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The Placebo Effect of Law

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# The Placebo Effect of Law

Amitai Aviram

## **Abstract**

Like the placebo effect of medicine, laws impact social welfare beyond their objective effects by manipulating the public's subjective perception of the law's effectiveness. When evaluating a law's impact on social welfare, scholars previously considered only the law's objective effects and, in some cases, the psychic utility derