictive properties of nicotine seems to have significantly outpaced public-sector scientific research,⁴⁵⁸ the industry used its advance knowledge strictly for commercial and exploitative purposes. The following proclamation in 1963 by Addison Yeaman at B & W best captured this mentality: "We are . . . in the business of selling nicotine . . ." ⁴⁵⁹ Nine years later, an RJR executive agreed: "[T]he tobacco industry may be thought of as being a specialized, highly ritualized and stylized segment of the pharmaceutical industry. Tobacco products, uniquely, contain and deliver nicotine, a potent drug with a variety of physiological effects."⁴⁶⁰

Despite their promise to disclose material information about smoking and health in the Frank Statement, cigarette manufacturers suppressed their knowledge regarding addictiveness. One recently publicized incident suggests the lengths to which manufacturers went to keep their secrets safe. In 1980, Philip Morris hired Victor DeNoble

⁴⁵⁶ Memorandum from F.J. Ryan to Philip Morris Officials 2 (Mar. 1978) (on file with the authors).

⁴⁵⁷ Memorandum from B. Reuter to Philip Morris Officials 1 (on file with the authors); cf. U.S. DEP'T OF HEALTH AND HUMAN SERV., *THE HEALTH CONSEQUENCES OF SMOKING: NICOTINE ADDICTION* 9 (1988) ("Nicotine is the drug in tobacco that causes addiction [and t]he pharmacologic and behavioral processes that determine tobacco addiction are similar to those that determine addiction to drugs such as heroin and cocaine.").

⁴⁵⁸ See Hurt & Robertson, *supra* note 299, at 1174-75 (noting that some of B & W's research, which had preceded published reports from the general scientific community by several years, was "at the cutting edge of nicotine pharmacology").

⁴⁵⁹ Yeaman, *supra* note 455, at 4.

⁴⁶⁰ Memorandum from Claude E. Teague, Jr. to RJR Officials 1 (Apr. 14, 1972) (on file with the authors). Philip Morris's internal reports in the 1970s captured an identical understanding of the cigarette as a pharmaceutical product: "The cigarette ought properly to be conceived of 'not as a product but as a package. The product is nicotine. . . . Think of the cigarette pack as a storage container for a day's supply of nicotine.'" KLUGER, *supra* note 259, at 417.

to study the pharmacology of nicotine. Working at a secluded laboratory, DeNoble and a colleague isolated two hallmarks of addiction among rats exposed to nicotine: self-administration and tolerance. Philip Morris's in-house counsel subsequently alerted DeNoble that his data posed a danger to the company.⁴⁶¹ After the journal *Psychopharmacology* accepted a research paper by DeNoble showing that, in terms of addiction, "nicotine looked like heroin," Philip Morris ordered him to withdraw the paper.⁴⁶² In April 1984, the company abruptly closed DeNoble's nicotine research laboratory and threatened legal action if he published or talked about his work.⁴⁶³

B. *Reassessing the Debate over Smoker Risk Perceptions*

The preceding account of the practices and conduct of the tobacco companies over the past century illustrates a coordinated and multi-dimensional approach to expanding the industry's reach and profitability. Like any business in a free market,⁴⁶⁴ each tobacco manufacturer sought to maintain its existing customers and attract new ones. Because of the substantial health risks posed by the product and the fact that consumers had some understanding of these risks, cigarette manufacturers had (and still have) particularly strong incentives to manipulate consumer risk perceptions. Although it may be deeply disappointing, it is not entirely surprising, therefore, that the industry employed such diverse manipulative strategies to increase profits. The history demonstrates the fundamental theme of this Article and its companion: the invisible hand rewards those who create the perception of a superior product, whatever the reality. The cigarette industry understands that basic principle and has devoted considerably less energy toward developing a better mousetrap than it has toward breeding mice and otherwise altering consumers' perceptions of mousetraps.⁴⁶⁵

⁴⁶¹ See KLUGER, *supra* note 259, at 576.

⁴⁶² Letter from Herbert Barry, Field Editor, *Psychopharmacology*, to Victor DeNoble 1 (Sept. 22, 1986) (on file with the authors).

⁴⁶³ See Justin Catanoso, *Closing up the Doors at "The Mouse House"*, NEWS & REC., at 1 (on file with the authors). Other companies have been equally zealous in their attempts to conceal research work. In a confidential memorandum, ATC executive John T. Ashworth instructed employees to obfuscate any possible paper trails leading to research involving nicotine: "In the future, our use of nicotine should be referred to as 'Compound W' in our experimental work, reports, and memorandums, either for distribution within the Department or for outside distribution." Memorandum from John T. Ashworth to W.W. Sadler et al. 1 (May 14, 1969) (on file with the authors).

⁴⁶⁴ Cf. Hanson & Logue, *supra* note 256, at 1167-69 (explaining that regulation of cigarette manufacturers has been remarkably anemic).

⁴⁶⁵ The cigarette industry, with its mastery of market manipulation, necessitates a rethinking of Ralph Waldo Emerson's famous statement: "If a man can write a better book, preach a better sermon, or make a better mousetrap than his neighbor, though he builds his house in the woods the world will make a beaten path to his door." BARTLETT'S FAMILIAR QUOTATIONS 496 n.1 (15th ed. 1980).

1. *The Irrelevance of Market Manipulation.* — Although the manipulative practices of cigarette manufacturers seem to have affected smoker risk perceptions, this finding does not necessarily indicate that consumers underestimate the relevant risks. Indeed, the primary litigation defense offered by the industry and its experts is that the conduct described in section II.A does not change the fact that consumers (including smokers) know everything they need to know to make informed judgments regarding whether to smoke. That defense appears to have been quite effective so far⁴⁶⁶ and is a difficult position to rebut. After all, the vast majority of American consumers seem to understand at some level that long-term smoking may be dangerous.⁴⁶⁷

Professor Kip Viscusi, in an influential book and series of articles, has dedicated considerable time and energy in recent years to demonstrating just how well aware consumers are of the risks of smoking.⁴⁶⁸ Viscusi purports to have found that consumers — smokers and non-smokers of all ages — *overestimate* the risks of long-term smoking. In telephone surveys “commissioned by the defense law firms in support of tobacco litigation efforts,”⁴⁶⁹ respondents were asked several questions, including the following: “Among 100 cigarette smokers, how many of them do you think will get lung cancer because they

⁴⁶⁶ See *infra* p. 1505.

⁴⁶⁷ See U.S. DEP'T OF HEALTH & HUMAN SERVS., REDUCING THE HEALTH CONSEQUENCES OF SMOKING: 25 YEARS OF PROGRESS, A REPORT OF THE SURGEON GENERAL 182 tbl.4 (1989) [hereinafter SURGEON GENERAL'S REPORT 1989] (finding that more than 70% of all adults think that “any amount” of smoking is hazardous); Ron Borland, *What Do People's Estimates of Smoking Risks Mean?*, 12 PSYCHOL. & HEALTH 513, 514 (1997) (“People, including smokers, when asked the probability or percentage chance of dying from a smoking related illness or of getting lung cancer typically overestimate the risk.”); Howard Leventhal, Kathleen Glynn & Raymond Fleming, *Is the Smoking Decision an ‘Informed Choice’?: Effect of Smoking Risk Factors on Smoking Beliefs*, 257 JAMA 3373, 3374 (1987) (“On a general level, the hazards of smoking were well known [among urban youths]. At baseline, all participants were asked, ‘Do you think that smoking can injure or hurt the body?’; 98.4% not only maintained that smoking is harmful, but accurately named one or more body parts that are adversely affected by smoking.”); Jonathan D. Reppucci et al., *Unrealistic Optimism Among Adolescent Smokers and Nonsmokers*, 11 J. PRIMARY PREVENTION 227, 235 (1991) (explaining that in two studies, “smokers and nonsmokers agreed that there is a strong relationship between cigarette smoking and the development of lung cancer”); Michael Schoenbaum, *Do Smokers Understand the Mortality Effects of Smoking? Evidence from the Health and Retirement Survey*, 87 AM. J. PUB. HEALTH, 755, 755 (1997) (“[T]he public has been aware for at least 2 decades that smoking poses health risks.”); Suzanne C. Segerstrom et al., *Optimistic Bias Among Cigarette Smokers*, 23 J. APPLIED SOC. PSYCHOL. 1606, 1608 (1993) (“Smokers, as a whole, acknowledge that smoking is increasing their risk of cancer, lung cancer, or heart attack relative to nonsmokers.”).

⁴⁶⁸ See VISCUSI, SMOKING, *supra* note 255; W. Kip Viscusi, *Age Variations in Risk Perceptions and Smoking Decisions*, 73 REV. ECON. & STAT. 577 (1991); W. Kip Viscusi, *Cigarette Taxation and the Social Consequences of Smoking*, in NAT'L BUREAU OF ECON. RESEARCH, TAX POLICY AND THE ECONOMY 51, 69–71 (James Poterba ed., 1995); W. Kip Viscusi, *Do Smokers Underestimate Risks?*, 98 J. POL. ECON. 1253 (1990); W. Kip Viscusi, *Smoke & Mirrors: Understanding the New Scheme for Regulation*, 16 BROOKINGS REV. 14 (1998) [hereinafter Viscusi, *Smoke & Mirrors*]; W. Kip Viscusi, Public Perceptions of Smoking Risks (Aug. 1, 1998) (unpublished paper, on file with the authors) [hereinafter Viscusi, Public Perceptions].

⁴⁶⁹ VISCUSI, SMOKING, *supra* note 255, at 84 n.6.

smoke?"⁴⁷⁰ The average response was that forty-three smokers would develop lung cancer, leading Viscusi to conclude that consumers believe smoking has a forty-three percent chance of causing lung cancer.⁴⁷¹ Viscusi observes that this response substantially exceeds the "scientific estimate" of actual lung cancer risk, which he claims is between five percent and ten percent.⁴⁷² In short, according to Viscusi, "[t]he potential hazards of smoking are not a closely guarded secret, and if anything risk perceptions for some smoking risks, such as lung cancer, may be too high."⁴⁷³ In a more recent paper, Professor Viscusi reiterates this finding, concluding that the risks of smoking are "almost universally understood" and that "enormously powerful" market forces deal with the risks of smoking in a way that makes government regulation of the industry largely unnecessary.⁴⁷⁴ Viscusi's findings grant considerable authority to many commentators' claims⁴⁷⁵ and, More importantly, to the arguments of tobacco defense counsel that smokers know the risks (indeed, may overestimate the risks) and that therefore the market for cigarettes should be left alone.⁴⁷⁶

The evidence that Viscusi summarizes and the conclusions he draws from that evidence pose what may well be the biggest challenge to our manipulation hypothesis. Viscusi's evidence of overestimation indicates that even if manufacturers do attempt to manipulate consumer preferences and perceptions, their attempts have not been successful in counteracting the overestimation.⁴⁷⁷ Viewed another way,

⁴⁷⁰ *Id.* at 155.

⁴⁷¹ *See id.* at 68. In a 1997 study, the average response was 47. *See* Viscusi, *Public Perceptions*, *supra* note 468, at 13.

⁴⁷² Viscusi, *Public Perceptions*, *supra* note 468, at 68. One of us (with Kyle Logue) has challenged those figures elsewhere. *See infra* p. 1528.

⁴⁷³ VISCUSI, *SMOKING*, *supra* note 255, at 145. Professor Viscusi has attempted to provide a "comprehensive perspective," incorporating the hazards of overall mortality risk and life expectancy loss. Viscusi, *Public Perceptions*, *supra* note 468, at 4. We focus on the same topic as Professor Viscusi, namely the lung-cancer hazards of smoking. We also briefly discuss how the difficulties with Professor Viscusi's position on that topic are largely replicated with respect to his views on overall mortality risk and life expectancy loss.

⁴⁷⁴ Viscusi, *Public Perceptions*, *supra* note 468, at 25-26.

⁴⁷⁵ Other efficiency-minded legal scholars share Viscusi's view that smokers do not underestimate the risks of smoking. *See, e.g.*, Gary T. Schwartz, *Tobacco Liability in the Courts*, in *SMOKING POLICY: LAW, POLITICS, AND CULTURE* 131, 156-57 (Robert L. Rabin & Stephen D. Sugarman eds., 1993) (arguing that strict liability principles "turn out to have no obvious application to cigarettes — products whose hazards (however extreme) are both inherent and reasonably well known by consumers"); Richard A. Epstein, *Big Tobacco's Big Mistake*, *N.Y. TIMES*, June 25, 1997, at A19 (arguing that because consumers are well-informed of the hazards of smoking, "individual smokers should own up to the consequences of their actions" and "the tobacco industry's liability for smoking-related illnesses should be zero").

⁴⁷⁶ *See* Hanson & Logue, *supra* note 256, at 1171, 1183 & n.68. Not surprisingly, therefore, Viscusi has served as a key expert witness on behalf of defendants in virtually all of the recent and ongoing tobacco litigation.

⁴⁷⁷ Viscusi apparently believes that his is the only relevant evidence on point. *See infra* pp. 1510-11. This claim is one that Viscusi has made several times in depositions. *See, e.g.*, Deposition of W. Kip Viscusi, *State of Miss. Tobacco Litigation* 213 (No. 94-1429) (Apr. 27, 1997) ("I

Viscusi's evidence, coupled with the commonsense view that consumers know the risks of smoking, provides a special opportunity to test our hypothesis. We cannot think of any other product about which consumers have received more publicly provided (or mandated) risk information and "education" than cigarettes. And it certainly does seem plausible that consumers overestimate the risks of cigarettes. In any event, the widely held view that smokers are adequately informed of the risks of smoking has had a significant effect on policymaking in this area and has created an immense hurdle for any plaintiff suing tobacco manufacturers for the costs that result from smoking.⁴⁷⁸ Thus, if we can show that consumers often do, in fact, underestimate the relevant risks of smoking and that they do so in part because of the manipulative efforts of the industry, then we have made a strong and important case, we think, for why behavioralism should be taken seriously. For both reasons — that is, both because it is difficult to demonstrate that consumers underestimate the risks of smoking and because making such a demonstration would be so revealing — this section reviews evidence regarding smokers' risk assessments and particularly Viscusi's evidence in considerable detail.

2. *The Actual Success of Market Manipulation.* — To demonstrate the success of market manipulation of cigarette-related risks, we discuss three types of evidence. First, we review "market" evidence that manufacturers' efforts to reduce consumer risk estimates have been successful. Second, we address a vast body of non-market (mostly survey) evidence, which has been largely ignored by Viscusi and other legal scholars but which strongly indicates that consumers are inadequately informed of the risks of smoking. Both types of evidence are consistent with the manipulation story that we describe in the previous section. Third, we carefully examine the evidence on which Viscusi relies and his interpretations of that evidence. We argue that Viscusi's evidence and analysis are badly flawed, in large part because he fails to take behavioralism (and the problem of market manipulation) seriously.

(a) *Market Evidence.* — Legal economists commonly look to the conduct of manufacturers and consumers to draw inferences regarding the efficiency or inefficiency of certain practices. The conduct from

know of no studies other than my own that have ever done this in a valid manner."); Deposition of W. Kip Viscusi, *Florida v. American Tobacco Co.* 140-41 (No. 95-1466AH) (July 23, 1997) ("Well, except for the Audits and Survey data and the way I redid the risk question, nobody else in the literature that's published has asked the questions in a meaningful way."); *id.* at 141 ("The value I would place on anybody else's studies, whether it's the tobacco industry or anything else, would be zilch because I already have the studies that have nailed down this effect. I know the answer."). We find this claim especially surprising given that "[i]t is now proved beyond doubt that smoking is one of the leading causes of statistics." *THE MACMILLAN DICTIONARY OF QUOTATIONS* 537 (1987) (quoting Fletcher Knebel from *Reader's Digest*, Dec. 1961).

⁴⁷⁸ See Hanson & Logue, *supra* note 256, at 1169-71, 1183.

which the inferences are drawn is typically referred to as “market evidence.”⁴⁷⁹

(i) *Manufacturer Conduct*. — As described in section A, tobacco manufacturers have gone to incredible lengths to influence consumers’ risk perceptions. Virtually all of the industry’s conduct appears to be designed to generate positive first impressions (or a *positive affect*) in young smokers and then to maintain those impressions by, among other tactics, suggesting that cigarettes are healthful, emphasizing the non-health-related benefits of smoking, and denying and attempting to discredit the evidence that smoking is harmful. Such conduct is consistent with the predictions of our companion article regarding how sellers would take advantage of the *affect heuristic*.⁴⁸⁰ As we note there, behavioralists have observed a marked tendency for individuals possessing a positive affective response toward an item or activity to underestimate concomitantly the risks that the item or activity poses. These misperceptions are solidified and perpetuated through the operation of the *confirmatory* and *perseverance biases*,⁴⁸¹ which cause individuals to misinterpret, ignore, and even create evidence in self-serving ways.

Cigarette manufacturers seem to have been aware of this process, considering their unmistakable assertion that “doubt is our product.”⁴⁸² Similarly, the fact that tobacco manufacturers have targeted children in their marketing and advertising is unsurprising because children are *fresh thinkers* (as compared to non-smoking adults) with respect to the perceived harmfulness and addictiveness of smoking.⁴⁸³ The focus on young people is also predictable given that children likely have more pronounced *time-variant preferences* (that is, less concern for the long-term health consequences of smoking) than do non-smoking adults.⁴⁸⁴ Unsurprising, too, is the fact that tobacco-advertising imagery is ubiquitous in our society and especially intense at convenience stores. In addition to enhancing the *mere exposure* effect, such imagery likely taps into the *visceral impulses* of addicted smokers.⁴⁸⁵ It is no accident that cigarettes have long been displayed for sale (together with other “impulse items”) at grocery store check-out stations.⁴⁸⁶ Although non-smokers might not even notice a rack of cigarettes, few smokers will

⁴⁷⁹ For an example of how legal economists sometimes rely on market evidence, see Steven P. Croley & Jon D. Hanson, *The Nonpecuniary Costs of Accidents: Pain-and-Suffering Damages in Tort Law*, 108 HARV. L. REV. 1785, 1801–03 (1995), summarizing the market evidence on which the conventional wisdom that consumers do not demand pain-and-suffering insurance is based.

⁴⁸⁰ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 475–78 and accompanying text.

⁴⁸¹ See *id.* notes 53–74 and accompanying text.

⁴⁸² See *supra* pp. 1487–88.

⁴⁸³ See Hanson & Kysar, *TBS I*, *supra* note 11, at note 452 and accompanying text.

⁴⁸⁴ See *id.* at notes 211–18 and accompanying text.

⁴⁸⁵ See *id.* at notes 502–05 and accompanying text.

⁴⁸⁶ See *supra* p. 1448.

miss it or the opportunity to stock up for the day. Such product placement likely poses additional hurdles for smokers attempting to quit, for at every turn they are confronted with smoking imagery and opportunities to make an easy purchase.

The tobacco industry also seems to have developed ways to take advantage of *framing effects* by portraying the product so as to minimize smoker risk perceptions. For instance, although a majority of smokers consume “light” cigarettes, they are not called “regulars,” and regulars are not called “heavies.” We explain above that the introduction of “light” cigarettes reflected manufacturers’ efforts to reassure smokers about the health consequences of smoking more than it reflected their efforts to improve those consequences.⁴⁸⁷ Referring to these cigarettes as “lights” may have survived as an industry custom in part because the denomination also takes advantage of framing effects. Like all other manipulative practices we have identified in this Article, this use of framing need not be conscious on the part of manufacturers. Because the market rewards manipulation, it will evolve to contain manipulation, regardless of manufacturers’ motivations. Indeed, manufacturers may have had completely unrelated and benign motives for adopting a certain practice. For instance, “lights” may have been adopted as a marketing term simply because these cigarettes were developed after “regular” cigarettes. That innocuous origin, however, would not obviate the impact of framing effects. Below we describe other ways in which industry conduct appears to have been designed — or at least to have evolved — to influence consumer risk perceptions.

Here it is enough to point out that the tobacco industry conduct that we described in section A was and is intended to lower the perceived risks of cigarettes and has come at a steep financial cost to manufacturers. Indeed, with respect to just one component of those efforts, Viscusi notes that “[c]igarettes have long been among the most highly advertised consumer products, with an annual advertising budget now in excess of \$1 billion and a promotional budget greater than \$2 billion annually.”⁴⁸⁸ The sheer size of those expenditures raises a serious question: How can they be justified if they fail to influence consumer perceptions? Stated differently, if the investments were fruitless, then the manufacturers who made them should have been driven from the market years ago by lower-cost competitors — or at least these companies should have learned by now to stop wasting their money.

Rather than acknowledge a desire to attract new smokers, tobacco manufacturers publicly claim that they incur these enormous adver-

⁴⁸⁷ See *supra* pp. 1473–75.

⁴⁸⁸ VISCUSI, SMOKING, *supra* note 255, at 35. The FTC cites a combined advertising and promotion expenditure rate of \$6 billion for 1993. See *supra* p. 1479.

tising costs solely to attract brand-switchers.⁴⁸⁹ However, research strongly suggests that these expenditures cannot be justified economically as encouraging brand switching,⁴⁹⁰ largely because smokers tend to be remarkably brand loyal.⁴⁹¹ Moreover, even when smokers do switch brands, they may often switch to another brand by the same manufacturer, with no obvious beneficial effect on that manufacturer's net profits. Simply put, the market for brand-switchers is too small to merit such massive advertising costs.⁴⁹²

Manufacturers' claim that they advertise to attract brand-switchers seems particularly disingenuous in light of evidence that cigarette advertising *does* promote new buyers. For example, a study of advertising campaigns targeting one gender "clearly show[ed] that marked increases in the rate of smoking uptake in the particular gender group . . . were coincident with the beginning of each [campaign]." The same pattern "was not observed among the nontargeted gender."⁴⁹³ Similarly, research has confirmed that "tobacco advertising plays an important role in encouraging young people to [smoke]."⁴⁹⁴

In any event, manufacturers' public claims about the goal of their advertising are not responsive to the charge that such advertising manipulates consumers' risk perceptions. Even if manufacturers advertise only to attract brand-switchers, the tactic seems to include creating the illusion that their brand is safer than others (perhaps leading

⁴⁸⁹ See Dolan Report, *supra* note 285, at 21.

⁴⁹⁰ See *id.* at 22; Joe B. Tye, Kenneth E. Warner & Stanton A. Glantz, *Tobacco Advertising and Consumption: Evidence of a Causal Relationship*, 8 J. PUB. HEALTH POL'Y 492, 494 (1987).

⁴⁹¹ See Tye, Warner & Glantz, *supra* note 490, at 493 ("Cigarettes enjoy one of the most tenacious brand loyalties of any consumer product."); Philip H. Dougherty, *A.M.A.'s Assault on Tobacco*, N.Y. TIMES, Dec. 12, 1985, at D29 ("Unlike most products you could name, cigarettes engender considerable brand loyalty.")

⁴⁹² See Richard W. Pollay et al., *The Last Straw? Cigarette Advertising and Realized Market Shares Among Youths and Adults, 1979-1993*, J. MARKETING, Apr. 1996, at 1, 6. Pollay writes:

The cigarette industry is . . . well known for its phenomenally high brand loyalty, the highest of all consumer product categories. A relatively low rate of brand switching is evident, typically 10% or less. There is nominal switching within brand families (e.g., from Brand X milds to Brand X lights), which is of little consequence to the firm's net profit. High brand loyalty resulting from nicotine 'satisfaction' of those addicted makes it difficult and expensive to convert competitors' customers. Most of the brand switching that does occur is by older, health-concerned, or symptomatic smokers trading down, typically within a brand family, to products with lower tar and nicotine labeling, in the misguided belief that those products are safer. As a result, the net present value of gaining the trade of these older customers is low compared with the value inherent in attracting young starters, the vast bulk of whom will be highly brand loyal for many years.

Id. (citations omitted).

⁴⁹³ John P. Pierce & Elizabeth A. Gilpin, *A Historical Analysis of Tobacco Marketing and the Uptake of Smoking by Youth in the United States: 1890-1977*, 14 HEALTH PSYCHOL. 500, 504 (1995).

⁴⁹⁴ John P. Pierce, Lora Lee & Elizabeth A. Gilpin, *Smoking Initiation by Adolescent Girls, 1944 Through 1988: An Association with Targeted Advertising*, 271 JAMA 608, 611 (1994); see John P. Pierce et al., *Does Tobacco Advertising Target Young People to Start Smoking? Evidence from California*, 266 JAMA 3154, *passim* (1991); DiFranza et al., *supra* note 341, *passim*; Dolan Report, *supra* note 287, at 23-32.

smokers to discount their perception of the dangers of smoking).⁴⁹⁵ In other words, the manipulation of risk perceptions may be a consequence of advertising regardless of why manufacturers choose to advertise. Moreover, the investments that tobacco manufacturers make (arguably) to manipulate risk perceptions go well beyond advertising expenses.⁴⁹⁶

Economists might argue that the tobacco industry's excessive advertising expenditures are intended to serve as a barrier to entry. Although some advertising expenditures can have that effect, it seems unlikely that even this questionable motive can fully account for the expenditures. To begin with, cigarette marketing practices are remarkably consistent with our predictions of manipulation. If those investments do act as entry barriers, then they have the additional effect of manipulating consumers' risk perceptions.⁴⁹⁷ In addition, a great deal of the tobacco industry's activities, such as various "public health" initiatives and industry "research" groups, serve to promote cigarette smoking generally (as opposed to current brands of cigarettes) and thus do not operate as direct barriers to entry.⁴⁹⁸ Finally, the industry itself seems to view its advertising and public relations campaigns not as measures to deter entry, but as ways to influence smoker behavior and perception.⁴⁹⁹

In sum, the continued immensity of tobacco marketing supports a more troubling story: manufacturer efforts to manipulate consumers have helped to create and sustain a market for the deadliest consumer product ever.⁵⁰⁰ Although Viscusi appears somewhat confused by the use of health and safety advertising by tobacco manufacturers — "the mere mention of this negative attribute is highly unusual since it draws consumers' attention to an undesirable feature of cigarettes"⁵⁰¹ — we believe it represents the experimental efforts of manufacturers to combat increasing consumer awareness of the health hazards of smoking. What Viscusi views as simply "an implicit recognition . . . [of] a salient consumer concern,"⁵⁰² we view as a blatant and misleading attempt to

⁴⁹⁵ See Dolan Report, *supra* note 285, at 36.

⁴⁹⁶ See *supra* section II.A.2.

⁴⁹⁷ See Dolan Report, *supra* note 285, at 18–21, 32–37.

⁴⁹⁸ See *supra* section II.A.2.

⁴⁹⁹ See Richard W. Pollay & Anne M. Lavack, *The Targeting of Youths by Cigarette Marketers: Archival Evidence on Trial*, 20 ADVANCES IN CONSUMER RES. 266, 266 (1993) (noting that one tobacco company's mission statement included as an objective "[supporting] the continued social acceptability of smoking through industry and/or corporate actions (e.g., product quality, positive lifestyle advertising, selective field activities and marketing public relations programs)"); *supra* pp. 1486–87.

⁵⁰⁰ See *infra* p. 1519 (noting that cigarettes are responsible for more deaths than car accidents, alcohol abuse, and several other causes of death combined).

⁵⁰¹ VISCUSI, SMOKING, *supra* note 255, at 37.

⁵⁰² *Id.* at 39.

counteract a legitimate consumer concern.⁵⁰³ Similarly, although Viscusi finds it “striking . . . [that] advertising became a vehicle for communicating findings in the scientific and medical literature,”⁵⁰⁴ we find it altogether predictable that manufacturers would seek to create for their safety-based messages an illusion of science and objectivity.

(ii) *Consumer Conduct*. — Consumer behavior similarly exhibits reactions that seem more easily reconciled with our manufacturer manipulation story than with Viscusi’s consumer overestimation story. If consumers are fully aware of (or even overestimate) the risks of smoking when they begin the habit, then it is hard to understand why so many smokers later regret that decision, make numerous and sometimes costly efforts to quit, and frequently have only negative things to say about their “chosen” habit.⁵⁰⁵ Viscusi has difficulty with that evidence too, conceding that “[o]ne would have expected almost all individuals who currently purchase a product to be enthusiastic about it. What we find instead is that there are a large number of negative mentions of cigarettes from the smoking population.”⁵⁰⁶ Elsewhere he makes the point even more emphatically: “What is most stunning is the overwhelmingly adverse sentiment against the product, even among current product users. . . . The diversity of the adverse reactions to cigarettes is quite striking and is possibly unequaled by any other widely used consumer product.”⁵⁰⁷ Nevertheless, Viscusi does not permit this “stunning” and “striking” evidence to alter his view that decisions to smoke cigarettes are basically indistinguishable from ordinary consumption choices. And nowhere does he offer an explanation for the evidence. In our view, this common reaction among smokers is precisely what one would predict in consumers who, upon initiating a habit, vastly underestimate its future costs.⁵⁰⁸

⁵⁰³ For example, Viscusi claims that “[e]ven before the government research reports and various regulatory actions against cigarettes, the health hazards of smoking were prominently featured . . . in cigarette advertising.” *Id.* at 6. Apparently he is referring to advertisements reproduced elsewhere in his book, advertisements such as “Kent — the one cigarette that can *show* you proof of greater health protection.” *Id.* at 38. For an explanation of why such advertising techniques could lead consumers to underestimate the risks to themselves of smoking, see discussion below on pages 1516–17, which describes the problem of imperfect brand-specific information.

⁵⁰⁴ VISCUSI, *SMOKING*, *supra* note 255, at 41.

⁵⁰⁵ For a summary of that type of evidence, see Hanson & Logue, cited above in note 256, at 1193–94.

⁵⁰⁶ VISCUSI, *SMOKING*, *supra* note 255, at 90.

⁵⁰⁷ *Id.* at 88. What Viscusi does not mention is that the adverse sentiment is particularly hard to comprehend if one assumes (as Viscusi claims to show) that consumers overestimate the downside of the risk of smoking *ex ante*.

⁵⁰⁸ One might respond that smokers are just complaining about the cost side of a two-sided transaction. But it seems to be much more. Many smokers say they wish they never had started — and they do so well before they experience any substantial ill-health effects of smoking. In contrast, we know of many people who take out home mortgages but do not later regret their decision or join support groups to help them avoid taking out more. Similarly, we know people

(b) *Non-Industry Sponsored Survey Evidence.* — While introducing the survey evidence on which he relies, Viscusi complains that the question regarding how well “people in fact understand the risks of smoking . . . has never been [previously] addressed,” and he suggests that he has provided “the most comprehensive perspective to date on public perception of smoking risks.”⁵⁰⁹ In our view, both of those claims are mistaken. To counter these claims, we devote significant attention in this section to a vast literature on the risk perceptions of smokers — a literature that has been given short shrift in the policy debates about smoking, including those taking place in legal academic literature.⁵¹⁰ Many scholars have studied smokers’ risk perceptions extensively and have done so in ways more varied and illuminating (and more sensitive to behavioralist insights) than the tobacco-defense surveys upon which Viscusi primarily relies.

Even assuming that Viscusi’s evidence regarding base-rate risk estimates is unassailable, the behavioralist literature identifies many ways in which smokers are inadequately informed of the risks associated with smoking. This section provides six key examples, each of which suggests that manufacturers’ investments in risk manipulation have paid off and that Viscusi’s base-rate risk estimates shed virtually no meaningful light on the fundamental question whether consumers are adequately informed of the risks associated with smoking.

(i) *Evidence of Optimism Bias.* — There are numerous cognitive biases of the sort that we described in our companion article that, particularly when taken together, cigarette manufacturers could easily exploit to encourage smokers to underestimate the risks to *themselves* of smoking. The most obvious candidate for exploitation is the optimism bias — that is, the tendency for consumers to assume that population risks they may well understand, or even overestimate, do not apply with equal force to themselves.⁵¹¹ Studies indicate that optimism bias

who, when it comes time to pay their bill at a restaurant, do not typically wish they had not eaten in the first place.

⁵⁰⁹ Viscusi, Public Perceptions, *supra* note 468, at 4.

⁵¹⁰ Although this section is unique in relying as much as it does on the vast behavioralist and public health research regarding consumer perceptions of the risks of smoking, the structure and substance of this section resemble work that one of us has done elsewhere with Kyle Logue. See Hanson & Logue, *supra* note 256, at 1186–1209.

⁵¹¹ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 93–111 and accompanying text. To be clear, we should note that optimism bias does not lead individuals to believe that they are completely immune to a risk; it simply leads them to perceive that they face less of a risk than does, say, the average consumer. See *id.* (providing examples). In other words, instead of believing that “it won’t happen to me,” individuals tend to believe that “it is much less likely to happen to me than to most people.” The optimism bias is more or less evident depending upon how respondents are questioned. See Alexander J. Rothman et al., *Absolute and Relative Biases in Estimations of Personal Risk*, 26 J. APPLIED SOC. PSYCHOL. 1213, 1221 (1996) (finding that across nine different hazards people exhibited a stronger optimism bias when making relative comparisons to other people than when making absolute estimates); see also Kevin D. McCaul & Susan M. O’Donnell,

is stronger for risks not evidenced by present symptoms and for risks that consumers believe can be controlled through behavior modification.⁵¹² Because the most significant risks of cigarettes are latent, and in light of manufacturers' efforts to give smokers the perceived ability to reduce risks through brand selection,⁵¹³ it is hardly surprising that the optimism bias plays a significant role in smokers' perceptions of cigarette risks.⁵¹⁴

Considerable evidence suggests that smokers perceive smoking as significantly less risky for themselves than for other smokers, that smokers view their own risks as *not* significantly higher than those for non-smokers, and that smokers tend to underestimate the actual risks to themselves. For example, Victor Strecher, Matthew Kreuter, and Sarah Kobrin recently conducted a survey of 2785 North Carolinians who completed a health risk appraisal and answered questions about perceived risks of heart attack, stroke, and cancer.⁵¹⁵ Although smokers in the study tended to perceive themselves as more susceptible to those ailments than nonsmokers, smokers also were 36% more likely than nonsmokers to underestimate their risk of heart attack, 137% more likely to underestimate their risk of cancer, and 55% more likely to underestimate their risk of stroke.⁵¹⁶ Jonathan Reppucci and his colleagues observed similar trends when they asked high school students to fill out two questionnaires focusing on lung cancer, emphy-

Naive Beliefs About Breast Cancer Risk, 4 WOMEN'S HEALTH: RES. ON GENDER, BEHAV. & POL'Y 93 (1998) (finding a similar result with respect to breast cancer risks).

⁵¹² See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 106-09 and accompanying text (describing optimism bias); *id.* at notes 114-21 and accompanying text (describing illusion of control); see also Paul Slovic, *Do Adolescent Smokers Know the Risks?*, 47 DUKE L.J. 1133, 1137 (1998) ("Optimistic biases are greatest for hazards judged to be controllable by personal action, such as lifestyle risks. Biases are also likely to be large when people think that signs of vulnerability will appear early, because people then think that an absence of present signs means they are exempt from future risks.") (citing Neil D. Weinstein, *Unrealistic Optimism About Susceptibility to Health Problems: Conclusions from a Community-Wide Sample*, 10 J. BEHAV. MED. 481, 488 (1987)) (in-ternal quotation marks omitted).

⁵¹³ See *supra* pp. 1471-73.

⁵¹⁴ See William B. Hansen & C. Kevin Malotte, *Perceived Personal Immunity: The Development of Beliefs about Susceptibility to the Consequences of Smoking*, 15 PREVENTIVE MED. 363, 370-71 (1986); Hanson & Logue, *supra* note 256, at 1196-1202; Christina Lee, *Perceptions of Immunity to Disease in Adult Smokers*, 12 J. BEHAV. MED. 267, 274-76 (1989); Sue Boney McCoy et al., *Perceptions of Smoking Risk as a Function of Smoking Status*, 15 J. BEHAV. MED. 469, 487 (1992); F.P. McKenna, D.M. Warburton & M. Winwood, *Exploring the Limits of Optimism: The Case of Smokers' Decision Making*, 84 BRIT. J. PSYCHOL. 389, 393 (1993); Jonathan D. Reppucci et al., *Unrealistic Optimism Among Adolescent Smokers and Nonsmokers*, 11 J. PRIMARY PREVENTION 227, 235-36 (1991); Suzanne C. Segerstrom et al., *Optimistic Bias Among Cigarette Smokers*, 23 J. APPLIED SOC. PSYCHOL. 1606, 1614-17 (1993); Slovic, *supra* note 512, at 1136-37; Victor J. Strecher, Matthew W. Kreuter & Sarah C. Kobrin, *Do Cigarette Smokers Have Unrealistic Perceptions of Their Heart Attack, Cancer, and Stroke Risks?*, 18 J. BEHAV. MED. 45, 49 (1995); Neil D. Weinstein, *Accuracy of Smokers' Risk Perceptions* 7-9 (Jan. 15, 1997) (unpublished manuscript, on file with the authors).

⁵¹⁵ See Strecher, Kreuter & Kobrin, *supra* note 514, at 48-49.

⁵¹⁶ See *id.* at 52-53.

sema, and heart attacks.⁵¹⁷ They found that, although smokers and non-smokers both correctly perceived a link between smoking and those ailments, smokers rated their own chances of contracting the diseases as similar to those of the entire population of smokers and non-smokers combined — “a clearly unrealistic expectation.”⁵¹⁸ Most recently, John Ayanian and Paul Cleary found that *most* smokers do not believe they face an increased risk of heart attack or cancer as compared with that of other people in their age bracket.⁵¹⁹ More specifically, only twenty-nine percent of current smokers believed they were at higher-than-average risk of heart attack, and only forty percent believed they were at higher-than-average risk of cancer.⁵²⁰ Among heavy smokers (those who consume more than two packs per day), the numbers are forty percent and forty-nine percent, respectively.⁵²¹ Similar evidence abounds in other studies.⁵²² Indeed, having reviewed thirteen such studies, Neil Weinstein recently made the following conclusion:

Together, the studies . . . indicate that smokers substantially underestimate their own personal risk. For example, smokers tend to conclude that they are less likely to suffer health effects than other smokers, and among short-term smokers, there is no relationship between the amount they smoked and their perceived risk of illness.

Smokers claim that their risk of smoking-related illnesses is “slightly less than,” “equal to,” or only “slightly greater than” that of the “average person.” Their actual risk of lung cancer may be ten times the risk of a nonsmoker, but, at most, they say that their own risk is “a bit higher” than average.⁵²³

⁵¹⁷ See Reppucci et al., *supra* note 514, at 229–30.

⁵¹⁸ *Id.* at 235.

⁵¹⁹ See John Z. Ayanian & Paul D. Cleary, *Perceived Risks of Heart Disease and Cancer Among Cigarette Smokers*, 281 JAMA 1019, 1020–21 (1999).

⁵²⁰ *See id.*

⁵²¹ *See id.* at 1021.

⁵²² *See, e.g.*, Hansen & Malotte, *supra* note 514, at 366 (showing that students between the ages of 10 and 18 saw themselves as less vulnerable than others to the effects of smoking and that smokers viewed the consequences of smoking as less likely than did nonsmokers); Lee, *supra* note 514, at 274–76 (finding that Australian smokers rated the risk to the average smoker of contracting certain diseases lower than did nonsmokers, and that smokers’ assessments of their own risks were even lower than the risks they perceived to the average smoker); McCoy et al., *supra* note 514, at 475–76 (concluding that smokers tended to perceive their own susceptibility to three smoking-related diseases — coronary heart disease, emphysema, and lung cancer — as lower than the risk level of the “typical smoker”); McKenna, Warburton & Winwood, *supra* note 514, at 393 (finding that, although smokers rate their risk of contracting health problems as higher than do nonsmokers, smokers evaluate their own risk as lower than that of the average smoker); Weinstein, *supra* note 512, at 494 (showing that, although risk judgments of lung cancer are strongly correlated with smoking, there is only a weak correlation between smoking and heart attack risk assessment and general cancer risk perception, and no significant correlation between smoking and stroke risk assessment).

⁵²³ Weinstein, *supra* note 514, at 8 (citations omitted); *see* Michael Schoenbaum, *Do Smokers Understand the Mortality Effects of Smoking?*, 87 AM. J. PUB. HEALTH 755, 755, 758 (1997).

Whatever they perceive their absolute risk of contracting smoking-related diseases to be, smokers appear to underestimate the marginal risk of smoking to themselves. It bears noting — particularly in light of the fact that the vast majority of smokers begin their habit before they turn eighteen — that the optimism bias appears to be stronger in younger people.⁵²⁴

That sort of evidence might be explained in part by other cognitive biases as well. The *availability heuristic*, for example, likely plays a role.⁵²⁵ Some scholars have surmised that consumers will systematically underestimate “unavailable” product risks,⁵²⁶ and that manufacturers may attempt to reduce the availability of information about their product’s risks for many consumers.⁵²⁷ It seems plausible that the availability heuristic has played a role in lowering smokers’ estimates of personal risks of cigarettes, given that smokers are rarely, at least in their day-to-day use of the product, injured by smoking; the diseases caused by smoking (unlike, say, the harms caused by tornadoes, homicides, and airplane accidents) are not often depicted in the media or covered by the news;⁵²⁸ and manufacturers have inundated public spaces with healthful images of smoking.⁵²⁹ Relatedly, by giving smokers countless options to choose from (many of which seem to be health-related), tobacco manufacturers may well have tapped into the *illusion of control*.⁵³⁰ Risk analysts have found that when an indi-

⁵²⁴ See Nancy E. Avis, Kevin W. Smith & John B. McKinlay, *Accuracy of Perceptions of Heart Attack Risk: What Influences Perceptions and Can they Be Changed?*, 79 AM. J. PUB. HEALTH 1608, 1611 (1989); Hansen & Malotte, *supra* note 514, at 366–67, 371.

⁵²⁵ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 137–44 and accompanying text.

⁵²⁶ See, e.g., ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 416–17 (1988) (“[D]espite all the statistical evidence published over the last 25 years (and the warnings on cigarette packs), someone might underestimate the risk of getting cancer because she has an uncle who smoked till the day he died of a heart attack at age 95. . . . The problem arises because the consumer uses what is to her *more believable* information, what happens to her uncle, rather than [statistically accurate information] available from a more distant source.”).

⁵²⁷ See Valerie S. Folkes, *The Availability Heuristic and Perceived Risk*, 15 J. CONSUMER RES. 13, 21 (1988).

⁵²⁸ We do not mean to deny that the federal government and the media provide information pertaining to the risks of smoking. Our point is that they tend to provide the type of evidence that is not readily “available” to consumers in the sense of Kahneman and Tversky’s availability heuristic. See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 137–44 and accompanying text.

⁵²⁹ Some scholars have suggested that the availability heuristic may play a key role in leading individuals to underestimate the risks of smoking. See, e.g., Margaret E. Mattson, Earl S. Pollack & Joseph W. Cullen, *What Are the Odds That Smoking Will Kill You?*, 77 AM. J. PUB. HEALTH 425, 425 (1987) (“[I]t appears that the public does not understand the likelihood . . . of an individual’s developing cancer if he/she is a nonsmoker, smoker, or a former smoker. Anecdotal statements suggest that segments of the public have a false sense of security from the observation that ‘not all smokers get cancer.’”); *id.* at 428 (“Sudden and dramatic news of causes of death appear to be more impressive, especially of recent occurrences, than are constant warnings and reminders of hazards risks.”); *id.* (“Likewise, a cause of death that affects a large group of people collectively (such as an accident or catastrophe) is often viewed as more impressive than a cause that affects the same number of people individually.”).

⁵³⁰ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 114–21 and accompanying text.

vidual believes she can control whether a risk will occur through her own behavior — that is, when she views the risk as preventable — she will not adequately account for the risk in making consumption decisions.⁵³¹ Smokers may also be subject to the *representativeness bias* and therefore focus on irrelevant factors while ignoring important base-rate information about smoking.⁵³² That bias provides another example of how manufacturers can influence or manipulate consumer risk estimates. One would predict that manufacturers would provide — just as cigarette manufacturers have provided — information that explicitly or implicitly suggests that their product is reasonably safe.⁵³³

Similarly, the *irrelevant third option effect* may also play a role in some smokers' decision to smoke. The very presence of a "regular" and "unfiltered" cigarette may encourage many would-be quitters to smoke the "light" and "filtered" brands — just as the presence of a particularly indulgent dessert may encourage many would-be abstainers to order ice cream with fruit.⁵³⁴ Some advertising campaigns appear to seize on that tendency: "If You Smoke, Please Smoke Carlton."⁵³⁵ Finally, the unrelenting campaign by tobacco industry groups to create controversy over the question of the health effects of cigarettes seems designed to capitalize on the effects of *elastic justification*.⁵³⁶ By creating doubt over the health risks of smoking, manufacturers create elasticity for the health and safety attributes of their product; that is, they open a plausible spectrum of possibilities within which consumers may perceive the actual health and safety attributes of cigarettes to fall. Smokers, seeking a means to justify their behavior, naturally (and apparently unknowingly) perceive the health risks of smoking to be at the low end of the manufacturer-created spectrum.

Somewhat related to those cognitive biases are various coping strategies that many beginning smokers seem to adopt. For instance, one longitudinal study found that adolescents who begin to smoke engage in cognitive manipulations:

[These] cognitive manipulations . . . allow [adolescents] to deal with the inherent contradiction between their behavior and their knowledge of the danger First, those adolescents who increased their risk normalized their actions by overestimating their peers' risk behaviors to a greater extent than did other adolescents. Second, they decreased the influence health and safety concerns had on their risk behavior. Thus, they apparently avoided thinking about health and safety issues by putting such concerns out of their mind. . . . Furthermore, the data indicate that these cog-

⁵³¹ See, e.g., Weinstein, *supra* note 512, at 483–84.

⁵³² See Hanson & Kysar, *TBS I, supra* note 11, at notes 145–57 and accompanying text.

⁵³³ See *supra* pp. 1472–75.

⁵³⁴ See Hanson & Kysar, *TBS I, supra* note 11, at note 482–83 and accompanying text.

⁵³⁵ Jeff I. Richards, *Clearing the Air About Cigarettes: Will Advertisers' Rights Go up in Smoke?*, 19 PAC. L.J. 1, 42 (1987) (internal quotation marks omitted).

⁵³⁶ See Hanson & Kysar, *TBS I, supra* note 11, at notes 200–06 and accompanying text.

nitive manipulations were associated with subsequent increases in . . . risk behaviors.⁵³⁷

Similarly, a longitudinal study of smokers who joined a smoking-cessation clinic found that all joiners began with high (probabilistic) risk assessments of smoking. However, smokers who quit but then relapsed lowered their risk estimates significantly following the relapse. According to the authors of the study, the change in risk perception may have been “a form of dissonance reduction . . . a defensive reaction prompted by the realization that the smoking cessation attempt had failed.”⁵³⁸

(ii) *Imperfect Brand-Specific Information.* — Even if smokers accurately perceived the general health risks to themselves associated with smoking, they would not be adequately informed unless they also knew the particular risks of individual brands and types of cigarettes.⁵³⁹ The available evidence indicates that smokers do not have good brand-specific risk information.⁵⁴⁰ For example, a recent study revealed that high-tar brands of cigarettes — which are widely perceived to be dangerous — were chosen by smokers more often than low-tar brands, relative to the availability of various brands on the market.⁵⁴¹ This occurred despite the fact that the same study revealed that 53% of smokers believed that their cigarette was less dangerous than other brands, 30% claimed that their brand was equally as hazardous as others, and only 17% stated that their cigarette was more dangerous than other brands.⁵⁴² Similarly, 48% of smokers stated that their cigarette contained less tar than other brands, 34.7% said that the tar level of their brand was about the same as others, and 17.3% stated

⁵³⁷ Meg Gerrard et al., *A Longitudinal Study of the Reciprocal Nature of Risk Behaviors and Cognitions in Adolescents: What You Do Shapes What You Think, and Vice Versa*, 15 HEALTH PSYCHOL. 344, 350 (1996).

⁵³⁸ Frederick X. Gibbons, Paul G. McGovern & Harry A. Lando, *Relapse and Risk Perception Among Members of a Smoking Cessation Clinic*, 10 HEALTH PSYCHOL. 42, 44 (1991) (citation omitted); see also Ziva Kunda, *The Case for Motivated Reasoning*, 108 PSYCHOL. BULL. 480, 491–92 (1990) (arguing that this type of dissonance reduction is prompted not by inconsistency between beliefs, but by the implication of “inconsistency to one’s self . . . that one is a fool” for not having behaved consistently).

⁵³⁹ For a description of the adverse deterrence implications of smokers’ treating all cigarettes as equally dangerous, along with a summary of evidence indicating that many smokers do view cigarettes that way, see Hanson & Logue, cited above in note 256, at 1188–90. This section focuses on *faulty* brand-specific distinctions made by consumers.

Imperfect brand-specific risk information may partially explain the evidence of optimism described in the previous section. Therefore, treating imperfect brand-specific risk information and optimism as two separate topics overstates the extent to which consumers are inadequately informed (a form of double counting). We have chosen to treat these topics separately because they do not perfectly overlap and because there is separate evidence on consumers’ brand-specific risk perceptions.

⁵⁴⁰ See *id.*

⁵⁴¹ See Segerstrom et al., *supra* note 467, at 1610.

⁵⁴² See *id.* at 1610–11.

that their cigarette had a higher tar content than other brands.⁵⁴³ Put differently, the number of smokers who thought that their chosen brand of cigarettes was less hazardous and contained less tar than the average cigarette was greater than the number of smokers who believed that their cigarette was more hazardous and contained more tar than average by a ratio of over three-to-one. Even among a group of smokers who had changed cigarette brands *precisely to reduce tar and/or nicotine intake*, the study revealed that 80% of those smokers underestimated the amount of tar in their new brand of choice.⁵⁴⁴

The very fact that smokers have switched to low-tar cigarettes provides further support for the idea that individuals are easily led to believe that they have control over risks, a belief that in turn heightens their optimism.⁵⁴⁵ It appears, in other words, that smokers have been significantly reassured (or "lulled"⁵⁴⁶) by the misleading, although often only implicit, health claims of cigarette manufacturers regarding, for example, "filtered," "light," and "low-tar" cigarettes.⁵⁴⁷ Although smokers concerned about the health risks of cigarettes likely take some comfort in smoking seemingly safer brands,⁵⁴⁸ it is not at all clear that "lights" are any safer in practice than "regulars."⁵⁴⁹ It also appears that cigarette manufacturers have long been aware of the potential economic benefits of fostering these misleading perceptions in consumers. As described above, industry documents from a 1968 conference of tobacco company scientists reveal that several participants in the conference stressed the difference between creating a "health image" or "health reassurance cigarette," such as "a low tar-low nicotine cigarette which the public accepts as a healthier cigarette," and a "health-oriented" product actually designed to be safer.⁵⁵⁰

(iii) *Imperfect Relative-Risk Information.* — Even assuming that smokers know (or overestimate) the personal risks of smoking a particular brand of cigarettes, it does not follow that they will be well-informed, for the extent to which consumers make well-informed decisions hinges also on their assessment of the risks of smoking relative to their assessments of other risks.⁵⁵¹ If consumers tend to overestimate other risks to which they are exposed, they may behave *as if* they underestimated the risks of smoking. That is, to the extent that an indi-

⁵⁴³ See *id.* at 1611-12.

⁵⁴⁴ See *id.* at 1612-13.

⁵⁴⁵ See Hanson & Kysar, *TBS I*, *supra* note 11, at note 107 and accompanying text.

⁵⁴⁶ See *id.* at note 446 and accompanying text.

⁵⁴⁷ See Kenneth E. Warner, John Slade & David T. Sweanor, *The Emerging Market for Long-Term Nicotine Maintenance*, 278 *JAMA* 1087, 1088 (1997).

⁵⁴⁸ See VISCUSI, *SMOKING*, *supra* note 255, at 67 ("Individuals who express concerns about the health consequences of smoking are much more likely to smoke low-tar cigarettes.")

⁵⁴⁹ See *supra* pp. 1475-77.

⁵⁵⁰ GLANTZ ET AL., *supra* note 259, at 129 (emphasis omitted).

⁵⁵¹ See Hanson & Logue, *supra* note 256, at 1190-93.

vidual views nonsmoking activities as significantly threatening her health or life, she will give less significance, other things being equal, to the "marginal" risks of smoking.

That problem is most acute when smokers dramatically overestimate the "risks of not smoking" relative to the risks of smoking. If smokers believe, for example, that smoking helps them keep weight off or reduce their stress levels, and that the risks associated with obesity or stress are of the same or greater magnitude than those they associate with smoking, then their decisions would be dangerously misinformed.

Unfortunately, there is a great deal of evidence suggesting that smokers misestimate the relative risks of cigarettes and that they do, indeed, tend to view certain nonsmoking risks as being equivalent to or greater than the risks of smoking.⁵⁵² For instance, a 1993 study by the American Cancer Society concluded that "[a]lthough Americans are generally aware of the personal health risks associated with tobacco use, the public seriously underestimates the magnitude of the impact cigarette smoking has on the health of the country as a whole" in comparison with other health risks.⁵⁵³ Asked what they view as the most serious health risk facing the country, for example, thirty-six per-

⁵⁵² See, e.g., J. Richard Eiser & Stephen R. Sutton, *Smoking, Seat-Belts, and Beliefs About Health*, 4 ADDICTIVE BEHAVIORS 331, 337 (1979) (reporting that, when asked to compare smoking to other risk factors, "[u]nder 14% of smokers realized that smoking caused more deaths," and that smokers were half as likely as nonsmokers to make the realization). In 1983, Louis Harris & Associates conducted a nationwide phone survey of 1254 randomly selected adults. See SURGEON GENERAL'S REPORT 1989, *supra* note 467, at 207; see also *id.* at 209 fig.1, 210 fig.2 (summarizing the Harris survey). These adults were asked the following: "In helping people in general to live a long and healthy life, how would you rate the importance of" each of 24 health and safety factors on a scale of one to 10? *Id.* at 209 fig.1. The low end of the scale represented the response, "of low importance," and the high end represented, "of utmost importance." *Id.* The lowest mean ranking of all the safety factors was 6.42 (for "drinking no alcohol"), significantly above the scale's midpoint, suggesting that all health factors were viewed as significant, including "[g]etting 7-8 hours [of] sleep" (8.04) and "[e]ating breakfast daily" (7.61). *Id.* Interestingly, the mean health ranking of "[n]ot smoking" (8.25) suggested that consumers had imperfect relative-risk information. Of the 24 health factors, "not smoking" had the tenth highest ranking, placing it directly ahead of "[h]aving friends, relatives, neighbors" (8.18) and behind "[n]ever driving after drinking" (9.25), "[k]eeping air quality acceptable" (9.11), "[k]eeping water quality acceptable" (8.95), "[h]aving smoke detectors in home" (8.89), "[k]eeping close to recommended weight" (8.54), "[h]aving blood pressure reading annually" (8.51), "[t]aking steps to control stress" (8.36), "[g]etting enough vitamins, minerals" (8.37), and "[e]xercising regularly" (8.32). *Id.* (emphasis added). As part of the project, Louis Harris & Associates also sampled 103 health experts and asked them to rank the same 24 health factors with respect to the "overall health of the general population." *Id.* at 207, 210 fig.2. Not surprisingly, they ranked "[n]ot smoking" as the most important factor by far (with a mean ranking of 9.78). *Id.* at 210 fig.2; *id.* at 207-12 (summarizing five more recent studies, all of which confirm the conclusions of the Roper and Louis Harris & Associates studies); *id.* at 207, 211 tbl.17 (presenting evidence that the inaccuracy of consumers' relative-risk information is particularly acute among smokers).

⁵⁵³ Marttila & Kiley, Inc., Highlights from an American Cancer Society Survey of U.S. Voter Attitudes Toward Cigarette Smoking 21 (Sept. 9, 1993) (unpublished manuscript, on file with the authors).

cent of respondents cited the AIDS virus, and only nine percent answered smoking.⁵⁵⁴ Asked to choose from a list of the health risks responsible for the greatest number of deaths, twenty-eight percent of respondents selected car accidents, sixteen percent identified illicit drugs, twelve percent named AIDS, another twelve percent chose alcohol abuse, and seven percent said murders.⁵⁵⁵ Only twenty-one percent answered that cigarettes were the most frequent killer.⁵⁵⁶ Yet cigarettes are responsible for significantly more deaths than all the other causes of death combined.⁵⁵⁷

In a more recent study, Ron Borland asked smokers in Australia which of seven causes of death (including smoking and six significantly less probable causes) was responsible for the most deaths, and only around one-third of the smokers picked smoking.⁵⁵⁸ Borland concludes that the evidence regarding smokers' perceptions of the relative risks indicates that smokers generally underestimate the total risks of smoking and "that many people have no clear idea about what the magnitude of the risk is."⁵⁵⁹

A study by Baruch Fischhoff and Don MacGregor examining the effect of survey question formulations on responses illustrates dramatically the importance that relative-risk beliefs may have to the issue of smoking risk information. In the study, which is described more fully below,⁵⁶⁰ the survey respondents' absolute estimates of risk were highly influenced by the manner in which the survey questions were formulated. However, the ordinal ranking of risks was fairly consistent regardless of question formulation. "Apparently, people have a core of knowledge regarding relative lethality that emerges however they are queried."⁵⁶¹ That finding indicates that relative-risk estimates

⁵⁵⁴ See *id.*

⁵⁵⁵ See *id.*

⁵⁵⁶ See *id.*

⁵⁵⁷ See *id.* at 21-23.

⁵⁵⁸ See Borland, *supra* note 467, at 517.

⁵⁵⁹ *Id.* at 520. Stephen Sutton recently conducted a survey in Great Britain, in which respondents were asked the following: "On average, out of 1000 20 year olds in Britain who smoke cigarettes regularly and who carry on smoking, how many do you think will be murdered?, how many do you think will be killed on the roads, and how many do you think will be killed by smoking before the age of 70?" Stephen Sutton, *How Ordinary People in Great Britain Perceive the Health Risks of Smoking*, 52 J. EPIDEMIOLOGY COMMUNITY HEALTH 338, 338 (1998). According to Sutton, the epidemiological estimate of those risks are 1, 6, and 250, yet "[o]nly a small minority of respondents gave estimates for the risk of being killed by smoking that came anywhere near the epidemiological . . . estimate." *Id.* at 338-39.

⁵⁶⁰ See *infra* pp. 1537-38.

⁵⁶¹ Baruch Fischhoff & Don MacGregor, *Judged Lethality: How Much People Seem to Know Depends Upon How They Are Asked*, 3 RISK ANALYSIS 229, 232 (1983); see also Baruch Fischhoff, Ann Bostrom & Marilyn Jacobs Quadrel, *Risk Perception and Communication*, in 2 OXFORD TEXTBOOK OF PUBLIC HEALTH 987, 988 (Roger Detels et al. eds., 1997) (explaining that numerous studies have found that relative-risk estimates are internally consistent within and across response modes).

may be far more revealing of consumers' risk estimates than are the industry survey questions eliciting estimates of absolute death (or disease) rates. And, as has been shown in this section, individuals' relative-risk estimates of smoking are, on the whole, unduly optimistic.

Unfortunately, the tobacco industry appears to have actively promoted that sort of imperfect relative-risk information. From the older and quite explicit Lucky Strike advertising slogan, "Reach for a Lucky instead of a Sweet," to the more recent and nearly explicit ad campaigns for "Silva Thins" and "Virginia Slims," tobacco manufacturers appear to have aggressively promoted cigarettes as weight-loss devices.⁵⁶² Stress relief also is often touted by industry spokespeople as one of the benefits of smoking. Indeed, just this year Geoffrey Bible, the chief executive officer of Philip Morris, was quoted arguing the merits of smoking by attempting to inflate the relative risks of not smoking:

There's an interesting question you should ask the public-health people What do you think smokers would do if they didn't smoke? You get some pleasure from it, and you also get some other beneficial things, such as stress relief. Nobody knows what you'd turn to if you didn't smoke. Maybe you'd beat your wife. Maybe you'd drive cars fast. Who knows what the hell you'd do?⁵⁶³

A consumer who shared Geoffrey Bible's implicit view of the relative risks of smoking and stress would be much more likely to smoke than one who had an accurate perception of those relative risks.

(iv) Imperfect Information Regarding the Extent and Nature of the Harm. — Even if consumers were otherwise well-informed regarding their chances of experiencing various smoking-related hazards, they are still not adequately informed if they fail to appreciate the extent and nature of the harms they might suffer.⁵⁶⁴ Yet there is evidence that healthy individuals are generally unable to understand the nature of serious illnesses or disabilities.⁵⁶⁵ And there is no reason to believe

⁵⁶² See, e.g., Pierce & Gilpin, *supra* note 493, at 500; Pierce, Lee & Gilpin, *supra* note 494, at 608.

⁵⁶³ Jeffrey Goldberg, *Big Tobacco's Endgame*, N.Y. TIMES, June 21, 1998, § 6 (Magazine), at 36, 39.

⁵⁶⁴ See Slovic, *supra* note 512, at 1136 ("Appreciating the risks of smoking means appreciating the nature of the consequences as well as the probabilities of those consequences.")

⁵⁶⁵ See Ellen Smith Pryor, *The Tort Law Debate, Efficiency, and the Kingdom of the Ill: A Critique of the Insurance Theory of Compensation*, 79 VA. L. REV. 91, 110-17 (1993) (describing evidence that healthy individuals do not understand what it means to be very ill or severely disabled); Slovic, *supra* note 512, at 1136 (noting that the underestimation of the impact of an illness has long been observed, for example, by medical practitioners describing to patients the risks inherent in various potential treatments); cf. Frank S. Sloan et al., *Alternative Approaches to Valuing Intangible Health Losses: The Evidence for Multiple Sclerosis*, 17 J. HEALTH ECON. 475, 476, 494 (1998) (examining the extent to which people with multiple sclerosis (MS) differ in their "valuations of health status" from people without MS and finding that "the general public tends not to be able to discriminate well in rating the different symptoms of MS[,] impl[ying] that it is difficult

that smokers are exceptional in that regard. It seems doubtful, in other words, that consumers deciding whether to smoke "have realistic knowledge of what it is like to experience lung cancer, chronic obstructive pulmonary disease, or any other of the fates awaiting smokers that many would consider 'worse than death.'"⁵⁶⁶

(v) *Underestimation of Addiction.* — There is yet another significant — perhaps the most significant — source of imperfect consumer information. In the last decade or so, evidence has accumulated indicating that cigarettes are addictive. As Dr. Jack Henningfield, a scientist at the Addiction Research Center, observes, the addictiveness of nicotine places it "right in the top tier with cocaine, heroin and alcohol."⁵⁶⁷ That medical conclusion is borne out in the words and deeds of smokers, most of whom say they want to quit and many of whom have made unsuccessful attempts to quit.⁵⁶⁸ The regret expressed generally begins to set in fairly early for smokers. A 1989 study, for example, found that seventy-four percent of adolescent smokers had seriously considered quitting smoking, and nearly half had tried unsuccessfully within the previous six months.⁵⁶⁹ In 1998, Paul Slovic surveyed college students who were daily smokers, asking the following: "If you could go back to the time when you first began to smoke, would you decide to smoke again?"⁵⁷⁰ The results of Slovic's survey are illuminating:

The answer was no for 55.2% of the smokers and yes for only 36.2%. Among those who had smoked for five years or more, 65% said they would not decide to smoke again compared to 27% who said they would. The fact that so many long-term smokers regret beginning to smoke attests to the difficulty of stopping smoking.⁵⁷¹

Underestimating the addictiveness of smoking has the same effect as underestimating the long-term risks because it causes the initiating smoker to discount the long-term harms associated with beginning to smoke. If the tobacco consumption decision is made strictly one pack at a time, then only the marginal risk (which is nominal) and the mar-

to obtain very refined judgments from individuals who do not have direct personal experience with the disease").

⁵⁶⁶ Slovic, *supra* note 512, at 1136.

⁵⁶⁷ *Froniline: The Nicotine War* (WGBH radio broadcast, Jan. 3, 1995).

⁵⁶⁸ See Hanson & Logue, *supra* note 256, at 1193. For example, one recent survey found that 70% of the adults who currently smoke "would like to quit completely," and 34% try to quit in any given year. See *id.* (quoting Spencer Rich, *Study Says Adult Smoking Dropped to 25% in 1993; Researcher Describes Results as Encouraging*, WASH. POST, Dec. 23, 1994, at A6). However, only eight percent of those who try to quit in a given year are successful. See *id.* (citing 8% of *Smokers Who Try to Quit Succeed, Survey Says*, L.A. TIMES, Dec. 23, 1994, at A4). Other studies have produced similar results. See, e.g., LOUIS BINER ET. AL., 1993 MASSACHUSETTS TOBACCO SURVEY 6 (1994).

⁵⁶⁹ See Slovic, *supra* note 512, at 1140 (citing 1989 Teenage Attitudes and Practices Survey).

⁵⁷⁰ *Id.* at 1141.

⁵⁷¹ *Id.*

ginal benefit (which can be significant) of that pack is relevant to the consumer.⁵⁷² Only when an initiator appreciates the addictiveness of cigarettes does she have any reason to take into account the immense long-term risks of smoking.⁵⁷³

The question whether consumers are adequately informed of the risks of smoking turns very much on the question whether smokers anticipate the costs of quitting.⁵⁷⁴ Unfortunately, there is good reason to presume that consumers underestimate the addictiveness of cigarettes. After all, the various sources of optimism described above apply not just to the health effects of smoking, but also to its addictive effects.⁵⁷⁵

⁵⁷² See Hanson & Logue, *supra* note 256, at 1198–99.

⁵⁷³ Insofar as the individual fails to anticipate substantial costs of quitting (created by the addictiveness of cigarettes), she may choose to endure costs (of continued smoking or of quitting) that greatly exceed any benefits that she might have anticipated when initially deciding to smoke. In short, the initial choice to smoke may be inefficient if consumers underestimate the addictiveness of smoking. See *id.* at 1196–1202.

Even when addiction plays no role, some evidence exists that individuals care less, other things being equal, about risks that accumulate over time from many small exposures (such as cigarette smoking) than they are about risks that are significant with a single exposure (such as sky diving). William Diamond conducted a study that verified this phenomenon. See William D. Diamond, *Effects of Describing Long-Term Risks as Cumulative or Noncumulative*, 11 BASIC & APPLIED SOC. PSYCHOL. 405 (1990). Diamond was interested in determining if people would react differently to essentially the same risk depending on whether it was framed a cumulative risk (e.g., brown lung disease) or as a noncumulative risk (e.g., the risk of AIDS, which can be contracted from a single exposure). Diamond's experiment compared the risks people would take when exposed to two hypothetical carcinogens — one whose effect was cumulative (“the poison builds up in your body”) and one whose effect was not cumulative (each exposure either makes you sick or “will pass right through you without doing any harm”) — each of which would make 50 out of every 100 people sick after five exposures. *Id.* at 412–13. Diamond found that, despite the statistically identical likelihood of harm from five exposures to each toxin, participants in the experiment were “significantly” more willing to expose themselves to the carcinogen that operated cumulatively rather than in an all-or-nothing manner. See *id.* at 414–15. According to Diamond, one implication of the study is that “the deliberate presentation of a risk as cumulative or noncumulative may affect voluntary risk taking.” *Id.* at 418.

⁵⁷⁴ Regarding this question, the only potentially relevant survey evidence that Viscusi discusses comes from a 1974 study reporting that approximately 75% of children between the ages of 7 and 14 agreed with the statement that “[i]t is very hard to stop smoking.” VISCUSI, *SMOKING*, *supra* note 255, at 121 tbl.6-1 (citing F.W. Schneider & L.A. Vanmastrig, *Adolescent & Preadolescent Differences in Beliefs and Attitudes About Cigarette Smoking*, 87 J. PSYCHOL. 71 (1974)). Of course, that figure implies that 25% of those children did not agree that it is hard to stop smoking, significantly more than the current national teenage smoking rate of 16%. See Andrea Adelson, *Is Anybody Getting the Picture? Despite Ads, Teen-Age Smoking Is Unabated*, N.Y. TIMES, July 17, 1997, at D1.

⁵⁷⁵ Cf. Neil D. Weinstein, *Optimistic Biases About Personal Risks*, 246 SCIENCE 1232, 1232 (1989) (“Some biases occur when people compare themselves with an incorrect norm. The risk of becoming addicted to drugs really is small for most of the population, but it seems that people conclude incorrectly that their risk is far below average by comparing themselves to drug users — a salient high-risk group — rather than to people like themselves who are far more numerous.”); Neil D. Weinstein, *Unrealistic Optimism About Susceptibility to Health Problems*, 5 J. BEHAV. MED. 441, 447 tbl.I (1982) (finding that of 45 health-and-life-threatening problems the optimistic bias was greatest for drug addiction); Neil D. Weinstein, *Unrealistic Optimism About Susceptibility to Health Problems: Conclusions from a Community-Wide Sample*, 10 J. BEHAV. MED. 481,

Moreover, there is some indirect market evidence that smokers think of their decision as a short-term one. For instance, many smokers purchase cigarettes by the pack rather than by the carton even though doing otherwise would save them both money and time.⁵⁷⁶ The consumer's tendency to focus on the short-term consequences of smoking is strengthened by tobacco industry spokespeople's consistently maintaining that cigarettes are not addictive and contradicting the evidence indicating otherwise.⁵⁷⁷ In any event, the weight of scientific evidence confirms the presumption: beginning smokers appear to underestimate the addictiveness of cigarettes.

As a primary example, long-term survey evidence from the Monitoring the Future project⁵⁷⁸ regarding the extent to which young smokers see their decision to smoke as a lifelong decision strongly suggests that young smokers underestimate the addictiveness of their habit.⁵⁷⁹ Young smokers' "expectation to abstain from smoking in the future seemed overwhelmed by the strong forces that tend to maintain or advance smoking behavior once it is established."⁵⁸⁰ Other studies reveal similar results. For instance, in one study, adults and children reflecting the optimism bias considered themselves less likely than average to become "hooked" on cigarettes.⁵⁸¹ And a 1989 survey found

485-86 & tbl.1 (1987) (finding that of 32 different health hazards optimism was the strongest for drug addiction).

⁵⁷⁶ See Hanson & Logue, *supra* note 256, at 1206-07.

⁵⁷⁷ See *supra* pp. 1500-02.

⁵⁷⁸ The project is being conducted by the Institute for Social Research at the University of Michigan. The study results referred to in the text are unpublished, but are summarized in U.S. DEPT OF HEALTH & HUMAN SERVS., PREVENTING TOBACCO USE AMONG YOUNG PEOPLE: A REPORT OF THE SURGEON GENERAL 68-71 (1994).

⁵⁷⁹ In that study, high school seniors were surveyed each year for one decade — from 1976 to 1986 — and then again five years after graduating. In the first stage of the survey, seniors were asked, "Do you think you will be smoking cigarettes five years from now?" *Id.* at 68. At the second stage of the survey, respondents were again asked about their current smoking status. Of those respondents who smoked at least one pack per day as high school seniors, 32% of them predicted at the first stage that they would "probably" or "definitely" stop smoking within five years. *Id.* at 68 tbl.19. At the second stage of the survey, however, only 13% of those graduates had quit, while nearly 70% continued to smoke more than one pack per day. See *id.* at 69 tbl.20. Moreover, nearly half of those seniors who had smoked about one-half pack per day had increased their habit five years out to more than one pack per day. See *id.* Finally, of the seniors who smoked only one to five cigarettes per day, 61% believed that they would probably or definitely quit within five years. See *id.* at 68 tbl.19. As it turned out, only 30% managed to quit, while nearly half at least doubled their smoking rates. See *id.* at 69 tbl.20. As the Surgeon General's report summarized: "When earlier smoking behavior is controlled, seniors' expectations to smoke had very limited power to predict subsequent smoking behavior." *Id.* at 68.

⁵⁸⁰ *Id.* at 71.

⁵⁸¹ See Alida Benthin, Paul Slovic & Herbert Severson, *A Psychometric Study of Adolescent Risk Perception*, 16 J. ADOLESCENCE 153, 165 (1993); Lawrence D. Cohn et al., *Risk-Perception: Differences Between Adolescents and Adults*, 14 HEALTH PSYCHOL. 217, 218, 221-22 (1995) (arguing that adolescents' underestimation of risks stems from "a failure to perceive dangerous situations rather than a desire to pursue risks"); cf. Leventhal et al. *supra* note 467, at 3375 (finding a general lack of understanding among urban youth regarding the difficulties of smoking cessation). It may be that adult smokers have a better understanding than younger smokers of the strength of

that twenty-one percent of teenage smokers believed it was safe to smoke for only a year or two, whereas a mere three percent of teenage nonsmokers shared that view.⁵⁸² Paul Slovic found evidence that virtually all adolescents — smokers and nonsmokers alike — agree that smoking one pack per day “will eventually harm” a person’s health.⁵⁸³ In contrast, adolescents are much more likely to deny that smoking has significant short-term risks, and among adolescents, smokers are especially likely to deny those risks. For example, Slovic found the following:

[A]bout one-third of those who smoked more than six cigarettes per day believed that there is “really no risk at all” from smoking a pack of cigarettes daily for the first few years after starting to smoke, and about 40% saw no harm associated with the very next cigarette smoked Fifty percent of the smokers believed that harmful effects of smoking rarely occur until a person has smoked steadily for many years⁵⁸⁴

Clearly, an individual can believe that long-term smoking is dangerous and still underestimate the risk of smoking the next pack, particularly when that person does not appreciate the connection between the two risks.

(vi) *Imperfect Attributional Information and the Role of Reciprocity.* — As we describe in our companion article, attribution theorists⁵⁸⁵ have shown that consumers can be significantly influenced by their perceptions of a seller’s conduct and intentions.⁵⁸⁶ Consumers react differently (exhibit more anger and desire increased retribution) if they believe that manufacturers caused product failure and if the risks associated with the unsafe product are a function of manufacturer choice. Evidence further suggests that preferences are reciprocal: people willingly sacrifice their material well-being to punish others who act unfairly or selfishly or to reward or assist those people who act cooperatively or benignly.

The relevance of attribution theory to tobacco policy seems fairly clear.⁵⁸⁷ Consumers, to be adequately informed in the sense that they

the addiction, simply because they have had more experience trying to overcome the addiction. In Mark Twain’s words: “To cease smoking is the easiest thing I ever did. I ought to know because I’ve done it a thousand times.” THE MACMILLAN DICTIONARY OF QUOTATIONS 538 (1987).

⁵⁸² Karen F. Allen et. al., *Teenage Tobacco Use: Data Estimates from the Teenage Attitudes and Practices Survey, United States, 1989* Advance Data No. 224, at 1, 9 tbl.2 (1993).

⁵⁸³ Slovic, *supra* note 512, at 1139.

⁵⁸⁴ *Id.* at 1140.

⁵⁸⁵ Generally, “attribution theorists” seek to understand how people attribute causes to certain outcomes and how attributions influence those people’s reactions to the outcomes. See generally SUSAN T. FISKE & SHELLEY E. TAYLOR, *SOCIAL COGNITION* 57–95 (2d ed. 1991) (reviewing the literature).

⁵⁸⁶ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 488–501 and accompanying text.

⁵⁸⁷ One of us is currently co-authoring a paper discussing the role of attribution theory in explaining (and perhaps justifying) tort law generally. See Jon D. Hanson & Ana C. Reyes, *Law*

truly have a free choice in the market, need to know more than just the information regarding the ill-health effects and addictiveness of cigarettes (outcomes). They also need to know the extent to which those outcomes are inherent and unavoidable in the product or the result of volitional and even deliberate acts of manufacturers. Only with that information can consumers determine whether they should take one of the key options available to them — that is, eschewing the product.

Several attributes are relevant in the consumer product context. For instance, *locus* concerns whether the cause of the product failure is attributable to the manufacturer or the consumer. Numerous experiments have shown that when a product failure is seller-related, consumers are thought to deserve restitution (such as a refund and, in some cases, an apology), but when the product failure is buyer-related, the seller is not thought to owe restitution.⁵⁸⁸ A desire to influence perceptions of locus seems to explain, among other things, the TIRC's widely distributed documents listing "human ills erroneously attributed to tobacco over the centuries"⁵⁸⁹ and the millions of dollars spent by the industry to support the research efforts of those scientists who argued that genetics or environmental factors caused cancer.⁵⁹⁰ The tobacco manufacturers used the work of these scientists in congressional hearings, lawsuits, brochures sent to doctors, and marketing.⁵⁹¹ In other words, the tobacco companies placed the locus of smoking-related harms with the environment and consumers, thus depressing the public's anger toward, and feelings of retribution against, manufacturers. As we explain above, however, the tobacco industry appears to have long known that cigarettes cause cancer — or, in other words, that locus belongs with the product (and its manufacturer).

A second attribute relevant to products liability analysis, *controllability*, concerns the extent to which an actor's volition caused an injury. If an injurer acts volitionally (i.e., the injurer "could have done otherwise"), then the victim is more likely to reciprocate or retaliate with negative actions. Matthew Rabin, a behavioral economist, notes, "A crucial feature of the psychology of reciprocity is that people determine their dispositions toward others according to motives attrib-

and Attribution: Toward a New Positive Theory of Tort Law (working title for unpublished work-in-progress).

⁵⁸⁸ See Valerie S. Folkes, *Conflict in the Marketplace: Explaining Why Products Fail*, in *ATTRIBUTION THEORY* 143, 150–51 (Sandra Graham & Valerie S. Folkes eds., 1990); see also Marsha L. Richins, *Negative Word-of-Mouth by Dissatisfied Consumers: A Pilot Study*, 47 *J. MARKETING* 68, 72 (1983) (finding that "when greater blame for a dissatisfaction is placed on marketing institutions than on the consumer, there will be more negative [word of mouth]").

⁵⁸⁹ HILTS, *supra* note 259, at 15 (internal quotation marks omitted).

⁵⁹⁰ See GLANTZ ET AL., *supra* note 259, at 291–96; *supra* p. 1490

⁵⁹¹ See GLANTZ ET AL., *supra* note 259, at 291–96.

uted to these others, not solely according to actions taken.”⁵⁹² Manufacturers can reduce negative consumer reaction to product failure by denying or downplaying its controllability. The evidence reviewed in section A indicates that a primary strategy of the tobacco industry has been to do just that. With respect to the addictiveness of smoking, for example, tobacco companies have continuously attempted to deny controllability by, among other strategies, characterizing smoking as a “habit” (like eating gummy bears is for some people, a habit⁵⁹³) and by denying that it is an “addiction.”⁵⁹⁴ Similarly, cigarette manufacturers have defended their position by pointing to misleading statistics, such as the evidence that approximately half of all smokers manage to quit.⁵⁹⁵ According to the industry view, the control is with smokers. They choose to consume a product that they perceive to be risky (even if manufacturers deny those risks); consequently, the public should support unregulated tobacco as a means of “protect[ing] everyone’s freedom against an overbearing government.”⁵⁹⁶ Again, however, internal industry documents indicate that controllability actually rests, to a considerable degree, with manufacturers.⁵⁹⁷

Finally, attribution theorists have discovered a widely shared, strong preference for *cooperation*. Other things equal, individuals tend to prefer interacting or cooperating with those actors they view as behaving cooperatively or fairly. Notably, researchers have found that anger derived from volitional attributions or intentional misconduct can overcome the economists’ assumption that actors attempt to maximize their economic self-interest.⁵⁹⁸ Unsurprisingly, therefore, cigarette manufacturers publicly portrayed themselves as deeply concerned for consumers’ health and displayed an unadulterated willingness to “cooperate” with any research into smoking risks.⁵⁹⁹ This semblance of cooperation produces an affective response in a smoker that not only increases her willingness to bargain with tobacco manufacturers, but can also lower her perception of the risks of smoking. Ali Siddiq Alhakami and Paul Slovic have found that affective attitudes about an item are often inversely correlated with risk perceptions of

⁵⁹² Matthew Rabin, *Psychology and Economics*, 36 J. ECON. LITERATURE 11, 22 (1998).

⁵⁹³ Cf. Yukimo Ono, *Mouthwash PR Bad-Mouths Star and Other Klutzy Campaigns*, WALL ST. J., Dec. 23, 1997, at B5 (recounting how James Morgan, former CEO of Phillip Morris’s U.S. tobacco division, compared cigarettes to gummy bears as only “behaviorally addictive”).

⁵⁹⁴ See GLANTZ ET AL., *supra* note 259, at 4–5.

⁵⁹⁵ See Hanson & Logue, *supra* note 256, at 1194–95 (describing how the statistic understates the difficulty that smokers face in quitting).

⁵⁹⁶ GLANTZ ET AL., *supra* note 259, at 185; see *supra* pp. 1494–95.

⁵⁹⁷ See *supra* pp. 1496–1502.

⁵⁹⁸ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 219–28 and accompanying text.

⁵⁹⁹ See *supra* pp. 1484–89.

that item.⁶⁰⁰ Thus, by inspiring positive affect through an appearance of cooperation, manufacturers may also dull risk perceptions.

Attribution theorists certainly would posit that consumers would have reacted negatively to the tobacco companies' uncooperative, unfair, and intentionally deceptive practices. Consider, for example, the widespread and longstanding industry practice of discrediting scientific research that was inconsistent with a pro-tobacco stance by labeling it "bad science." Assume momentarily that the industry incorrectly, but honestly, believed that the studies indicated smoking did not pose a health risk. Alternatively assume, as seems to be the case, that the tobacco industry knowingly and with the specific purpose to deceive consumers portrayed the health issue as a "continuing controversy" and "open debate" and simultaneously withheld their findings about the hazards of smoking from the public. The outcome in both cases would be the same with respect to consumers' risk perceptions (skewed, but skewed in similar fashions toward the same underestimation of risk). However, the consumers' resentment and aggression upon finding out the true motivations, would be significantly higher in the latter case than in the former. Consumers then would not be indifferent, and would not react indifferently, to the two situations.

(c) *Bias and Manipulation in Viscusi's Survey Evidence.* — The preceding evidence suggests that the "enormously powerful" market forces championed by Viscusi have not ensured that the risks of cigarettes are "almost universally understood."⁶⁰¹ Still, the question remains, what about the evidence on which Viscusi bases his pro-market conclusions? What about the evidence, for example, that survey respondents estimate that forty-three of every 100 smokers will get lung cancer, when the "true risk reference point" is between five and ten?

Viscusi provides data to support his assertion that cigarette manufacturer liability would serve no useful purpose. This data suggests that most people understand that smoking can have adverse health consequences. However, flaws in Viscusi's analysis raise serious doubt about whether one can reasonably infer from his data that consumers accurately perceive, much less overestimate, the general risks of long-term smoking.⁶⁰² Moreover, Viscusi's evidence provides little or no suggestion that the various sources of informational inadequacies de-

⁶⁰⁰ See A. Alhakami & P. Slovic, *A Psychological Study of the Inverse Relationship Between Perceived Risk and Perceived Benefit*, 14 RISK ANALYSIS 1085, 1088 (1994) ("When the attitude [about a risk] is favorable, the activity or technology being judged may be seen as having high benefit and low risk. On the other hand, when the item being evaluated is viewed unfavorably, with negative affect, it may be seen as having low benefit and high risk. Our general attitudes or affective states may thus 'confound' the risk/benefit judgment.").

⁶⁰¹ Viscusi, *Public Perceptions*, *supra* note 468, at 25.

⁶⁰² See Ron Borland, *supra* note 467, at 518-20; J. Richard Eiser, *Risk Judgments Reflect Belief Strength, Not Bias*, 9 PSYCHOL. & HEALTH 197, 198-99 (1994); Hanson & Logue, *supra* note 256, at 1354-61; Slovic, *supra* note 512, at 1135.

scribed above are not powerfully in play in the market for cigarettes. That is, even if his evidence provides a reliable measure of consumer estimates of the general population risk of smoking, it tells us virtually nothing about the individual, personal risks perceived by smokers at the point of purchase.

In any case, Viscusi's interpretations of that data and his estimation of the actual risk to smokers are, at best, dubious.⁶⁰³ In previous work, one of us (with Kyle Logue) has reviewed much of Viscusi's evidence and concluded that the survey and the survey data on which Viscusi primarily relies are misleading.⁶⁰⁴ That work argued that Viscusi's "true risk reference points" (for example, that between 5 and 10 out of 100 smokers will get lung cancer and between 16 and 36 smokers will die from smoking) likely represent a significant underestimation of the actual risks that survey respondents thought they were estimating — although it is impossible to be certain given that, among other problems, the surveys nowhere make clear what is meant by the term "smoker."⁶⁰⁵ We do not review that earlier critique here.⁶⁰⁶

Instead, we wish to revisit Viscusi's evidence and offer a different type of critique of his survey method and conclusions. We examine the survey design through the lens of behavioralism, and our conclusion resonates with the predominant theme of this Article and its companion: Viscusi should have taken behavioralism seriously.

(i) *Asking the Question Wrong.* — A primary lesson of this Article and its companion is that through subtle trial-and-error manipulations, sellers can influence consumer risk perceptions. Precisely the same lesson holds true with respect to survey designs. In our view, one clear lesson of the behavioralist literature is that no single survey of risk perceptions can shed much more than a splash of light on a question as complex as whether consumers are adequately informed of a particular risk. Similarly, no single number describes what people know or think. Survey responses vary dramatically in response to innumerable variables with the way a survey is designed and administered. Thus, to place much confidence in a conclusion regarding, say, how well-informed consumers are regarding the risks of a particular product, it is necessary to consider a wide range of surveys that test for different sources of imperfect information and pose their questions in different ways.

⁶⁰³ See Hanson & Logue, *supra* note 256, at 1354–61.

⁶⁰⁴ See *id.*

⁶⁰⁵ *Id.*

⁶⁰⁶ We will, however, mention a study that was not cited there but seems to provide further confirmation of our argument. See Richard Doll et al., *Mortality in Relation to Smoking: 40 Years' Observations on Male British Doctors*, 309 *BRIT. MED. J.* 901 (1994) (finding that about half of all regular cigarette smokers will eventually be killed by their habit); see also Borland, *supra* note 467, at 515 (reporting that the accepted range of risk of fatal illness falls between 20% and 40%).

Relatedly, anyone reviewing an industry's own survey evidence should exercise a healthy degree of skepticism. After all, there are the same incentives (and trial-and-error opportunities) for the industry (and its lawyers) to manipulate reported risk estimates on surveys as we argue there are for manufacturers to manipulate consumers' risk perceptions. Such suspicion seems particularly justified with respect to tobacco-industry surveys in light of the evidence that the industry and its lawyers have operated in precisely that fashion.⁶⁰⁷ Considering the source of Viscusi's data and the range of options available to the industry in gathering that evidence, it should not be surprising that the surveys on which Viscusi relies appear well designed to generate the appearance of overestimation of smoking's risks.

(A) *Question-Order Elicitation Effects*. — One relatively obvious way in which the surveys that Viscusi uses appear designed to elicit particularly high probability estimates is in the placement of questions that make the risk of cigarettes more salient (or "available") to respondents and otherwise encourage high risk assessments. For example, Viscusi's principal survey questions were preceded by one or both of two questions that seem likely to have biased upward the responses to the probabilistic question.⁶⁰⁸

⁶⁰⁷ In August 1997, industry documents were made public — over the strenuous objections of the industry — in a case in Florida. Among the documents was an eight-page letter and memorandum dated May 23, 1964, from Washington law firm Arnold & Porter, lawyers for Phillip Morris, describing efforts to conduct a survey to show that "there is a very high level of public awareness concerning the health issue involving cigarette smoking." Letter from Abe Krash, Arnold, Fortas & Porter, to Henry Ramm et al. 1 (May 23, 1964) (on file with the authors). A memorandum accompanying the letter outlined the law firm's strategy:

We have been assured by [the researchers who would conduct the study] that they would transmit to us every interview and every copy of the analysis. Thus, when it is completed, there will be nothing in the record of [the researchers] to subpoena. The danger of a successful subpoena would be reduced (though not entirely eliminated) if the survey were in an attorney's files.

Memorandum from Abe Krash, Arnold, Fortas & Porter, to Henry Ramm et al. 4–5 (on file with the authors). The memorandum continued, "In any event, if the returns were unfavorable, they could be destroyed and there would be no record in any office of the nature of the returns." *Id.* at 4. Finally, the memorandum acknowledged the industry's deliberate attempt to draft the survey questions to yield favorable results: "In the attached draft questionnaire, we have tried to avoid that problem by avoiding unnecessary questions which might elicit answers harmful to us. The questionnaire has been revised to eliminate questions that might upset an otherwise favorable return." *Id.*

⁶⁰⁸ In most of the surveys, the following questions were asked first: "When I mention cigarettes, what comes to your mind? PROBE: Anything else?" VISCUSI, SMOKING, *supra* note 255, at 154. According to Viscusi, that question elicited from respondents a "stunning" and "overwhelmingly adverse sentiment against the product." *Id.* at 88. As one of us (with Kyle Logue) explains elsewhere, the "what comes to mind" question appears to have called up (made salient) in the minds of many respondents a heightened awareness of cigarette health risks and negative attributes. See Hanson & Logue, *supra* note 256, at 1355 n.795. Ironically, Viscusi himself notes that this effect could have influenced responses to the first question if the open-ended "what comes to mind" question had not been asked first: "[B]y placing this question at the start of a survey, one is able to obtain responses that are not tainted by subsequent questions that might, for example, highlight the importance of the product's risks as a salient product attribute." VISCUSI, SMOKING, *supra*

A less obvious but equally important example of a question-order elicitation effect is apparent in the way that Viscusi measures people's assessment of the total mortality effects of smoking. Viscusi recognized that his argument that survey respondents overestimate the chances of getting lung cancer was vulnerable to the claim that many survey respondents may have assumed that the phrase, "getting lung cancer," was equivalent to "dying from smoking."⁶⁰⁹ Overestimation of risk seems especially likely given that lung cancer, according to Viscusi, is the most salient of all smoking-related risks,⁶¹⁰ that respondents might well use "lung cancer" as a catch-all term for "smoking-caused disease," and that respondents had just been asked about the general risks of smoking. If smokers had in fact interpreted the question to mean, "Among 100 smokers, how many of them do you think will die because they smoke?" then, according to Viscusi, the true risk reference point would be significantly higher than 0.05 and 0.10. The

note 255, at 88. He fails to see, however, how the order that he selected could have influenced later questions in exactly the same manner. Once negative impressions had been elicited by the "what comes to mind" question, for instance, subjects would tend to answer the ultimate question in a manner calculated to remain cognitively consistent with their earlier, negative responses. See Hanson & Logue, *supra* note 256, at 1355, n.795.

In all of Viscusi's surveys, the following question was asked immediately prior to the probabilistic question: Have you *heard* that smoking "will most likely shorten a person's life," "is dangerous to a person's health," "is bad for a person's health, but not dangerous," or "is not bad for a person's health"? VISCUSI, SMOKING, *supra* note 255, at 154-55. It seems fairly clear that the data generated by this question yield nothing of interest to our understanding of consumer knowledge: the fact that a consumer has *heard* something can in no way be construed to mean the consumer *believes* it. Viscusi suggests otherwise in a more recent paper, stating that "more than any other groups it seems that smokers are apprised of accurate information regarding the smoking hazards." Viscusi, Public Perceptions, *supra* note 468, at 16-17. This interpretation is based on the observation that the statement "smoking is not bad for a person's health" had been heard by fewer current smokers (22%) than former smokers (32%) or nonsmokers (36%). *Id.* at 35 tbl.7. However, if not having heard this statement is being used as a proxy for "accurate information," Viscusi's argument is seemingly contradicted by the fact that nonsmokers who have heard it make above-average estimations of lung cancer risk.

The preceding discussion raises a question: if we learn little or nothing from the oddly worded question, why keep adding it to each survey immediately prior to the probabilistic question? One hypothesis is that the question is included not for its own sake but because it elicits higher responses to the subsequent probability question. There are three "ideas" listed that remind respondents of the cigarette-related warnings and admonitions that they have received from parents, teachers, public service advertisements, the U.S. Surgeon General, and so on. Moreover, in the fourth part of the introductory question, respondents are asked whether they have heard an idea that flies in the face of all that they have heard from those many credible sources. It is not surprising that the fewest people heard that "smoking is not bad for a person's health." What is significant, however, and what Viscusi does not really explore, is that the relatively small group who had heard that "smoking is not bad for a person's health" also had the highest risk estimates. In other words, Viscusi's evidence reveals the unsurprising fact that people do not believe everything they hear.

⁶⁰⁹ VISCUSI, SMOKING, *supra* note 255, at 76-77.

⁶¹⁰ See *id.* at 77 ("[L]ung cancer risks have received the greatest attention for the longest period of time. The early antismoking efforts and the initial reports by the Surgeon General focused on lung cancer, and the risk continued to be the most prominent smoking hazard.").

estimates therefore may not have evidenced an overestimate as much as they reflected a misunderstanding of the question.

Sensitive to that possibility, Viscusi conducted a different survey that asked two questions. First, it asked: "Among 100 cigarette smokers, how many of them do you think will die of lung cancer because they smoke?" Second, the survey asked: "Among 100 cigarette smokers, how many of them do you think will die of lung cancer, heart disease, throat cancer, and all other illnesses because they smoke?" The average answer to the second question was fifty-four, which Viscusi points out "is 1.42 times as large as the assessed lung cancer mortality rate for the same sample"⁶¹¹ and "two to three times as great"⁶¹² as what Viscusi claims is the true risk reference point of between eighteen and thirty-six.⁶¹³ In other words, even when respondents are certainly thinking about the total mortality risks of smoking, they appear to overestimate the actual risk. Viscusi concedes that the degree of overestimation is reduced when respondents are asked about total mortality but concludes that "[t]he general spirit of the results is consistent with the lung cancer risk findings in that they indicate substantial awareness of the risks of smoking that are not sensitive to the wording of the telephone survey."⁶¹⁴

But Viscusi's survey design is unsatisfactory. The first probabilistic question asks about the single risk that Viscusi acknowledges is the risk most likely to be substantially overestimated by consumers — dying of lung cancer. Then, after respondents give that answer, they are immediately asked to estimate the total risk of dying from any smoking-related cause, including "*lung cancer*, heart disease, throat cancer, and all other illnesses." In designing his sensitivity tests, Viscusi did not account for the effect that answers to the second question would be anchored to answers to the first question and would thus produce a high response to the first question and a necessarily higher response to the second.⁶¹⁵

⁶¹¹ *Id.*

⁶¹² *Id.*

⁶¹³ *See id.* at 70.

⁶¹⁴ *Id.* at 77-78.

⁶¹⁵ Viscusi's 1997 survey first asked the following: "Out of every 100 cigarette smokers, how many of them do you think will develop lung cancer *because* they smoke?" The survey then queried, "Out of every 100 cigarette smokers, how many of them do you think will die from lung cancer, heart disease, throat cancer, or any other illness *because* they smoke cigarettes?" Viscusi, *Public Perceptions*, *supra* note 468, at 33. The average answers were 46.8 and 50.1. Thus, the average death rate estimate was four percentage points lower than the average death rate estimate in the earlier survey. One explanation for the lower estimate in the more recent survey might be that this survey had a more limited anchoring effect. We suspect that the anchoring effect still played a significant role in the more recent survey, however, because many of the telephone respondents likely registered no difference between "develop[ing] lung cancer" and "d[ying] from lung cancer."

(B) *The Elicitation Effects of Specifying Risks.* — There are a couple of ways in which surveys, such as Viscusi's, that request respondents' estimates of a single risk or a small number of specified risks may bias respondents' estimates upward. First, it seems likely that consumers would give a greater estimate of a particular risk when asked about it specifically on a survey than when making their consumption choices. The survey highlights a risk for consumers in a way that a purchase or consumption decision may not.⁶¹⁶ Relatedly, when survey respondents are not asked specifically about a particular risk or set of risks of smoking, they tend not to be very good at identifying them. For example, a 1990 survey in Canada put to respondents the following question: "To the best of your knowledge, what, if any, are the health hazards related to smoking?"⁶¹⁷ Only forty-four percent of approximately one thousand respondents included lung cancer in their answers, and only twenty percent included heart disease.⁶¹⁸ As that study reveals, particularly when compared to the tobacco industry's surveys, a person's willingness to give an estimate of a risk when prompted does not necessarily imply that the person accounts for that risk (much less that estimate) when not prompted. A bit of introspection may remind the reader that contemplating risk probabilities when making consumption choices is rare — at least at the conscious level.

A second and perhaps related reason why survey questions asking respondents about specified risks may tend to inflate their estimates stems from the fact that the industry survey on which Viscusi chiefly relies inquires about a specifically identified risk (or set of risks) — for example, lung cancer. The behavioralist literature brims with examples of how such questions likely alter responses. In Kahnemann and Tversky's well-known experiment, one group of subjects was asked to estimate the number of seven-letter words ending in "ing" that appeared in a four-page excerpt from a novel, and another group was asked to estimate the number of seven-letter words ending with "_n_" in the same excerpt.⁶¹⁹ The median estimate given in response to the first question was almost three times that given for the second (notwithstanding the fact that there were almost certainly more words of the second type, given that it includes the first).⁶²⁰ When described as ending in "ing" as opposed to "_n_", the subject class of words was

⁶¹⁶ See Latin, *supra* note 226, at 1246 ("One explanation for the disparity between experimental evidence that low-probability risks are overweighted and observations that people often ignore these risks is that experimental methodology forces high salience for the risks under study while 'real life' experiences seldom make low-probability risks available.").

⁶¹⁷ ENVIRONICS RESEARCH GROUP LTD., AWARENESS OF HEALTH HAZARDS DUE TO SMOKING 22C (1990) (on file with the authors).

⁶¹⁸ See *id.*

⁶¹⁹ See Amos Tversky & Daniel Kahneman, *Extensional Versus Intuitive Reasoning: The Conjunction Fallacy in Probability Judgment*, 90 PSYCHOL. REV. 293, 295 (1983).

⁶²⁰ See *id.*

identified for respondents in a manner specific enough to allow easier conceptualization and therefore tended to prompt far greater estimations.

Tversky and Koehler cite to similar evidence in developing a new theory of subjective probability (Support Theory), "according to which different descriptions of the same event can give rise to different [probability] judgments."⁶²¹ A key prediction of Support Theory is that the act of specifying a particular risk in survey questions (as opposed to leaving that risk implicit) will bias responses upward. This phenomenon is especially evident in a 1978 study by Baruch Fishhoff, Paul Slovic, and Sarah Lichtenstein.⁶²² These scholars asked car mechanics and lay people to estimate probabilities for different causes of a car's failure to start. They discovered that estimates of the likelihood of the residual hypothesis — "The cause of failure is something *other than* the battery, the fuel system, or the engine" — increased from 0.22 to 0.44 when the hypothesis was broken up into more specific causes (for example, the starting system, the ignition system).⁶²³ The car mechanics, who had an average of fifteen years of experience, likely knew all of the possible residual causes but nonetheless reacted differently when those causes were listed explicitly.⁶²⁴

Thus, the act of specifically identifying a risk appears to increase its perceived magnitude. This means that Viscusi's question may have elicited far higher responses than would have alternative questions such as, "How many smokers out of one hundred will die from a smoking-related disease *other than* heart disease, emphysema, and throat cancer?"

Another factor contributing to the overestimation of specified risks in surveys such as Viscusi's seems to be the lack of a delimiting context for the survey question. By asking about the percentage of deaths from lung cancer *in isolation*, Viscusi essentially forces respondents to measure a distance without a ruler. Respondents in such surveys tend to ignore many other risks that they would also overestimate if specified. Moreover, they feel relatively unconstrained by the fact that all causes of death must add up probabilistically to one. Again, the behavioralist literature contains examples of how such questions *by themselves* can lead to overestimation. For instance, in a study conducted by Tversky and Koehler, Stanford undergraduates estimated the percentage of U.S. married couples with a given number of chil-

⁶²¹ Amos Tversky & Derek J. Koehler, *Support Theory: A Nonextensional Representation of Subjective Probability*, 101 *PSYCHOL. REV.* 547, 547 (1994).

⁶²² See Baruch Fishhoff, Paul Slovic & Sarah Lichtenstein, *Fault Trees: Sensitivity of Estimated Failure Probabilities to Problem Representation*, 4 *J. EXPERIMENTAL PSYCHOL.: HUMAN PERCEPTION AND PERFORMANCE* 330, 333-35 (1978).

⁶²³ *Id.*

⁶²⁴ See *id.*

dren.⁶²⁵ “Subjects were asked to write down the last digit of their telephone numbers and then to evaluate the percentage of couples having exactly that many children”⁶²⁶ — a question similar in form to Viscusi’s in that it asks about a specific probability in isolation. Subjects overestimated the percentage of couples in nine out of ten categories.⁶²⁷ The average total response for all ten numbers was nearly 200%. Generally speaking, then, the question elicited estimates two times the size of the actual percentages.

In contrast to open-ended questions in the Stanford phone number study and in Viscusi’s chief survey, we conducted a small written survey that forced respondents to think about their estimations in context. When asked how many smokers out of 100 would die of emphysema (a question designed to mirror Viscusi’s format), respondents in a Harvard Law School first-year class (of approximately 100 students) estimated that 17.41 out of 100 smokers would die of emphysema. When other members of the same sample were asked about the risks of dying of fifteen different causes of death (including car accident, heart disease, and the like) and were told that their total risk estimate *must* add up to 100, the average estimate dropped to 7.38 out of 100 who would die of emphysema — a statistically significant difference ($p = 0.001$). Thus, just by eliminating the open-ended nature of Viscusi’s question format, estimates of emphysema fatalities dropped by more than half.

In sum, there is nothing exceptional about Viscusi’s finding that a specifically identified risk of lung cancer in a survey question produces overestimated responses. Although he attributes that finding to the fact that our culture has made the risk “salient” to consumers, the more accurate attribution may be to the survey question itself, which appears to have biased the responses upward.⁶²⁸

⁶²⁵ See Tversky & Koehler, *supra* note 621, at 553.

⁶²⁶ *Id.*

⁶²⁷ See *id.*

⁶²⁸ Paul Slovic expressed the same basic point: “[O]ne can get almost any estimate one wishes for lung cancer (or other smoking-induced causes of death) simply by varying the number of other causes that are also being judged.” See Paul Slovic, *The Perils of Viscusi’s Analyses of Smoking Risk Perceptions*, 12 J. BEHAV. DECISION MAKING (forthcoming 1999) (manuscript at 7, on file with the Harvard Law School Library).

Tversky and Koehler demonstrated how easy it is to elicit overestimation of actual risks from respondents in their famous work on Support Theory. In one study, for example, they asked Stanford undergraduates to estimate the probability of different possible causes of death. “The subjects were informed that each year approximately 2 million people in the United States (nearly 1% of the population) die.” Tversky & Koehler, *supra* note 621, at 551. Subjects were shown only one of two different types of lists of causes of death — constructed either so that the various causes were aggregated (that is, unspecified) or disaggregated (that is, specified). See *id.* at 551–52. When asked about the probability of dying of “cancer” (in which all specific types of cancer are implicit), the mean estimate was 32%. See *id.* at 552. However, when asked about the probability of “respiratory cancer,” “digestive cancer,” “genitourinary cancer,” “breast cancer,” “urinary cancer,” “leukemia,” and “other cancer,” the total estimates more than doubled to 70%. *Id.* The estimated actual risk of cancer-caused death is 25%. See *id.*

(C) *The Elicitation Effects of Response Scales.* — The response scale of a survey soliciting assessments of “objective” data almost always produces an elicitation bias. When respondents do not have an opportunity independently to quantify their answers, they will look for cues from the range of acceptable responses with which they are presented. By employing one or another response scale, survey designers can substantially alter the survey results.

The claim that response scales are not simply objective criteria but are instead frames of reference finds support in several leading experiments.⁶²⁹ In one recent study, Paul Slovic and John Monahan compared response scales with different labels and different increments.⁶³⁰ They asked respondents to assess the likelihood that hypothetical mental patients would harm others within three years of an examination.⁶³¹ Half the respondents used a probability scale composed of eleven increments, as follows:

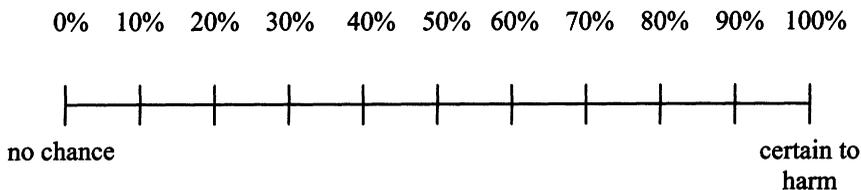
Similarly, when respondents were asked to assess the aggregate probability of “accidental” causes of death, their mean response was 45%. *See id.* But when the category was disaggregated into “auto accident,” “firearm accident,” “accidental fall,” “death in fire,” “drowning,” “accidental poisoning,” and “other accident,” the mean response nearly doubled to 83%. *Id.* The estimated actual risk of accidental death is 57.9%. *See id.*

⁶²⁹ For instance, a 1985 study asked respondents to “estimate the amount of television they watched along a category scale that ranged, in half-hour steps, either (a) from ‘up to a half hour’ to ‘more than two and a half hours’ or (b) from ‘up to two and a half hours’ to ‘more than four and a half hours.’” Norbert Schwarz et al., *Response Scales: Effects of Category Range on Reported Behavior and Comparative Judgments*, 49 PUB. OPINION Q. 388, 389 (1985). Respondents presented with the first response scale estimated that they watched less television than the other set of respondents. Only 16.2% of the respondents who used the lower response scale reported watching more than two and a half hours of television, but 37.5% of the respondents presented with the high category range reported doing so. *See id.* at 390. Previous research had shown that average television consumption in Germany — where the interviews were conducted — was slightly less than three hours. *See id.*

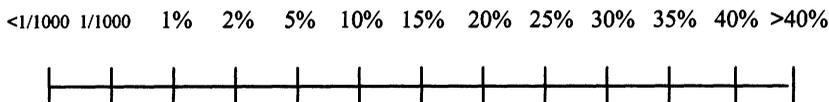
Similarly, a 1991 study asked subjects to estimate how many people are likely to die within 10 years of 20 different possible causes of death. *See* J. Richard Eiser & Franziska Hoepfner, *Accidents, Disease, and the Greenhouse Effect: Effects of Response Categories on Estimates of Risk*, 12 BASIC & APPLIED SOC. PSYCHOL. 195, 198 (1991). Respondents were presented with one of two different response scales. The first scale explicitly quantified low frequencies of occurrence: 100 or fewer; 100 to 1,000; 1,000 to 10,000; 10,000 to 100,000; and 100,000 or more. The second identified higher frequencies: 10,000 or fewer; 10,000 to 100,000; 100,000 to 1,000,000; 1,000,000 to 10,000,000; and 10,000,000 or more. *See id.* “Ratings were consistently high when subjects responded on the higher-frequency scale.” *Id.* at 200.

⁶³⁰ *See* Paul Slovic & John Monahan, *Probability, Danger, and Coercion: A Study of Risk Perception and Decision Making in Mental Health Law*, 19 J. L. & HUMAN BEHAV. 49, 51–52 (1995). *See generally* Michael A. Diefenbach et al., *Scales for Assessing Perceptions of Health Hazard Susceptibility*, in 8 HEALTH EDUCATION RESEARCH: THEORY & PRACTICE 181, *passim* (1993) (finding that increasing the number of scale increments did not necessarily improve subjects’ performance).

⁶³¹ *See* Slovic & Monahan, *supra* note 630, at 49.



The other half used a thirteen-step scale, as follows:



Each participant evaluated thirty-two patients.⁶³² Controlling for the background characteristics attributed to each set of patients, the study shows a large effect from the change in probability response scale. Respondents using the first response scale assigned probabilities equal to or less than 10% to only 10.8% of cases. But among respondents using the second scale, six categories equal to or less than ten percent accounted for more than two-thirds of total responses.⁶³³ Those results strongly suggest that the probabilities of harm were not meaningfully anchored. Notably, this distortion recurred in a subsequent study using mental health professionals as subjects.⁶³⁴

One might expect that Viscusi's study avoided that potential source of bias, given that it employed an undifferentiated scale of 1 to 100. However, the evidence on the elicitation effect of response scales suggests that all response scales have a biasing effect as compared with alternative response scales. It is not difficult to imagine other response scales that would have elicited much lower estimates than the response scale used in the studies on which Viscusi relies. Moreover, there are reasons to believe that Viscusi's response scales would tend to lead to estimates well above the "true risk reference point" of between 0.05 and 0.10.

One of us (with Kyle Logue) has already noted that Viscusi's data contains some unusual clustering (roughly one-quarter of all responses) around fifty percent and that this clustering might "reflect an attempt on the part of some respondents to answer 'I don't know.'"⁶³⁵ More recently, behavioralists have conducted two experiments in which they have demonstrated that, indeed, surveys employing open-ended prob-

⁶³² See *id.*

⁶³³ See *id.* at 52, 55.

⁶³⁴ See *id.* at 59-60.

⁶³⁵ Hanson & Logue, *supra* note 256, at 1360 n.824.

ability scales of the sort used by Viscusi will lead to an inappropriate “blip” at fifty:

Apparently, the open-ended format leads some people to use the 50% option as ‘fifty-fifty,’ an expression of having no idea as to the answer. As a result, the accuracy of people’s reported beliefs depends on the response scale used, as well as on how it evokes and channels such feelings of epistemic uncertainty.⁶³⁶

Assuming that “I don’t know” was the meaning of the “fifty percent” responses in Viscusi’s survey, the response scale would have the effect of artifactually increasing the average risk estimate. Indeed, even if all other respondents (roughly three-quarters of the total) had estimated zero percent as their answer to the lung cancer question, the fact that one-quarter guessed fifty percent would make it possible for Viscusi to conclude that consumers overestimated the lung cancer risks of smoking.

In sum, with a scale of 0 to 100 and a question type such as the one on which Viscusi relies, it is difficult to get answers that fall below five percent, which is what Viscusi indicates a survey would need to do before he would be convinced that smokers underestimate the risks of smoking.⁶³⁷ Given results as drastic as these, it seems likely that respondents’ overestimations follow more from survey design than from consumer pessimism.

(D) *The Elicitation Effects of Response Modes.* — Risk analysts have demonstrated that surveys should question respondents in a form that is consistent with the way in which those respondents customarily think. Baruch Fischhoff and Don MacGregor explain this necessity:

If the mental representation of [the respondents’] knowledge is different from the formulation required by the interviewer, then some translation is necessary, first to retrieve what they know and, second, to express what they retrieve. The greater the incompatibility, the more cumbersome the translation process becomes and the more knowledge is lost in transmission.⁶³⁸

⁶³⁶ See Baruch Fischhoff & Wändi Bruine de Bruin, *Fifty-Fifty = 50%?*, 12 J. BEHAV. DECISION MAKING (forthcoming 1999) (manuscript at 4, on file with the Harvard Law School Library). As they discovered, the blip disappears when a response scale with explicit response options is used. One of the alternative response scales had 101 tick marks with the end points marked “0=no chance” and “100=certainty.” *Id.* at 2. Fischhoff and Bruine de Bruin also discovered that offering the option “absolutely no idea” had very little effect on reducing the blip created by the open-ended probability scale. *Id.* at 9.

⁶³⁷ Indeed, in our small written survey, when respondents were asked to estimate the number of smokers out of 100 who would die of emphysema, the average answer given by students was 17.41 — well above what Viscusi claims is the true risk reference point for lung cancer. Of course, the risk to smokers of dying of emphysema is far lower than that of dying from lung cancer. See CENTERS FOR DISEASE CONTROL AND PREVENTION, *Cigarette Smoking-Related Mortality 1* (1996) (reporting annual mortality figures of 119,920 for lung cancer, 14,865 for bronchitis and emphysema, and 84,475 for all respiratory diseases) (report available at <<http://www.cdc.gov/nccdphp/osh/mortali.htm>>) (on file with the Harvard Law School Library).

⁶³⁸ Fischhoff & MacGregor, *supra* note 561, at 229–30.

Fischhoff and MacGregor demonstrate the significance of this potential problem in a survey eliciting laypeople's perceptions of the lethality of twenty potential causes of death. The survey used four different, but formally equivalent, response modes, represented in the following example of influenza questions:

(a) *Estimate death rate*: In a normal year, for each 100,000 people who have influenza, how many do you think die of influenza?

(b) *Estimate number died*: Last year, 80,000,000 people had influenza. How many of them do you think died of it?

(c) *Estimate survival rate*: In a normal year, for each person who dies of influenza, how many do you think have influenza but do not die of it during the year?

(d) *Estimate number survived*: In a normal year, 5000 people die of influenza. How many people do you think have influenza but do not die from it during the year?⁶³⁹

After translating the responses from the four samples into the first response mode (death rate per one hundred thousand), Fischhoff and MacGregor could easily demonstrate the significant, independent influence of response modes. Responses to the questions about the lethality of influenza were fairly representative of all potential causes of death surveyed: (a) death rate was estimated at 393; (b) number that died was estimated at six; (c) survival rate was estimated at twenty-six; and (d) number that survived was estimated at 511.⁶⁴⁰ The "statistical death rate" (or what Viscusi might call the "true risk reference point") for influenza is six.⁶⁴¹ As was true for influenza, the death rate estimates (response mode (a)), which is roughly the response mode that Viscusi used in his surveys, yielded the highest or second-highest estimate in all but two of the twenty maladies considered.⁶⁴² Generally speaking, "the statistical death rates fell in the middle of the four sets of estimated rates. *Thus, whether these individuals tended to over- or under-estimate lethality depends upon how the question was asked.*"⁶⁴³ Such evidence regarding the significant influence of response modes and, more specifically, the estimate-boosting effect of death-rate questions,⁶⁴⁴ suggests that the "overestimation" of risk that Viscusi claims to have identified may be little more than an artifact of the question asked.⁶⁴⁵

⁶³⁹ *Id.* at 230.

⁶⁴⁰ *See id.* at 231 tbl.1.

⁶⁴¹ *See id.*

⁶⁴² *See id.*

⁶⁴³ *Id.* at 232 (emphasis added).

⁶⁴⁴ *See id.* at 231 tbl.1 (reporting that death rate estimates exceeded statistical death rates in 11 of 20 categories).

⁶⁴⁵ Viscusi purports to be sensitive to the findings of Fischhoff and MacGregor. After briefly mentioning their study, he acknowledges that "[h]ow one asks the risk-perception question can be of substantial consequence" and that "whatever risk perception question *wording* is chosen *should*

Viscusi's own survey of the life-expectancy loss associated with smoking provides another good example of the way in which response modes can cause survey respondents to appear to overestimate risks. Viscusi recognizes that even if consumers were pessimists with respect to the probability that smokers will die from smoking, they may be optimists with respect to the amount of life lost from smoking.

Thus, he set out to test whether consumers were optimistic or pessimistic with respect to the life expectancy of smokers by devising the following telephone survey question (which varied with the sex of the respondent): "The average life expectancy for a 21-year-old male(female) is that he(she) would live for another 53(59) years. What do you believe the life expectancy is for the average male (female) smoker?"⁶⁴⁶ The first thing to notice about that question is just how confusing it is and how difficult it would be for the respondents "to retrieve what they know and . . . to express what they retrieve."⁶⁴⁷ Although we do not claim to know precisely how a smoker or a potential smoker might think about expected "duration of life lost" from smoking, we are confident that the thinking is not exactly as Viscusi seems to imagine.⁶⁴⁸

be well understood by respondents." VISCUSI, SMOKING, *supra* note 255, at 74 (emphasis added). To determine whether results of the national survey provided "a reliable index of smoking risk beliefs," Viscusi conducted a number of telephone surveys in the Durham, North Carolina, area to explore "the sensitivity of the risk responses to variations in the question formulation." *Id.* at 76. Based on his summary review of those studies, Viscusi concludes that they were probably reliable. *See id.* at 82-83.

For a variety of reasons, however, Viscusi's "sensitivity tests" with respect to different response modes are inadequate. Based on his description, there were only two North Carolina surveys that reworded the question on the national survey. In one of them, respondents were asked "how many among the 2 million cigarette smokers in North Carolina would get lung cancer because they smoke," and in the other they were asked "how many among 1000 cigarette smokers would get lung cancer because they smoke." *Id.* at 76. Unfortunately, both of the alternative formulations elicited *death rate estimates*. Thus, although Viscusi may have changed the wording, *he did not alter the underlying response mode of the industry survey*. For additional criticisms of those sensitivity tests, see Hanson & Logue, cited above in note 256, at 1356-57 n.801.

⁶⁴⁶ VISCUSI, SMOKING, *supra* note 255, at 79. Viscusi's working paper does not give the exact wording of the question asked in the 1997 survey, but it does indicate that the framing of the question was different. Respondents were told "the expected date of death of the individual." Viscusi, Public Perceptions, *supra* note 468, at 18. Presumably, respondents then had to give the date at which the average smoker would die. Viscusi does not explain why he chose to modify the wording of the question.

⁶⁴⁷ Fischhoff & MacGregor, *supra* note 561, at 229-30.

⁶⁴⁸ To justify the survey question regarding *lung cancer risks*, Viscusi emphasizes that the question was framed in a way that "provides a natural way to think about probabilities" and is "easy to comprehend within the context of a telephone interview." Therefore, he concludes that "clearly the results derived from a misleading or confusing question format may be different." VISCUSI, SMOKING, *supra* note 255, at 75-76. For this quite confusing question, however, Viscusi makes no explicit mention of the effect caused by the unnatural framing of the question. Thus, at times, Viscusi seems sensitive to the elicitation effect of survey modes and at other times not. Similarly, by claiming that he did not ask respondents simply to assess the "life expectancy loss to avoid biasing the results by mentioning the prospect of a 'loss,'" *id.* at 79, Viscusi seems to be taking into account another possible elicitation effect. Apparently, Viscusi means to say that because of "loss

In our view, the most important source of confusion (or imperfect translation) is the lack of clarity regarding whether the question asks about the loss of life expectancy averaged across all smokers or about the loss of life expectancy of just those smokers who die from a smoking-related cause. Viscusi does not acknowledge this problem and instead assumes that survey respondents would interpret the question to mean expected loss to all smokers — a far more complicated estimate to make in response to an already complex question. Viscusi writes: “The life-expectancy loss estimates reflect the combined influence of the respondent’s assessment of [the] shift in the mortality distribution from smoking and the years of life lost at that age.”⁶⁴⁹

Viscusi presents the life-expectancy loss data in a table, reproduced below, that examines the mean estimates of life expectancy loss “conditional on the respondent’s assessed mortality risk level.”⁶⁵⁰

Table 1: Viscusi’s comparison of assessed life-expectancy loss and fatality risk from smoking

Assessed mortality risk level (deaths/100 smokers)	Number in cell	Mean (standard error) assessed life-expectancy loss
0-20	25	7.0 (1.3)
21-40	18	8.3 (1.4)
41-60	35	12.3 (1.2)
61-80	32	13.8 (1.0)
81-100	10	18.8 (3.7)

Sample size = 120⁶⁵¹

Referring to those numbers, Viscusi claims that the survey respondents’ estimates came in well above the scientific estimates of the years

aversion,” see Hanson & Kysar, *TBS I*, *supra* note 11, at notes 191-92 and accompanying text, including the word “loss” in a survey might influence its outcome. Arguably, therefore, Viscusi is implicitly and sensibly trading off one sort of elicitation effect (the problem of confusing response modes) for another (the problem of loss aversion). As far as we can tell, however, no such dilemma exists. We know of no evidence indicating that people will overestimate or underestimate “losses” simply because they are characterized as losses. It is true that people’s preferences appear to vary according to whether something is perceived as a loss, but that is not the issue here. Even if there were such a problem with risk perceptions, it would be present in Viscusi’s other questions that ask about “getting lung cancer” or “dying of lung cancer” or “dying” — all of which seem to imply losses. To minimize the possibility of loss-aversion effects, Viscusi might have avoided the problem by framing the question as a “gain” and asking how much longer a non-smoker would live than a smoker.

⁶⁴⁹ VISCUSI, *SMOKING*, *supra* note 255, at 80.

⁶⁵⁰ *Id.*

⁶⁵¹ See *id.* at 80 tbl.4. No comparable figure is included in Viscusi’s working paper discussing his 1997 survey. Therefore, it is unclear whether the change in the wording of the question has eliminated the problems that we point to in the text that follows.

deducted from one's life by lifelong smoking, which he calculates to be between 3.6 and 7.2 years for all smokers.⁶⁵² Comparing this "scientific estimate" to the respondents' estimates in Table 1, Viscusi concludes that "[i]ndividuals' assessed life-expectancy loss is greater than the scientists' estimates of the loss attributable to smoking, so that this evidence is consistent with the risk-perception findings."⁶⁵³ Viscusi further indicates that, according to the numbers in Table 1, those respondents with lower "mortality risk level" estimates also had lower "life-expectancy loss" estimates.⁶⁵⁴ According to Viscusi, "[t]here is clearly a strong correlation between the life-expectancy loss responses and the assessed mortality risk levels, which *provides a consistency test of the responses.*"⁶⁵⁵

Viscusi's data, however, are susceptible to a more plausible interpretation than the one that he offers: survey respondents appear not to have estimated the expectancy losses of *all* smokers, but only of those smokers who die from smoking-related causes. To see why that is true, one need only assume that Viscusi's numbers and interpretation are correct and back out of those numbers the implied expected loss of life for those smokers whose death results from smoking. This number may be estimated by assuming that the average estimate of "assessed mortality risk level (deaths/100 smokers)" is the midpoint of the range given in Table 1. If respondents were really thinking about loss of life averaged over all smokers, as Viscusi claims (rather than only those smokers who die from smoking-related causes, as we claim), then the average assessed mortality risk level implies that respondents estimated that ten out of 100 smokers will die from smoking, and that the estimated average loss of life duration for all 100 smokers is 7.0 years. If *that* estimate is correct, then it implies that respondents estimate the loss of life for *each* of the ten smokers who die from smoking-related causes to be seventy years.

⁶⁵² See *id.* To calculate a relatively recent "scientific" estimate of life-expectancy loss, Viscusi begins with his own range of "true risk reference points" for the rate of smoking-caused death (.18 to 0.36). See Hanson & Logue, *supra* note 256, at 1354-56 (explaining how that estimate was calculated and why that estimate understates the true risk). He then multiplies the two extremes of the range by the Surgeon General's 1989 estimate of years of life lost for those people who die from smoking-related fatality (20 years), yielding an estimated life-expectancy loss of between 3.6 and 7.2 years for all smokers. See VISCUSI, SMOKING, *supra* note 255, at 80.

⁶⁵³ VISCUSI, SMOKING, *supra* note 255, at 80-81.

⁶⁵⁴ *Id.* at 80.

⁶⁵⁵ *Id.* (emphasis added).

*Table 2: Viscusi's implied mortality risk
and life-expectancy loss of smoking*

Assessed mortality risk level (deaths/100 smokers) (averaged across ranges)	Mean assessed life-expectancy loss of those smokers who die from smoking-related causes
10	70.00 years
30	27.67 years
50	24.60 years
70	19.71 years
90	20.89 years

Table 2 lists the implied calculations for all categories according to Viscusi's interpretation of the data. If Viscusi's interpretation is correct, then many of the responses are illogical. Roughly one-fifth of the respondents appear to believe that smokers who die from smoking will lose seventy years of life expectancy, surviving to the ripe age of four, if they are male, and ten, if they are female. Stated differently, smokers who die from smoking will die well before they have tried their first cigarette. Table 2 also demonstrates that the responses fail a basic consistency test. If we interpret Viscusi's data as he does, then it follows that there is generally an inverse relationship between a respondent's estimation of the number of smokers out of 100 who die from smoking and the number of years lost by those smokers who die from smoking. It seems implausible that those who believe that smoking is most dangerous in terms of the rate of smoking-caused death would simultaneously believe that smoking is least dangerous in terms of the number of years lost.

A more plausible interpretation of the responses is that they represent (if anything) respondents' estimates of the number of years of life lost by those smokers who *actually die* from smoking-caused illnesses. Under that assumption, the estimations of mortality rates and loss-of-life-expectancy rates are consistent, and the implied absurdities disappear. Moreover, the implications for our more plausible interpretations of the data are dramatic. Under our interpretation, all categories of respondents in the first column of Table 1 would *underestimate* the expected loss of life for those who die from smoking (estimated by the Surgeon General to be approximately twenty years).⁶⁵⁶ Indeed, that would imply that *current smokers estimate a loss-of-life expectancy of somewhere between one-third and one-half of the Surgeon General's estimate.*

(ii) *Asking the Wrong Question.* — The preceding critique suggests that the questions used by Viscusi and the industry appear to

⁶⁵⁶ See *id.*

have been designed in ways that produce the appearance of “overestimation” in consumers’ perceptions of the risks of smoking. Here, we argue that in addition to asking their survey questions wrong, the tobacco survey designers also asked the wrong questions. That is, in addition to designing survey questions in a manner likely to generate exaggerated or overestimated responses, Viscusi and the industry also asked the types of questions that were unlikely to produce any meaningful response at all, regardless of the questions’ tendencies to lead to overestimated responses.

(A) *The Imprecision of Probabilistic Estimates.* — Viscusi repeatedly suggests that the surveys on which he relies are superior to other surveys, in significant part because his surveys elicit a quantitative or probabilistic estimate from respondents that has a precise meaning — “a meaningful, well-defined probabilistic metric.”⁶⁵⁷ He emphasizes this attribute in the abstract of one of his more recent papers on the topic:

The various empirical reference points considered in this paper should be distinguished from those usually discussed in the literature since [the former] focus on a meaningful quantitative assessment of the risk rather than qualitative measures from which no valid conclusions can be drawn regarding the direction or degree of risk misperception.⁶⁵⁸

According to Viscusi, the problem with qualitative risk estimates (for example, “very harmful” and “somewhat harmful”) is that they “lack any corresponding quantitative reference point for any particular individual, [so that] to the extent that people differ with respect to the quantitative risk level that they regard as harmful[,] . . . pooling the responses and making comparisons across respondent groups will not be meaningful.”⁶⁵⁹

Even if Viscusi’s critique of qualitative risk estimates is appropriate,⁶⁶⁰ at least one major flaw in his reasoning remains. Viscusi assumes that quantitative estimates, because they are numeric, mean the same thing to all people and are not themselves subject to elicitation effects. The behavioral literature suggests otherwise, as Derek Koehler and Amos Tversky explain:

[T]he question of whether degree of belief can, or should be, represented by the calculus of chance has been the focus of a long and lively debate. In contrast to the Bayesian school, which represents degree of belief by an additive probability measure, there are many skeptics who question the

⁶⁵⁷ *Id.* at 49.

⁶⁵⁸ Viscusi, Public Perceptions, *supra* note 468, at 2.

⁶⁵⁹ *Id.* at 11.

⁶⁶⁰ For reasons that we briefly discuss below on pp. 1546–47, we believe that the problem Viscusi has identified with respect to “qualitative” risk estimates is trivial. See Hanson & Logue, *supra* note 256, at 1358. Moreover, Viscusi is wrong to suggest that his study is unique in eliciting numeric responses. See *id.*

possibility and the wisdom of quantifying subjective uncertainty and are reluctant to apply the laws of chance to the analysis of belief.⁶⁶¹

There is also growing evidence that people (particularly smokers) have considerable difficulty expressing their risk estimates numerically. Isaac Lipkus, a risk communication expert at the Duke Comprehensive Cancer Center, has examined the public's "numeracy" — the ability to understand and perform very simple numerical operations related to risk and probabilities. One questionnaire included queries such as, "Which of the following numbers represents the biggest risk of getting a disease? $\frac{1}{100}$ [;] $\frac{1}{1000}$ [; and] $\frac{1}{10}$."⁶⁶² Roughly twenty percent of the respondents (and thirty percent of the respondents who smoke) answered that question incorrectly.⁶⁶³ Likewise, the questionnaire asked: "If the chance of getting a disease is 20 out of 100, this would be the same as having a ___% chance of getting the disease."⁶⁶⁴ Almost thirty percent of all respondents (and nearly fifty percent of smokers) answered incorrectly.⁶⁶⁵ Other studies have reinforced this finding of a significant "innumeracy" problem.⁶⁶⁶ Several surveys regarding the risks of smoking have produced similar results.⁶⁶⁷

(B) *The Dangerous Illusion of Precision.* — Mindful of the preceding considerations, it is illuminating to return to Viscusi's data. Although Viscusi claims that he has measured consumer risk assessments with a quantitative, "meaningful, [and] well-defined probabalistic metric,"⁶⁶⁸ this precision is likely illusory.

To be sure, the respondents' answers to Viscusi's survey questions are numerical. Nevertheless, it seems less likely that the respondents actually considered the problem in numeric terms than that they simply translated their qualitative risk assessments into numeric equivalents. Because any such translation would have been only an approximation, respondents likely converted their estimates into well-

⁶⁶¹ Tversky & Koehler, *supra* note 621, at 547.

⁶⁶² Isaac Lipkus, Numeracy Questionnaire (unpublished materials, on file with the authors).

⁶⁶³ *See id.*

⁶⁶⁴ *Id.*

⁶⁶⁵ *See id.*

⁶⁶⁶ *See, e.g., id.*; Lisa M. Schwartz et al., *The Role of Numeracy in Understanding the Benefit of Screening Mammography*, 127 ANNALS INTERNAL MED. 966 (1997).

⁶⁶⁷ One survey revealed that of smokers who estimated that smoking posed a fatality risk of 50% or more, only 43% were among the one-third of smokers who estimated that smoking was the most likely cause of death relative to six other significantly less likely causes of death. *See* Borland, *supra* note 467, at 517. The person who conducted the survey concluded: "These data cannot be resolved if the responses to the probability questions are treated as true probability estimates, [and thus] one or both questions are giving a distorted view of the smokers' risk perceptions." *Id.*; *see also* Christina Lee, *Perceptions of Immunity to Disease in Adult Smokers*, 12 J. BEHAV. MED. 267, 269, 273 (1989) (finding that surveyed smokers perceived risks summed to a total risk of around 120%, thereby indicating that some people's estimates defy the laws of probabilities).

⁶⁶⁸ VISCUSI, SMOKING, *supra* note 255, at 49.

known “focal” numbers along the provided scale.⁶⁶⁹ This prediction informs the analysis of certain key features of Viscusi’s survey data. For example, even those respondents who viewed claims of the harms of smoking as false or dubious estimated the probability of contracting lung cancer as a result of smoking to be approximately twenty-five percent.⁶⁷⁰ In other words, Viscusi’s study yields the doubtful conclusion that those who perceive smoking as virtually or entirely harmless overestimate the “true risk” of smoking by a factor of between two and five. This conclusion should give pause to those who view numeric assessments as anything more than loose proxies for qualitative judgments.⁶⁷¹

If quantitative assessments are nothing more than vague approximations, then the conclusion inevitably follows that Viscusi’s criticisms of qualitative surveys apply with equal force to his own “quantitative” survey. It would be impossible, therefore, to determine whether a twenty-five percent response is pessimistic or optimistic. Despite the illusion of numeric precision, it is unclear whether Viscusi’s evidence can teach us more than we already know — that is, most consumers understand at some level that smoking can be dangerous. Ron Borland is more blunt: “[A]rgument[s] about smoking based on the assumption that risk estimates are probability estimates . . . are groundless and their conclusions should be treated with the utmost skepticism.”⁶⁷²

The apparent quantitative precision of the industry’s surveys is also illusory in the sense that a survey respondent must guess (consciously or not) what a question is really asking whenever that question is ambiguous. The industry surveys upon which Viscusi relies failed to provide a precise (quantitative) definition of a key term:

⁶⁶⁹ To conceptualize this phenomenon, assume that (as at least one cognitive psychologist claims) individuals understand just “four degrees of probability for an event: very likely, somewhat likely (more likely to happen than not), somewhat unlikely (more likely not to happen), and very unlikely.” Individuals otherwise do not differentiate among degrees of probability: “Inside those four compartments all is gray.” Piattelli-Palmarini, *supra* note 13, at 32. This model might lead one to predict that answers would be clustered at focal numbers representing the edges of the four quarters of 100. For instance, those who believe that smoking poses virtually no risk might choose zero (or perhaps some other low focal number such as 5% or 10%). Those who believe that smoking poses a relatively slight risk might translate their estimate to 25%. Those who believe smoking poses a medium-sized risk might choose 50%. And those who believe smoking presents a very significant risk might choose 75% or even 100%.

⁶⁷⁰ See VISCUSI, SMOKING, *supra* note 255, at 88 tbl.5-1. The mean risk perception of those respondents was 26.6%; current smokers within that group estimated 23.5%. *See id.*

⁶⁷¹ Indeed, Viscusi notes that the responses in his survey cluster consistently with the four-category prediction. *See id.* at 68. His only response is that “the direction of bias imparted by such rounding is unclear.” *Id.* Viscusi seems to maintain that the responses at issue are precise but then rounded to the nearest quartile. Viscusi inadvertently endorses the quartile model when he states that those smokers who estimate the risk of lung cancer at 100% actually perceive lung cancer as a “highly likely but not certain outcome.” *Id.* at 124–25.

⁶⁷² Borland, *supra* note 467, at 518.

"smoker."⁶⁷³ When answering the question, "Out of 100 smokers, how many of them will die of lung cancer?," respondents were forced to speculate regarding many relevant factors. These included: at what age does a "smoker" begin to smoke?; is a "smoker" someone who smokes an entire lifetime or someone who at some time during her life smokes at least one cigarette?; how many packs per day does a "smoker" smoke? For the answers to the survey questions to be precisely comparable, respondents must have attached the same answers to each of those questions and many more like them.

To understand the significance of that source of imprecision, consider an experiment conducted by Baruch Fischhoff, in which he asked subjects the following: "How likely do you think it is that a person will get the AIDS virus from sharing plates, forks, or glasses with someone who has AIDS?"⁶⁷⁴ He then asked respondents to describe the amount and kind of sharing that they believed the question implied. According to Fischhoff, respondents generally agreed about the kind of sharing — over eighty percent understood that to mean sharing during a meal — but generally disagreed with respect to the frequency of sharing.⁶⁷⁵ Thirty-nine percent assumed sharing on a single occasion; twenty percent assumed several occasions; twenty-eight percent assumed routine sharing; and twelve percent were uncertain.⁶⁷⁶ The respondents were answering a variety of questions, and there is no clear way to interpret the aggregated data. What is more, all of the subjects who reported uncertainty about the frequency and intensity of sharing were nonetheless happy to give likelihood estimates. In short, just because survey respondents are willing to provide precise numerical answers does not mean that the answers should be viewed as precise renderings of respondents' risk perceptions.⁶⁷⁷ The appearance of precision is not the same as actual precision, and Viscusi's data provide only the former.

(C) *The Potential Benefits of Qualitative Assessments.* — Thus far, we have discussed the difficulties associated with relying on numeric or probabilistic risk assessments. It is important also to mention that there may be some significant *advantages* to using qualitative assessments. For example, evidence indicates that verbal risk categories can be more reliable and that individuals find verbal risk categories a better reflection of their own thoughts about risk than they do numerical risk estimates.⁶⁷⁸ As Viscusi himself acknowledges, "people generally

⁶⁷³ See Hanson & Logue, *supra* note 256, at 1354–55.

⁶⁷⁴ Fischhoff, Bostrom & Quadrel, *supra* note 561, at 993.

⁶⁷⁵ See *id.*

⁶⁷⁶ See *id.*

⁶⁷⁷ See *id.* ("If people are willing to respond to survey questions that they do not understand, any relationship between their reported beliefs and behaviors would tend to be blurred.")

⁶⁷⁸ See Diefenbach et al., *supra* note 630, at 190 (finding that college students participating in their studies felt that scales of risk with verbal labels — for example, "very unlikely" — were eas-

find it easier to process verbal information than a detailed list of statistics pertaining to the risk."⁶⁷⁹ Furthermore, psychological research indicates that Viscusi's methodology has a tendency to elicit responses "demonstrating" a greater awareness of risks than smokers actually possess.

In a recent study assessing the relative merits of numeric and verbal measures of uncertainty, Paul Windschitl and Gary Wells conclude that each method may be appropriate under different circumstances.⁶⁸⁰ When asked to provide numeric measures, people tend to respond with "deliberate and rule-based thinking."⁶⁸¹ This may be appropriate when, for example, assessing people's "ab[ility] to think according to logical or normative rules," or studying subjects who are accustomed to thinking in terms of numeric responses (such as "statisticians, seismologists, decision scientists, or financial forecasters").⁶⁸² However, prompting people to employ rule-based thinking in situations in which they usually do not "may lead to a somewhat skewed assessment."⁶⁸³ Research demonstrates that verbal measures may provide a "large and reliable advantage"⁶⁸⁴ in these cases because they do not prompt an unnatural thought process.⁶⁸⁵ Windschitl and Wells explain this finding:

[U]ncertainty measures are often key means of assessing constructs such as people's perceived vulnerability to disease and misfortune, their illusions of control, their perceptions of product reliability, their expectations regarding the interpersonal behavior of others, their confidence in causal hypotheses, and their expectations of success on challenging academic tasks. Situations in which such constructs are important are often not characterized by deliberate and rule-based thinking, and the participants in research about such constructs are not statisticians, professional forecasters, or psychological scientists, but rather teenagers in high-risk groups, consumers, students, and others in the general population. Hence, for areas of research involving these types of constructs, verbal measures should be considered as an alternative and possibly more informative method of assessing human uncertainty.⁶⁸⁶

In sum, qualitative measures more accurately capture people's thought processes in certain situations.

ier to use and a better representation of their true feelings than were numerical scales using either odds or percentages).

⁶⁷⁹ Viscusi, *Public Perceptions*, *supra* note 468, at 8.

⁶⁸⁰ See Paul D. Windschitl & Gary L. Wells, *Measuring Psychological Uncertainty: Verbal Versus Numeric Methods*, 2 J. EXPERIMENTAL PSYCHOL.: APPLIED 343, 343 (1996).

⁶⁸¹ *Id.* at 358.

⁶⁸² *Id.* at 359.

⁶⁸³ *Id.* at 358.

⁶⁸⁴ *Id.* at 357.

⁶⁸⁵ See *id.* at 354.

⁶⁸⁶ *Id.* at 359.

The topic at issue in Viscusi's studies is paradigmatic of a subject matter for which numeric reasoning is ill-suited. The hazards of lung cancer (and smoking risks generally) resonate in the phrases "perceived vulnerability to disease and misfortune," "illusion of control," "perceptions of product reliability," "confidence in causal hypotheses," and "teenagers in high-risk groups." Thus, what Viscusi believes is the greatest strength of his evidence may actually be one of its more significant weaknesses.

(iii) *Selective Recognition of the Role of Behavioralism and Manipulation.* — The primary goal of this section is to provide strong evidence that market manipulation can be extremely effective, even for a product like cigarettes, which most consumers seem to understand may pose a substantial health risk. Another goal of this section is to clarify just how sensitive people's risk assessments are to the context in which they are made. The third goal of this section is to echo a general insight that we highlight in our companion article. Legal economists who take behavioralism into account but who treat risks assessments as exogenous misunderstand the most fundamental message of the literature: market pressures will lead sellers to manipulate risk preferences. Careful scrutiny of the survey evidence on which Viscusi relies significantly advances each of these goals.

The problem is not that Viscusi ignores behavioralism or the possibility of manipulation. To the contrary, behavioralist research and the problem of manipulable consumers are, as it turns out, important components of his story. According to Viscusi, the very reason that consumers supposedly overestimate the risks of smoking is that the government and the media have made those risks salient to them.⁶⁸⁷ If Viscusi really believes that an "anti-smoking campaign" by "anti-smoking zealots and the public health community"⁶⁸⁸ has led consumers to overestimate the risks of smoking, then it is puzzling that he gives short shrift to the possibility that a pro-smoking campaign has influenced consumer perceptions or that industry-provided survey data reflect such a pro-smoking bias. We agree there has been an anti-smoking campaign that has had some effect. But Viscusi's failure to

⁶⁸⁷ Viscusi makes the following claim:

The finding that individuals overestimate lung cancer risks of smoking is quite consistent with the literature on highly publicized events. Cigarettes are a highly publicized risk, as the potential hazards of smoking have been the subject of media coverage and substantial social pressures. The overestimate of the lung cancer risks in the presence of such substantial information does not indicate a failure in individuals' ability to learn, but rather reflects the character of the information provided, as these informational efforts have attempted to raise risk perceptions.

VISCUSI, SMOKING, *supra* note 255, at 70; see Viscusi, Public Perceptions, *supra* note 468, at 9. Similarly, Viscusi attributes the fact that the youngest age group in his sample had the highest risk perceptions to the sort of information that group had received. See VISCUSI, SMOKING, *supra* note 255, at 72.

⁶⁸⁸ Viscusi, Public Perceptions, *supra* note 468, at 25.

consider how the industry itself might have influenced consumer risk perceptions and preferences is glaring in light of the evidence of successful industry efforts to counteract the "anti-smoking" campaign.⁶⁸⁹

Another problem with Viscusi's interpretation of his survey evidence is that it presents, at best, a still-shot of consumer perceptions when one needs a motion picture.⁶⁹⁰ Our discussion of the possibility of manufacturer manipulation, as well as our review of the history of marketing practices from the tobacco industry, demonstrates that consumer risk perceptions are subject to a *dynamic* process of market manipulation. It is simply not enough to assess consumer risk perceptions at any one point in time, in any particular cognitive state, or from any single frame of reference. Given the existence of systematic cognitive biases, manufacturers inevitably seek to manipulate consumer perceptions.

Thus, even if public health warnings and salient media coverage cause smokers to overestimate the risks of smoking in response to a particular question in a telephone survey, manufacturers will still attempt to shape smokers' risk perceptions *from that point*. As our history of tobacco marketing shows, manufacturers have rapidly and effectively adapted their advertising and promotional techniques to suit (and to manipulate) current cultural attitudes toward, and scientific knowledge of, smoking. They have done so in a fashion approximating a trial-and-error method, testing every manipulative strategy imaginable to lower risk perceptions and concomitantly to increase demand, and sticking with those strategies that work best. Over time this process has resulted in a veritable arsenal of marketing techniques that not only have served the tobacco industry well, but also have been adopted by product manufacturers from other markets.⁶⁹¹

We suspect that Viscusi's disregard of these dynamic aspects of risk perception stems from his general tendency to treat risk perceptions as exogenous to his model of consumer behavior.⁶⁹² Viscusi's approach to the question of smoker risk perceptions is similar, although somewhat more refined. He acknowledges that individual risk assessments are subject to the influence of a variety of cognitive biases but views the

⁶⁸⁹ See *supra* pp. 1484-1502. Not only did the industry manage to counteract many "anti-smoking" regulations and sources of information, it actually managed to obtain regulations that appeared significant but were in reality toothless. For a thorough review of the industry's regulatory triumphs, see Kelder & Daynard, cited above in note 319, at 66-70, and Hanson & Logue, cited above in note 256, at 1167-73.

⁶⁹⁰ Viscusi partially recognizes this limitation: "The character of the data requires the analysis to focus on static consumption decisions. What are the individuals' risk perceptions and tastes, and how do these affect observed smoking behavior? The nature of the data analyzed consequently does not permit consideration of changes in smoking behavior . . ." VISCUSI, SMOKING, *supra* note 255, at 87.

⁶⁹¹ See, e.g., LARRY TYE, *THE FATHER OF SPIN: EDWARD L. BERNAYS & THE BIRTH OF PUBLIC RELATIONS* 51-76 (1998).

⁶⁹² See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 358-92, 444-46 and accompanying text.

effect of these biases as indeterminate *ex ante*.⁶⁹³ Thus, Viscusi uses his survey evidence to determine *ex post* which cognitive bias is most consistent with the observed smoker behavior.⁶⁹⁴

In this manner, Viscusi is able to reduce the complex implications of the behavioral research for smoker risk perceptions to one simple and fixed proposition regarding the availability heuristic. The problem with this approach is that it ignores the immensely rich and relevant findings of the behavioralist movement, and it does so based on survey evidence that, as described above, is methodologically flawed and insensitive to the teachings of the very movement it is used to discredit.

Again, Viscusi does recognize that consumer manipulation is a problem. But by treating as irrelevant both the potential for market manipulation and the evidence that the tobacco industry has in fact attempted to manipulate consumer risk estimates, Viscusi implicitly takes what for him may be two irreconcilable positions. The first position is that the market should be left largely unregulated because of its overwhelming and benign power to ensure social efficiency. In calling for less regulation of cigarettes, Viscusi writes, "State and federal governments alike should abandon their combative stance, take a more open-minded approach to the safety of tobacco products, and make advancement of consumer welfare the paramount concern."⁶⁹⁵ He claims that "[t]here is tremendous evidence that market forces are enormously powerful, not only with respect to smoking but also with respect to [consumers'] risky choices."⁶⁹⁶ More specifically, Viscusi points to the success of "safety competition" between cigarette manufacturers during the three-year "tar derby" of 1957-1960, when "the average tar and nicotine of the cigarettes purchased dropped by one third" before regulators, in effect, prohibited that form of competition.⁶⁹⁷ In short, Viscusi calls for greater use of market forces because he believes that market forces are far more powerful and effective than regulators.

However, Viscusi's second position, which is largely implicit, seems to be that government regulators are far more effective than the market at manipulating the risk perceptions and preferences of consumers. Had Viscusi taken behavioralism seriously, he would have seen that there are many other sources of manipulation in addition to the sources that he considered. More importantly, he would have seriously

⁶⁹³ See VISCUSI, *SMOKING*, *supra* note 255, at 20 ("Systematic biases in risk perceptions are prevalent, but these biases may be in either direction.")

⁶⁹⁴ See *id.* at 142 ("Smoking risk perceptions that reflect an overestimate of the risk are consistent with patterns of individual response that have been observed more generally with respect to highly publicized risks.")

⁶⁹⁵ Viscusi, *Smoke & Mirrors*, *supra* note 468, at 19.

⁶⁹⁶ *Id.* at 25.

⁶⁹⁷ Viscusi, *Public Perceptions*, *supra* note 468, at 6-7.

considered the possibility that the market is a more effective manipulator of risk perceptions than regulators, for all the reasons that he believes that the market is more effective than regulators at accomplishing most goals. In essence, Viscusi adopts a conflicted view of the smoking question: he argues that “enormously powerful” market forces can produce safer cigarettes, but he does not recognize that those same powerful forces can manipulate consumers.

C. *Some Thoughts on Competition and Market Power*

The history of cigarette industry practices represents our most extensive and powerful evidence of manufacturer manipulation. However, the concentrated nature of the cigarette industry suggests a potential objection to our theory: perhaps manipulative manufacturer practices are only possible in the absence of robust market competition. In a competitive market, manipulation might be driven out by manufacturers who refuse to engage in such practices and thereby gain a competitive advantage over their less scrupulous peers.

We have two theoretical responses to that argument. First, for nonmanipulative manufacturers to gain an advantage over their manipulative peers, consumers need to distinguish the situations in which they are being manipulated from those in which they are not being manipulated — a distinction that behavioral research has demonstrated individuals cannot make. As a result, manufacturers will be driven to engage in manipulative practices in a process similar to the unraveling of product safety standards that results when consumers cannot distinguish between the risks of different brands of a product.⁶⁹⁸ Because consumers are unable to appreciate the benefits of nonmanipulative marketing practices, all manufacturers will be forced to adopt manipulative practices.

Our second response is that even if debiasing — that is, making consumers aware of manufacturer manipulation — were possible, the costs would be significant, perhaps prohibitively so. At the very least, debiasing would require creating conditions similar to those that Kahneman and Tversky identify as requisite for learning.⁶⁹⁹ Moreover, manufacturers would likely be deterred from conducting costly debiasing campaigns by the difficulty of capturing the benefits of such campaigns. Any attempts by manufacturers to educate consumers would be a public good, and such goods are typically underprovided. If a manufacturer did succeed in debiasing consumers with respect to a particular manipulative practice, other manufacturers could simply

⁶⁹⁸ See George A. Akerlof, *The Market for “Lemons”: Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488, 489–90 (1970); see also Croley & Hanson, *supra* note 3, at 776–78 (providing a thorough account of the unraveling problem).

⁶⁹⁹ See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 272–73 and accompanying text.

mirror the non-manipulative practices and secure at least some of the benefits of the first manufacturer's efforts.

Apart from those theoretical arguments, there are empirical reasons to be skeptical of the likelihood of debiasing. Much of the empirical evidence that we offer in Part I is drawn from competitive rather than oligopolistic markets. Indeed, we discuss a host of deceptive and manipulative practices from some very competitive markets — for example, gas stations, car lots, and grocery stores.

For both theoretical and empirical reasons, therefore, we do not view competition as an antidote to the problem of market manipulation. We do, however, recognize that market concentration may increase the severity of manipulation, as evidenced by our description of the history of tobacco marketing in section A. The increased ease of such tactics as coordinated marketing, shared research, and product-design conspiracies makes an oligopolistic industry likely to exhibit more pronounced manipulative practices than competitive industries. Indeed, particularly egregious practices, such as the outright suppression of product safety improvements, are likely to occur only in a market permitting collusion between manufacturers. Thus, although we do not view the evidence of tobacco industry manipulation as an exception to some general rule of competition, we acknowledge that it may represent a particularly sharp rendering of practices common to virtually all consumer product markets.

The reader might note that our model — in which firms with market power manipulate consumer risk perceptions and product safety designs — contradicts the widely accepted model in which firms with market power exploit consumers only along the price dimension.⁷⁰⁰ That conventional model suffers from the same defect exhibited by earlier applications of behavioral research: that is, a failure to appreciate the endogenous nature of consumer perceptions. By positing risk information as a fixed, external influence on consumer behavior, scholars leave manufacturers with only one means of exploiting market power — price increases. But in fact consumer product perceptions are shaped and re-shaped in a dynamic process involving a variety of factors, *including manufacturer behavior*. Therefore, manufacturers with market power need not take consumer risk perceptions as given; instead, they can actively manipulate those perceptions to create optimism with respect to product risks. Such shaping of perceptions shifts upward the total consumer demand curve, a result that manufacturers prefer to a simple price increase.

In addition to opposing the notion that manufacturers with market power do not exploit the malleability of consumer perceptions, we con-

⁷⁰⁰ See, e.g., Alan Schwartz & Louis L. Wilde, *Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests*, 69 VA. L. REV. 1387, 1402-06 (1983); see also Croley & Hanson, *supra* note 3, at 717-19 (summarizing the conventional wisdom).

ceive of competitive markets in a manner that conflicts with the widely shared view that firms in such markets will produce the level of safety that is demanded, so long as it is technologically feasible.⁷⁰¹ Our view instead is that firms will produce a *perception* that they have provided the desired level of safety; that is, once one takes behavioral research seriously, one's focus shifts from actual product safety levels to perceived safety levels. Just as supermarket managers offer the "*idea* rather than the actuality of the 'good deal,'"⁷⁰² and just as cigarette companies developed "health reassurance cigarettes" rather than actual safety improvements,⁷⁰³ product manufacturers will spend a great deal of time and effort devoted solely to manipulating consumer risk perceptions. We are not certain that manufacturers will manipulate consumer perceptions instead of, rather than simply in addition to, producing actual safety improvements; often, the manufacturer will probably benefit most from producing *both* actual and perceived safety improvements. Regardless, the findings of behavioral research suggest that manufacturers have a capacity for manipulating perceptions that must be accounted for by any model of consumer product markets.

III. A POTENTIAL RESPONSE TO MARKET MANIPULATION: ENTERPRISE LIABILITY

The foregoing analysis poses a serious challenge to scholars of products liability. Because manufacturers manipulate consumer perceptions, consumer product markets may reflect lower-than-optimal safety investments and higher-than-optimal purchasing levels. Under such circumstances, the choice of liability standards for product-caused injuries becomes more significant for at least two reasons. First, analyzing the choice within the newly refined endogenous framework promises to further the continuing development of economic analysis in legal scholarship. Appropriately, this evolution would occur in the field of products liability, long the proving ground of law and economics. Second, and more significantly, revisiting the choice among liability rules would offer the opportunity to improve the current efforts to regulate the incidence and severity of product-caused accidents. With a sharpened understanding of manufacturer incentives and the problem of market manipulation, this fresh analysis could

⁷⁰¹ Richard Epstein articulates this position:

The modern faith in regulation should not . . . be allowed to obscure the strong impact of market incentives. Each firm when acting in its own self-interest will improve safety levels even in the absence of exposure to products liability suits. . . . Complacent firms run the risk of displacement and bankruptcy at the hands of competitors who provide better and safer products to their customers.

RICHARD A. EPSTEIN, *MODERN PRODUCTS LIABILITY LAW* 89 (1980).

⁷⁰² See STATT, *supra* note 42, at 248.

⁷⁰³ See *supra* p. 1473.

produce significant advances over past efforts to regulate consumer product markets.

In previous articles, one of us (with Steven Croley and Kyle Logue) argued that enterprise liability is the most effective products liability response to the problem of consumer underestimation of product risks.⁷⁰⁴ Given a state in which consumers do not fully appreciate product hazards, enterprise liability is the most desirable products liability regime because it forces manufacturers, as the primary holders of pertinent product information, to evaluate safety considerations when designing and marketing products. Enterprise liability gives manufacturers an incentive to make all cost-justified investments in product safety because, by doing so, they gain a competitive advantage over firms that do not make the investments (and therefore face higher liability costs). Enterprise liability also represents the only products liability regime capable of providing consumers with an independent source of information about expected product accident costs — price. Only under such a regime will the nominal price of each product reflect all of that product's expected accident costs. Thus, even if consumers remain unduly optimistic with respect to product risks, the price of products under an enterprise liability regime will encourage consumers to act as if they are well-informed.

The preceding arguments in favor of enterprise liability are premised on the notion that consumers underestimate product risks. In large part, the products liability debates of recent decades have all hinged on this underlying question of the accuracy of consumer risk perceptions.⁷⁰⁵ Those debates, however, all occurred before the relevance of behavioralism to economic analysis became clear. With one or two possible exceptions, products liability scholarship did not carefully consider the implications of the cognitive-bias and marketing literatures for consumer risk perceptions and the choice among liability regimes; that is, it did not fully consider the problem of market manipulation.

In this Part, we sketch the argument (that we will flesh out in the third part of this project⁷⁰⁶) that the possibility for manufacturers to manipulate consumer product perceptions presents the latest, and per-

⁷⁰⁴ See Croley & Hanson, *supra* note 3, at 786–95 (arguing that products liability provides an answer to market failures such as inadequate consumer information); Hanson & Logue, *supra* note 256, at 1181–1223 (concluding that manufacturer liability would “educate” consumers about the dangers of cigarette use by raising prices); Hanson & Logue, *supra* note 3, at 168–89 (arguing that enterprise liability optimizes activity levels and manufacturer care).

⁷⁰⁵ See generally Croley & Hanson, *supra* note 3, at 707–08, 716–17, 770–79 (describing the role of consumer-information issues in the products liability debates).

⁷⁰⁶ See Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: A Response to Market Manipulation*, 6 ROGER WILLIAMS U. L. REV. (forthcoming Fall 2000, Symposium Issue: *Rational Actors or Rational Fools? The Implications of Psychology for Products Liability*) (manuscript on file with the authors).

haps the strongest, justification for enacting an enterprise liability regime. In light of behavioralist findings, the determinative issue for products liability scholars is no longer whether consumers underestimate or overestimate product risks. The endogenous implications of behavioralism — specifically, the possibility of manipulation by manufacturers — render that question moot because evolutionary market forces require manufacturers to make every effort to induce consumer underestimation, and the evidence suggests that those efforts are successful. Therefore, the choice among products liability standards must now be sensitive to market-provided incentives to manipulate consumer risk perceptions. In section A, we argue that only a liability rule, such as enterprise liability, that realigns powerful market forces (rather than attempting to anticipate and outmaneuver them) stands a chance of significantly ameliorating the problem of market manipulation.

A. *Taking Enterprise Liability Seriously*

The problem of market manipulation is, at bottom, a problem with the market. Manipulation of consumers occurs because it must. To succeed in any reasonably competitive market, sellers must minimize the perceived price of their product. Put differently, the invisible hand of the market guarantees that the most successful sellers will be those who, wittingly or not, are the most successful manipulators. The policy challenge, therefore, is to devise a system of regulation that equals the manipulative market in resourcefulness and tireless zeal to influence consumer behavior. As we argue in this section, the *only* institution capable of doing so is the market itself. Thus, the question for products liability scholars is not how to regulate product markets, but how to make product markets regulate themselves.

1. *The Basic Case for Enterprise Liability.* — Because market manipulation is incredibly subtle and slippery, it does not lend itself to traditional command-and-control regulatory solutions. It is subtle in the sense that consumers are not the only ones who will fail to recognize manipulation. Regulators will also fail to see precisely how consumers are being manipulated. It is slippery in the sense that any particular attempt to prevent or to counteract it will often lead to new and unanticipated forms of manipulation. A perfect solution would make the most profitable sellers those sellers with the best-informed consumers. Although no solution will be perfect in that sense, the best (imperfect) solution very well may be the one promoted by the first generation of products liability scholars: enterprise liability.

The advantages of incentive-based, or market-based, regulatory schemes such as enterprise liability are recounted by one of us (with

Kyle Logue) elsewhere.⁷⁰⁷ We mention here only the features that have led many commentators to view incentive-based systems as superior to other forms of regulation. Those features highlight why we believe that only a market-based system such as enterprise liability can effectively combat the problem of market manipulation.

First, incentive-based systems enjoy a comparative advantage over other systems because they encourage decentralized, independent decision-making. Such systems render it unnecessary to conduct complex cost-benefit analyses or to determine the most efficient technology for a firm or an industry to adopt. Instead, regulators need only ensure that negative externalities are internalized — for instance, by requiring that manufacturers pay the costs of product-caused accidents. With that limitation, many individual actors in the market attempt to minimize the total costs of their activity, including the newly internalized costs. The competitive process ensures that those market actors who are best able to lower total costs will thrive and those who are worst able will fail. Second, market actors have financial incentives that most commentators agree are more powerful than the incentives faced by government regulators. As a result, market actors operating under incentive-based systems are more likely to achieve regulatory goals simply because they have a stronger desire to achieve them. Finally, market actors typically have more extensive information regarding the object of the regulation and thus are generally better-equipped to find solutions in a cost-effective and accurate manner. Government regulators, on the other hand, are frequently criticized for enacting costly and ineffective regulations and must often rely on the regulated industry for information. In sum, for the same basic reasons that most economists prefer our market economy to a command-and-control economy, they also prefer market-based regulation to command-and-control regulation.

For this reason, we are skeptical of the view that current regulation of deceptive trade practices is sufficient to combat market manipulation. Admittedly, much of the conduct identified in this Article could be classified as fraud under existing consumer protection statutes. Indeed, much of our evidence was uncovered by the FTC or a similar state actor. Nevertheless, we do not believe that the FTC's command-and-control approach could ever equal the power of enterprise liability to constrain market manipulation. Government agencies do not have the incentives or the resources necessary to identify and to act against market manipulation in all of its ever-shifting incarnations. Thus, the practices challenged by the FTC and other regulatory agencies may represent only those that have been around long enough or are egregious enough to become transparent.

⁷⁰⁷ See Hanson & Logue, *supra* note 256, at 1173–78, 1263–81.

Under enterprise liability, on the other hand, even those practices that are unknown to regulators (or to manufacturers themselves) become effectively “regulated” in the sense that they are no longer economically attractive for manufacturers to follow. As such, manufacturers essentially regulate themselves, avoiding manipulative behavior in order to avoid increased liability costs that result from such behavior. In short, while consumer protection agencies following a command-and-control approach valiantly attempt to spot and to stamp out fires of manipulation as they arise, enterprise liability combats manipulation by simply eliminating the touchwood altogether.⁷⁰⁸

The advantages of enterprise liability stem from its market-driven focus. In essence, enterprise liability preserves the power of the market and simply realigns its incentives so that market actors are compelled to manage what would otherwise have been social costs. By forcing manufacturers to bear the costs of all product-caused accidents, enterprise liability can beneficially affect manufacturer incentives.⁷⁰⁹ Under enterprise liability, manufacturers of relatively dangerous products will have to charge more — all else being equal — than manufacturers of relatively safe products. And because consumers prefer paying lower prices, other things being equal, manufacturers will have a market incentive to prevent those accidents that they can prevent cost-justifiably. Preventing accidents will allow manufacturers to lower the price of their products and thus to gain a competitive advantage. In addition, enterprise liability forces manufacturers to charge a price that reflects the expected accident costs of their products. Consequently, consumers confront the total costs of the products they purchase (even if, as we are assuming, they are optimistic with respect to product risks) and thus consume the appropriate quantity of each product, in both an absolute and relative sense. These benefits are discussed at considerable length elsewhere.⁷¹⁰

Additional benefits of enterprise liability become evident once consumer optimism is understood as the result of endogenous influences — that is, market manipulation. Enterprise liability simply eliminates much of the incentive that manufacturers otherwise would have to

⁷⁰⁸ See *id.* at 1174–75 (summarizing the arguments for ex post incentive-based forms of regulation, such as enterprise liability); *id.* at 1273–81 (making a sustained case for ex post incentive-based forms of regulation); *id.* at 1168–69 n.9 (summarizing evidence that previous efforts to regulate the cigarette market through command-and-control mechanisms have backfired).

⁷⁰⁹ We assume here that consumers are not adequately informed by current product warnings. As we argue below, there are many reasons to suppose that product warnings are ineffective, and most of those reasons stem from the fact that manufacturers have strong incentives to ensure that the effect of otherwise exculpatory warnings are ineffective. Consequently, manufacturers will attempt to ensure that warnings either will not be read and understood or will be effectively neutralized by manipulative marketing efforts that vastly overshadow the warnings. For a discussion of such inefficiencies in the context of cigarette warnings, see Hanson & Logue, cited above in note 256, at 1323–24.

⁷¹⁰ See *supra* note 704.

manipulate consumer risk perceptions. The intuition behind that conclusion is quite straightforward: a manufacturer who persuades consumers to underestimate the accident costs of its product gains little given that, roughly speaking, the manufacturer must ultimately bear those costs. In other words, enterprise liability takes much of the profit (and fun) out of market manipulation. Furthermore, enterprise liability creates an incentive for manufacturers to inform consumers of some product risks. Because manufacturers are liable for all product-caused accidents under an enterprise liability regime, manufacturers will have strong incentives to alert consumers to risks that the consumers can prevent cost-justifiably.⁷¹¹ That is, if product warnings could conceivably minimize accidents through influencing consumer behavior, then manufacturers will have an incentive to issue such warnings in order to minimize costs (and, as we describe below, they will issue warnings that are far more effective and tailored than the warnings that any regulatory body could design).

In sum, we predict that once manufacturers are made to feel the costs of their manipulation, it will become significantly less attractive for them to manipulate. Rather than permitting the costs of misguided consumption to be externalized onto society at large, enterprise liability would force the costs onto the spreadsheets of the very agents who cause misguided consumption — manufacturers. For this simple reason, enterprise liability would go a long way toward removing many of the harmful aspects of our “consumer culture” — most notably, the incentive to manipulate consumer perceptions of product health and safety risks — without fundamentally altering the market economy’s ability to produce and to allocate goods on a mass scale.

2. *Stimulating a Better Warning System.* — In contrast to our policy conclusion, the wide consensus among products liability scholars is that the ideal way to regulate product safety in response to imperfect consumer information is through the provision of hazard warnings. The value of warnings, these scholars argue, is that they provide a way to achieve “first-best” efficiency: that is, efficiency of both consumer care levels and activity levels. Informing consumers through hazard warning information eliminates the problem of consumer optimism, which we took as given in the previous section (and which renders our policy conclusion a “second-best” solution). This theory argues that once consumers are fully informed, they will demand an optimal level of safety and purchase only those products whose marginal benefits exceed marginal costs.

⁷¹¹ Under alternative products liability regimes (including the current regime), on the other hand, manufacturers have strong incentives to manipulate consumer risk perceptions inasmuch as they can frequently escape liability for the costs caused by their products and shift those losses to optimistic consumers, insurers, health care providers, taxpayers, and future generations.

As Howard Latin points out, however, this conception fails to distinguish between information costs and cognitive biases.⁷¹² Although product warnings conceivably can remedy deficiencies in consumer information, deficiencies in consumer cognitive processes are far more subtle and troublesome. In response to such reasoning, more recent advocates of product warnings argue that warnings should be carefully designed by regulators to account for cognitive biases. Viscusi, for instance, asserts that a regulatory agency charged with constructing and testing the effects of product warnings would provide the best response to the problem: "The best practical solution to the problem of competing risks of labelling is pre-testing the warning — its language and its presentation of information — for its ability to accomplish the intended objective."⁷¹³

As we argue with respect to Viscusi's study of smoking perceptions, however, his solution appears sensitive to the operation of cognitive biases but ultimately fails to take behavioralism seriously. The problem is again the failure to recognize the endogenous effects of cognitive biases in consumer product markets. Viscusi's solution discounts completely the impact of manufacturers' efforts to counteract product warnings. The market is far more capable of influencing consumer behavior than any regulator devising product warnings, and the market's incentives are squarely to diminish the effect of warnings. Consumers who fail to appreciate hazards of products also fail to see the true costs of those products and therefore overconsume them.

With that prospect of excess demand, manufacturers have an interest in marketing products in a manner that dulls the appreciation of product risks. As long as legally adequate warnings are included in product documentation, a product's remaining marketing materials can encourage, with impunity, a culture of overconsumption. Indeed, the very goal of the marketing materials may be to undermine the effect of the legally mandated warnings. We believe that this problem is significant, especially considering that American consumers are exposed to twenty-five thousand commercials each year⁷¹⁴ and total annual worldwide advertising expenditures exceed \$350 billion.⁷¹⁵

⁷¹² See Latin, *supra* note 226, at 1229–41 (outlining reasons that people may fail to understand warnings even when information costs do not prevent them from reading the warnings).

⁷¹³ W. KIP VISCUSI, *REFORMING PRODUCTS LIABILITY* 137 (1991) [hereinafter VISCUSI, *REFORMING*]; see also VISCUSI, *SMOKING*, *supra* note 255, at 150 ("A more appropriate strategy would be to identify the diverse risks of cigarettes that we wish to communicate and to undertake experimental studies with different consumer groups to identify the most effective way to communicate this information in an accurate and convincing manner.").

⁷¹⁴ See Duane Elgin, *Living More Simply and Civilization Revitalization*, excerpted in *THE CONSUMER SOCIETY*, *supra* note 64, at 363, 365.

⁷¹⁵ See EVANS & BERMAN, *supra* note 19, at 17. We leave the reader to estimate whether comparable resources are devoted to designing and observing product warnings.

No product illustrates our position more acutely than do cigarettes. Cigarette manufacturers have been able to minimize the effect of the FDA's warning requirements at every stage in the agency's campaign against cigarettes.⁷¹⁶ The unparalleled marketing expenditures of the industry seem in many cases simply to have overwhelmed the warnings. Faced with the industry's barrage of images, slogans, cartoons, and other "lifestyle" marketing techniques — all of which are backed by an advertising budget several orders of magnitude greater than that of any public health agency — consumers have, not surprisingly, failed to receive the message about cigarette health risks. Moreover, the industry is well aware that warnings may be positioned to have a *forbidden-fruit appeal* to minors. As one industry insider noted, the "warning label on the package may be a plus"⁷¹⁷ when it comes to recruiting new, underage smokers. These are just two examples of ways in which the hazard warnings of regulators may prove ineffective, or even counter-effective, when combined with the marketing efforts of manufacturers.

The only hope of substantially reducing manufacturer manipulation is to eliminate the incentive to manipulate in the first place. Under an enterprise liability regime, because there would no longer be a mechanism for avoiding liability for product-caused accidents, manufacturers' incentives to manipulate product risk perceptions would be diminished, if not eradicated. In fact, we believe manufacturers would actually have an incentive to *sharpen* consumer awareness of many product hazards under such a regime. Only through such awareness could certain accidents be avoided and manufacturer liability be minimized.

A chief advantage of harnessing manufacturer expertise in this fashion is that it helps to overcome the widely recognized difficulty of constructing effective product warnings.⁷¹⁸ As Latin has noted, warning construction necessarily entails "[i]mperfect [t]radeoffs [a]mong [d]etail, [c]larity, and [i]mpact,"⁷¹⁹ as well as "[t]extual

⁷¹⁶ For a summary of these industry triumphs, see Hanson & Logue, cited above in note 256, at 1168 n.9.

⁷¹⁷ See Claude E. Teague, Jr., Some Thoughts About New Brands of Cigarettes for the Youth Market 8 (Feb. 2, 1973) (research memorandum) (memorandum available at <<http://www.gate.net/~jcannon/documents/730202R1.txt>>) (on file with the Harvard Law School Library).

⁷¹⁸ See, e.g., VISCUSI, REFORMING, *supra* note 713, at 139–40. Viscusi observes the following:

Detailed examination of the information that individuals retain from hazard warnings indicates that even with very detailed and well-designed warning labels, individuals can seldom recall more than six pieces of information from a label. Much of what is retained regards aspects of the product other than precautions and risk levels — for example, how to use the product. With the addition of more information, individuals eventually reach a saturation point. There is a fundamental trade-off in terms of the information that is retained by consumer[s].

Id.

⁷¹⁹ Latin, *supra* note 226, at 1221.

[a]mbiguity."⁷²⁰ Moreover, individual readers' "ability to understand information is influenced by educational backgrounds, personality traits, and motivation levels, by socioeconomic status, and group affiliations, and by idiosyncratic personal experiences and prejudices."⁷²¹ Given those constraints, it is extremely difficult for regulators to design product warnings that will effectively convey risk information to a wide range of product users. Under an enterprise liability regime, the market would force manufacturers to experiment with product warnings by altering their form and content to overcome consumer cognitive failings to produce effective informational disclosures. Corporate manipulation of risk perceptions would be replaced by corporate management of risk information.

The preceding discussion is not mere fanciful theorizing. Through a process known as *market segmentation*,⁷²² manufacturers already engage in highly sophisticated analyses of consumer "educational backgrounds, personality traits, . . . motivation levels, . . . socioeconomic status, and"⁷²³ — the very attributes commentators say determine product warning effectiveness.⁷²⁴ This process allows manufacturers to subdivide "large mass markets into smaller segments, each containing a relatively homogeneous group of consumers."⁷²⁵ As a result, manufacturers are able to design more effective marketing strategies because they are "directing resources at specific and identifiable groups of people rather than at diverse collections of individuals."⁷²⁶

Segmentation can occur along several divides. For example, through a process of *geographic segmentation*, the manufacturers of Campbell's Soup have divided the United States into twenty-two geographic regions and have tailored product lines to suit prevailing tastes in those regions. As a result of their analysis, the company uses a spicier version of its nacho cheese sauce in California than in the Midwest.⁷²⁷

⁷²⁰ *Id.* at 1222.

⁷²¹ *Id.* at 1227 (citations omitted).

⁷²² See Wendell R. Smith, *Product Differentiation and Market Segmentation as Alternative Marketing Strategies*, 21 J. MARKETING 3, 5-6 (1956).

⁷²³ Latin, *supra* note 226, at 1227.

⁷²⁴ In an earlier article, one of us (with Kyle Logue) notes that the homogeneity of certain consumer groups lends itself to this type of segmentation. See Hanson and Logue, *supra* note 3, at 154-57. At the time of making that observation, however, the author was blissfully unaware of the actual extent to which consumer groups already were studied and classed by manufacturers. Such actions have far different implications in a market that is not regulated by enterprise liability for, as we have argued, the nature of manufacturer incentives in the absence of enterprise liability is to exploit knowledge of consumer behavior and perception, rather than to use it for safety gains.

⁷²⁵ FOXALL & GOLDSMITH, *supra* note 44, at 9 (citation omitted).

⁷²⁶ *Id.*

⁷²⁷ See STATT, *supra* note 42, at 14.

For our purposes, the two most important ways that manufacturers classify consumers are through geodemographic segmentation and psychographic segmentation. *Geodemographic segmentation* enables manufacturers to act on the basis of demographic and consumption profiles of particular neighborhoods.⁷²⁸

In the United States, for instance, the Potential Rating Index by Zip Market (PRIZM) system has condensed the country's approximately thirty-six thousand postal districts into forty primary types of neighborhood clusters, ranging from "Public Assistance" to "Blue Blood Estates," and including such clusters as "Money & Brains" and "Kids & Cul-de-Sacs" in between.⁷²⁹ Each neighborhood cluster has its own demographic profile: "Furs and Station Wagons," for instance, are "typified by 'new money' living in expensive new neighborhoods. These are well-educated, mobile professionals and managers with the nation's highest incidence of school-age children. They are winners — big producers and big spenders."⁷³⁰

In addition to thumbnail descriptions such as this one, PRIZM provides highly detailed data concerning consumption habits, employment and salary levels, asset information, educational backgrounds, travel and leisure preferences, and so on. Using this technology, manufacturers are able to target increasingly narrow subgroups of consumers rather than attempt to find a level of homogeneity across the entire marketplace.⁷³¹ This practice has become widespread: "Systems such as . . . PRIZM are now routinely used for direct marketing via leaflets, mailing lists and local newspaper inserts, as well as planning the most appropriate sites for new stores and stocking existing stores."⁷³²

We believe that these systems would be useful in devising effective product warnings. Rather than attempting to construct "warnings [that] pass muster for the entire market,"⁷³³ as Viscusi's regulators would be required to do, manufacturers could devise warnings tailored to suit the residents of particular demographic landscapes, such as the "Sun Belt Singles," "Norma Rae-ville," and even "Marlboro Country." Rather than settling for a single warning that seeks "the greatest net benefit to society" by trying to reach "the entire marketplace,"⁷³⁴ an

⁷²⁸ See *id.* at 18–19.

⁷²⁹ See SOLOMON, *supra* note 24, at 187; STATT, *supra* note 42, at 18–19.

⁷³⁰ CLARK, *supra* note 45, at 176.

⁷³¹ For instance, *Time* and *Newsweek* magazines have sorted their mailing lists by cluster, allowing for special luxury advertisement sections to be reserved for neighborhoods like "Furs & Station Wagons" and "Money & Brains." See SOLOMON, *supra* note 24, at 188. Similarly, Colgate-Palmolive was able to send samples of a new detergent developed for young families to all zip codes in the "Blue-Collar Nursery" cluster. *Id.*

⁷³² STATT, *supra* note 42, at 19.

⁷³³ W. Kip Viscusi, *Individual Rationality, Hazard Warnings, and the Foundations of Tort Law*, 48 RUTGERS L. REV. 625, 668 (1996).

⁷³⁴ *Id.*

enterprise liability regime would prompt manufacturers to utilize their expertise in geodemographic segmentation to produce highly focused, viewer-specific product warnings.⁷³⁵

From the perspective of tort reform and product warning construction, an even more promising method of market segmentation might prove to be *psychographic segmentation*. This type of segmentation focuses on “creat[ing] marketing mixes that reflect consumers’ subjective perceptual and cognitive processing of information [as well as] their personal lifestyle, values and motivations.”⁷³⁶ The most elaborate psychographic system was developed by the Stanford Research Institute of California and is known as VALS, which is an acronym for “values and life styles.”⁷³⁷ VALS relies on census data and proprietary surveys to classify people into nine representative lifestyles, each with a detailed description of psychological traits.⁷³⁸ For instance, members of one of the groups, “Belongers,” are described as follows:

[T]he largest group (35 percent of the population)[] are so-called because their affiliation needs are high. They strive to fit in and conform at all costs and care deeply about what the neighbors think. They believe in the status quo and aren’t suspicious or fearful. They are middle-class, traditional, “moral,” and family-oriented. Most are white (95 percent), and many are housewives (30 percent) who are middle of the road in everything from their levels of education to their incomes and ages. They tend to live in small rural towns or open country. Their contented existence is rarely touched by the cruel realities of the world. Instead, they read romance novels and watch a lot of television, especially soap operas. They often abstain from alcohol, have strong traditional values, and feel that mothers should be unselfish, forgiving, and stay at home. They are markedly more supportive of authority figures than the lower groups, and they have the finances to plan for the years ahead. They are happiest when they feel like an insider and find the most comfort when surrounded by the familiar.⁷³⁹

Such information enables manufacturers to address every aspect of retailing — from original product design to advertisement construction — with the personality attributes of the end user firmly in mind. Today, psychographics is an omnipresent feature of consumer product

⁷³⁵ Indeed, one marketing company, purporting to have a computer database of 73 million households comprising some 90% of the U.S. population, claims that it can provide geodemographic information for individual *households* rather than just neighborhoods. See CLARK, *supra* note 45, at 177. Such a capability would obviously help construct effective product warnings because, as we have seen, individual social characteristics influence the manner in which one perceives warning information.

⁷³⁶ FOXALL & GOLDSMITH, *supra* note 44, at 9. For a helpful historical account of the development of psychographics, see REBECCA PIIRTO, *BEYOND MIND GAMES: THE MARKETING POWER OF PSYCHOGRAPHICS* 6–94 (1991).

⁷³⁷ STATT, *supra* note 42, at 21.

⁷³⁸ See ARNOLD MITCHELL, *THE NINE AMERICAN LIFESTYLES: WHO WE ARE AND WHERE WE’RE GOING* 3–24 (1983).

⁷³⁹ PIIRTO, *supra* note 736, at 39–40.

marketing and has considerably sharpened manufacturers' ability to communicate with consumer subgroups.⁷⁴⁰

Manufacturers could similarly employ techniques such as geodemographic and psychographic segmentation to create effective product warnings. Motivated by enterprise liability, manufacturers would use their well-developed understanding of consumer psychology to construct warnings responsive to particular safety fears, risk attitudes, and any other personality traits that emerge as determinant of product warning effectiveness. Under enterprise liability, manufacturers would determine which warnings work for which groups, just as they now do for advertisements.

As an example of that type of warning construction, the American Cancer Society (ACS) used geodemographic and psychographic profiling to improve chronically low cancer screening rates among low-income elderly minority women.⁷⁴¹ The ACS began by commissioning a geodemographic study: "A PRIZM map and report were produced to determine what types of lifestyle clusters reside in the areas of greater propensity for older, poor women."⁷⁴² In addition, the ACS identified those product markets that low-income minority women access with greatest frequency and which forms of media they were most likely to encounter. The ACS also sought "attitudinal/perceptual data" that evaluated the "greatest barriers to [the subject] women's seeking mammograms [including] the lack of physician referrals, cost, fear and a realistic attitude about access to follow-up health care."⁷⁴³ From this wealth of data, the ACS was able to develop a media campaign specifically tailored to low-income minority women, in contrast to traditional campaigns that sought a common denominator among all women at risk of breast cancer. The results were clear: "The use of nontraditional media in carrying the mammography screening message to poor African-American women who are older is strongly correlated with increase in first-time mammography behavior."⁷⁴⁴ We believe that precisely this type of improvement in information conveyance

⁷⁴⁰ The VALS system, in one of its earliest and best-known applications, was used to revamp the Merrill Lynch advertising campaign of the 1980s. Merrill Lynch had long portrayed a stampede of bulls in its advertising. After consulting VALS research, its advertisers discovered that the campaign conveyed a message of conformity and herd mentality, which directly conflicted with the preferences of the "Achievers" who made up Merrill Lynch's target audience. The result: Merrill Lynch's advertisers created an entirely new ad campaign featuring a lone bull and the slogan, "A Breed Apart." Not surprisingly, the campaign was successful. *Id.* at 44.

⁷⁴¹ See Cynthia Currence, *Demographic and Lifestyle Data: A Practical Application to Stimulating Compliance with Mammography Guidelines Among Poor Women*, in *SOCIAL MARKETING: THEORETICAL AND PRACTICAL PERSPECTIVES* 111 (Marvin E. Goldberg, Martin Fishbein & Susan E. Middlestadt eds., 1997).

⁷⁴² *Id.* at 114.

⁷⁴³ *Id.* at 117.

⁷⁴⁴ *Id.* at 119. The Blood Center of Southeastern Wisconsin achieved similar success when it used psychographic surveys to increase blood donations. See PIIRTO, *supra* note 736, at 119-22.

would occur with product warnings under an enterprise liability regime. With such a regime in place, every manufacturer would display the same public service intentions and the marketing ingenuity of the American Cancer Society — if they did not, their products would be driven out by more capable manufacturers, whose consumers would suffer fewer injuries.

Before turning to the possible limitations of enterprise liability, we wish to point out one additional potential benefit. In this section, we argue that under an enterprise liability regime, manufacturer incentives to warn consumers effectively of product dangers would be significantly improved. Additionally, an enterprise liability regime might actually improve *consumer* care incentives. Such a suggestion may not be paradoxical inasmuch as enterprise liability would effect a *cultural* change in the way consumers view manufacturers and their product warnings.

Currently, consumers are inclined to view product warnings as the handiwork of overly cautious manufacturer attorneys, rather than as earnest or legitimate attempts to inform customers of proper product use. As Latin has noted, “[c]onsumers sometimes fail to follow product warnings because they do not find the disclosures credible. . . . As warnings proliferate in number and length, consumers may come to believe that some (or many) are included more to protect manufacturers against potential liability than to inform users of significant dangers.”⁷⁴⁵ Under enterprise liability, on the other hand, we believe that consumers may come to view product warnings as something other than self-interested manufacturer disclaimers. With the knowledge that manufacturers must compensate for accident costs, consumers would be more likely to recognize product warnings as important sources of safety information, intended to educate consumers rather than to absolve manufacturers. Thus, not only would manufacturers have incentives to construct product warnings in an effective manner, consumers would also have incentives to read, comprehend, and follow them. Product warnings might finally achieve their aim: to “inform a product user [effectively] of a risk and of behavior that will reduce that risk.”⁷⁴⁶

3. *A Few Words of Caution.* — Although we argue that enterprise liability is tort law’s best response to the problem of manufacturer manipulation, we recognize such a regime has inherent limitations. An enterprise liability regime may not entirely remedy much of the manipulation that we identify in Part I, because the particular risks posed by a product may result in injuries which have a causal link to the product that is too difficult to prove, or which are too diffuse to confer

⁷⁴⁵ Latin, *supra* note 226, at 1247.

⁷⁴⁶ VISCUSI, REFORMING, *supra* note 713, at 144.

standing on any particular person. For instance, any litigant attempting to show that her health problems arose from the ingestion of a particular manufacturer's fatty foods may face difficult issues of causation.⁷⁴⁷ Likewise, the long-term effects of environmentally hazardous products such as those that emit ozone gases would be dispersed across a large group of victims, making it difficult for a potential plaintiff to show a particularized, legally cognizable injury.

Given these difficulties, even enterprise liability might not force manufacturers to internalize all of the harms posed by certain products. We consider this problem an operational shortcoming of enterprise liability that policymakers would need to address before the full benefits of such a regime were realized. Of course, we also view the shortcoming as one that equally plagues all other standards of tort liability for products regulation.

We must also acknowledge that the ability of price to convey a product's risk has yet to be empirically verified.⁷⁴⁸ Although it seems theoretically sound to argue that product prices that included expected accident costs would inspire more efficient consumer behavior than a regime in which consumers estimated expected accident costs on their own, empirical support for that contention is unavailable — because, of course, a true enterprise liability regime has yet to be enacted for product-caused accidents. Moreover, given the many ways in which manufacturers have been shown to manipulate consumer perceptions *through the price dimension*,⁷⁴⁹ manufacturers may be able to manipulate consumer price perceptions even under a legal regime that forced the internalization of all product-related accident costs. Nevertheless, enterprise liability would make the accomplishment of such consumer manipulation markedly more difficult than any other products liability regime because it constricts the range within which manufacturers could manipulate price perceptions. By so restricting the opportunity for manufacturer manipulation of consumer price perceptions, enterprise liability would promote a more efficient use of consumer income.

A final potential limitation of enterprise liability stems from the fact that many of the manufacturers' manipulative practices may inflate consumers' perceptions of a product's *overall* desirability, rather than simply affecting consumers' product risk perceptions. Although enterprise liability would force manufacturers to internalize the costs of all product-caused accidents, it is theoretically possible that manufacturers could manipulate consumer preferences so that excess consumption would still occur. For instance, although the expected accident costs of bottled soda would be incorporated into the product's

⁷⁴⁷ See Hanson & Logue, *supra* note 3, at 166 n.155.

⁷⁴⁸ See *supra* p. 1557.

⁷⁴⁹ See *supra* pp. 1440–42, 1449–50.

price under enterprise liability, manufacturers might still be able to manipulate consumers into thinking that they value soda in bottles (as opposed to, say, cans) enough to compensate for the increased price. The consumers' misperception would result in inefficient purchases if consumers would not have valued soda in bottles enough to account for the price increase prior to the manipulation. For this reason, one might say that enterprise liability has the potential to solve only half of the problem of manipulation — the manipulation of consumer perceptions of product costs, and not of product benefits.

Although we do acknowledge this point, we wish to emphasize that the limitation applies to *all* tort liability regimes, not just to enterprise liability. Thus, if soda manufacturers can increase the perceived benefits of their soda while selling it in bottles, then they will do so irrespective of tort law. Whatever consumer preferences exist after that effort by manufacturers, however, we still ought to care about minimizing the costs of accidents, given those preferences. That is, we still should adopt enterprise liability in order to assure that manufacturers and consumers internalize products' expected accident costs; if we do so, then consumers may overestimate the benefits of the products they purchase, but at least they will not underestimate the costs. Therefore, even though enterprise liability may solve only half of the problem of manipulation, it is the only half of the problem that products liability can realistically address.

B. The First Generation of Products Liability Scholars Revived

In the first article of our project, we argued that legal economists typically (though rarely explicitly) assume that market forces are far more powerful than any command-and-control effort to regulate them.⁷⁵⁰ In that article we argued further that consumers are subject to unyielding cognitive biases that make them susceptible to manufacturer manipulation. In light of those arguments, the findings of this Article are hardly surprising: there is substantial evidence of sustained and deliberate efforts on the part of manufacturers and sellers to shape consumer perceptions and preferences, and there is also compelling evidence that those efforts have been successful.

What we do find surprising is modern legal scholarship's failure to acknowledge or take seriously the possibility of such market manipulation. Our evidence of market manipulation no doubt has relevance to many areas of law.⁷⁵¹ This evidence poses an especially significant

⁷⁵⁰ See Hanson & Kysar, *TBS I*, *supra* note 11, at note 535 and accompanying text.

⁷⁵¹ Although we have focused in this Article on the application of behavioral research to products liability law, we believe that our views with respect to manipulation have far-reaching implications. Scholars have already begun to explore, through behavioral research, the possibilities for investor manipulation in securities markets, raising the question whether the current regulatory approach is inadequate to prevent fraud. See, e.g., Donald C. Langevoort, *Selling Hope, Selling*

challenge to products liability scholars, the most influential of whom have employed law-and-economics style reasoning to criticize the revolutionary trends that characterized products liability law from the 1960s through the mid-1980s, and to justify the many counterrevolutionary reforms that have since been adopted at their urging.⁷⁵² We think the challenge particularly strong because the early advocates for the expansion of products liability law relied heavily on the argument that manufacturers manipulate consumers' perceptions — an argument that has never been squarely addressed by legal economists critical of the law's expansion.

To be sure, the arguments made by early enthusiasts of expanding products liability might have been easily dismissed, considering that they were articulated long before behavioral research had become a robust field of study. Instead of drawing from the studies of social scientists, the legal scholars and judges who called for expansion toward enterprise liability seemed to have relied on their own intuitive understanding of human psychology and consumer product markets.⁷⁵³ Nonetheless, they appear to have appreciated the problem of market manipulation. In an early and important products liability opinion, Justice Traynor eloquently captured the sense, if not the science, behind the problem:

The consumer no longer has means or skill enough to investigate for himself the soundness of a product, even when it is not contained in a sealed package, and his erstwhile vigilance has been lulled by the steady efforts of manufacturers to build up confidence by advertising and marketing devices

. . . .⁷⁵⁴

Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers, 84 CAL. L. REV. 627 (1996).

Consumer protection law is another obvious context in which to study the existence and impact of manipulative trade practices: both advertising and consumer credit regulation are areas that may be illuminated by the application of behavioral research principles. The health care industry presents perhaps the most dramatic forum within which to study manipulation. Its long-recognized information asymmetries have now been coupled with powerful market incentives and a diminished role for the physician as patient-advocate to produce an opportunity unfortunately well-suited for manipulation of health care consumers. Even the judicial system itself might be better understood through the lens of behavioralism, with its focus on manipulation. For instance, the much-debated role of expert testimony in civil litigation could benefit from a view of the jury as a body of "lay scientists," hampered by all of the non-scientific tendencies described in our accompanying article. See Hanson & Kysar, *TBS I*, *supra* note 11, at notes 51-178 and accompanying text. In short, we believe that the most significant implication of behavioral research for legal analysis is its evidence of the possibility of manipulation — a possibility demonstrated in our analysis of consumer products markets, but also evident whenever one actor exerts influence over the decisionmaking context of another.

⁷⁵² For a review of the intellectual underpinnings of the revolutionary and counterrevolutionary trends in products liability law, see Croley & Hanson, cited above in note 3, at 695-767.

⁷⁵³ See, e.g., Hanson & Kysar, *TBS I*, *supra* note 11, at note 295 and accompanying text (summarizing Guido Calabresi's position on consumer optimism).

⁷⁵⁴ *Escola v. Coca Cola Bottling Co.*, 150 P.2d 436, 443 (Cal. 1944) (Traynor, J., concurring) (emphasis added).

This theme of consumer lulling was taken up with even greater emphasis in the leading case⁷⁵⁵ of *Henningsen v. Bloomfield Motors, Inc.*⁷⁵⁶ For opponents of strict liability, *Henningsen* has long represented the benchmark against which their theories must be weighed.⁷⁵⁷ In that regard, it is highly significant that critics of strict liability have never directly responded to the following language from the *Henningsen* opinion:

[A modern manufacturer] not only processes [its product] and dresses it up so as to make it appear appetizing, but he uses the newspapers, magazines, billboards, and the radio to build up the psychology to buy and consume his products.

....

[Moreover, u]nder modern conditions the ordinary layman, on responding to the importuning of colorful advertising, has neither the opportunity nor the capacity to inspect or to determine the fitness of [a product] for use; he must rely on the manufacturer who has control of its construction⁷⁵⁸

Indeed, the *Henningsen* court believed that “[j]udicial notice may be taken of the fact that automobile manufacturers, including [defendant] Chrysler Corporation, undertake large scale advertising programs over television, radio, in newspapers, magazines and all media of communication in order to persuade the public to buy their products.”⁷⁵⁹ Thus, in addition to the belief that consumers lacked sufficient information to make well-informed consumption choices — a view that has been thoroughly analyzed by products liability scholars⁷⁶⁰ — the *Henningsen* court also believed that manufacturers exacerbated consumers’ lack of information by designing marketing techniques to entice consumers without informing them. Scholars have never taken this latter aspect of *Henningsen* seriously.

Instead, critics have chosen to characterize early advocates of strict liability as merely intuitive thinkers lacking the scientific rigor of more recent products liability scholars.⁷⁶¹ George Priest, for instance, has

⁷⁵⁵ See John W. Wade, *Strict Tort Liability of Manufacturers*, 19 SW. L.J. 5, 8 (1965).

⁷⁵⁶ 161 A.2d 69 (N.J. 1960).

⁷⁵⁷ Dean William Prosser even attributed the “fall of the citadel of privity” to *Henningsen*: “[T]he date of the fall of the citadel of privity can be fixed with some certainty. It was May 9, 1960, when the Supreme Court of New Jersey announced the decision in *Henningsen v. Bloomfield Motors, Inc.*” William L. Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791, 791 (1966).

⁷⁵⁸ *Henningsen*, 161 A.2d at 82–83 (quoting *Jacob E. Decker & Sons v. Capps*, 164 S.W.2d 828, 832–33 (Tex. 1942)).

⁷⁵⁹ *Id.* at 84.

⁷⁶⁰ See Hanson & Kysar, *TBS I*, *supra* note 11, at note 285.

⁷⁶¹ See, e.g., PETER W. HUBER, *LIABILITY: THE LEGAL REVOLUTION AND ITS CONSEQUENCES* 11 (1988) (“[Early products liability scholars] promised the world that [strict liability] . . . would bring measurable progress toward . . . protecting life and limb, and helping the injured when accidents do happen [But their] record is a mountain of pretentious failure.”); VISCUSI,

contrasted “this ‘culture’ of enterprise liability”⁷⁶² with his own “careful, scientific study”⁷⁶³ of product markets. The former is “impressionistic and imprecise,”⁷⁶⁴ “extremely crude,”⁷⁶⁵ “anti-conceptual and often unreasoning.”⁷⁶⁶ The latter is “relentlessly functional and utilitarian,”⁷⁶⁷ steeped in the tenets of “modern science,”⁷⁶⁸ and characterized by a “sharpened focus”⁷⁶⁹ that is capable of revealing “a new view of the world.”⁷⁷⁰ By using his scientific approach rather than the intuition of earlier scholars, Priest believed that he was able to arrive at the most informed judgment about the effects of products liability law.⁷⁷¹

Recognizing that “[t]he only useful way to evaluate a theory is to confront it with evidence,”⁷⁷² we believe that the evidence presented in this Article and its companion poses a serious challenge to any theory, such as Priest’s, that dismisses the possibility of manufacturer manipulation of consumers. In our view, the arguments of thinkers like Justice Traynor and now-Judge Calabresi have been partly vindicated by the emergence of a theory of market manipulation grounded in behavioralism. Even Priest acknowledges that “[m]ost of us . . . share some intuitive feeling that manufacturers possess bargaining power superior to any consumer.”⁷⁷³ In this Article, “intuition is restated rigorously”⁷⁷⁴ as a proposition supported both by economic theory and by market evidence. As a consequence, it should no longer be possible for scholars to criticize the argument for enterprise liability based on method alone. Indeed, with evidence that “experts who have rich models of the system in question are more likely to exhibit overconfidence than lay people who have a very limited understanding of these systems,”⁷⁷⁵ scholars should be a bit more reluctant to criticize any ar-

REFORMING, *supra* note 713, at 5 (“This kind of empirical foundation and comprehensive assessment of the appropriate role of products liability was missing from the proposals for the earlier expansion in products liability.”); Epstein, *supra* note 5, at 2204 (describing the arguments of two earlier products liability scholars as “flawed,” “badly misguided,” and “wholly misguided”).

⁷⁶² Priest, *supra* note 2, at 702.

⁷⁶³ Priest, *supra* note 9, at 1400.

⁷⁶⁴ *Id.* at 1399.

⁷⁶⁵ Priest, *supra* note 2, at 702.

⁷⁶⁶ *Id.* at 703.

⁷⁶⁷ *Id.*

⁷⁶⁸ Priest, *supra* note 9, at 1390.

⁷⁶⁹ *Id.* at 1400.

⁷⁷⁰ *Id.*

⁷⁷¹ *See id.*

⁷⁷² *Id.* at 1390.

⁷⁷³ *Id.* at 1399.

⁷⁷⁴ *Id.*

⁷⁷⁵ Dale Griffin & Amos Tversky, *The Weighing of Evidence and the Determinants of Confidence*, 24 COGNITIVE PSYCHOL. 411, 430 (1992) (citing supporting studies in FRANK J. YATES, JUDGMENT AND DECISION MAKING 87 (1990), and Stuart Oskamp, *Overconfidence in Case-Study Judgments*, 29 J. CONSULTING PSYCHOL. 261, 261-65 (1965)).

gument for lacking "scientific" rigor. As we show, the hunches of judges can prove accurate in the long run while the elaborate scientific models of scholars turn out to be merely a byproduct of overconfidence.

CONCLUSION

Drafts of this Article and its companion provoked two fairly common criticisms from readers. First, some readers complained that our thesis went too far in suggesting that consumers are susceptible to seemingly limitless manipulation. It is simply not the case, these readers argued, that consumers can be convinced to purchase any product, regardless of its dubious benefits or serious risks. After all, the overwhelming majority of new products that are introduced each year fail, at least indirectly supporting the notion that consumers have preferences that are independent of and sovereign over manufacturers' efforts to manipulate. Second, other readers contended that what we have characterized as manipulation is not really manipulation at all, but rather revelation. For instance, when supermarket managers place chips next to dip and inspire an unplanned purchase by the grocery shopper, the managers are not constructing artificial preferences, but rather are revealing true preferences that were simply unrecognized by the shopper prior to the manager's subtle suggestion.

The first group of readers denied that manipulation happens, while the second denied that what happens is manipulation. Thus, we are simultaneously criticized for representing that manufacturer efforts to influence consumer perceptions succeed more than they actually do, and for characterizing as manipulation what are actually benign information-providing services by manufacturers that result in efficient consumer transactions. Readers holding the second view would presumably prefer that manufacturers actually did succeed in manipulating consumers as much as readers of the first view appear to think our Article contends.

Our position lies between those extremes. We do not disagree with the proposition that manufacturers' ability to manipulate consumers is subject to limitations. Indeed, we do not disagree with the contentions that manufacturers must accommodate existing consumer preferences in their attempts to manipulate and that often those attempts will fail. Likewise, we view it as likely that at least some of the manufacturer practices described in this Article and its companion are benign; that is, they result in an efficient transaction by reminding shoppers that, yes, they did feel like chips and dip all along.

Neither of these concessions, however, alters our fundamental message about consumer risk perceptions and the efficiency of product markets. It may well be that consumer preferences are either more stable than much of our evidence would indicate, as readers holding

the first view would argue, or are more fully realized as a result of manufacturer "manipulation," as readers holding the second view would argue.

Nevertheless, in both situations, one must conclude that consumer perceptions are at least partially subject to manufacturer influence or, as we prefer to call it, manipulation. If consumers buy more of a product when it is labeled seventy-five percent fat free, rather than twenty-five percent fat, we do not know which label more effectively alerts consumers' to their true preferences. We do know, however, that consumers *perceive* the product differently depending on the manufacturer's use of a non-substantive information frame. That fact alone represents evidence that, under certain circumstances, consumer perceptions of product risks *can* be altered by manufacturer manipulation. Accepting that possibility, all the logic of economic theory tells us that manufacturers will manipulate consumer perception in the direction that benefits them most — toward the underestimation of product risks. And all the evidence of consumer product markets suggests that this manipulation has been successful and will continue to be so until policymakers take behavioralism as seriously as marketers do.

In our forthcoming article, we will attempt to begin that project, by discussing more exhaustively how enterprise liability can alleviate the problem of market manipulation. A chief concern in that article will be to discern whether, in proposing enterprise liability as a response to manipulation, *we* have taken behavioralism seriously enough, or whether, instead, the market forces behind manipulation are strong enough to evade even enterprise liability. If the latter is true, then the problem of market manipulation will require policy solutions far more dramatic than anything previously discussed in products liability scholarship.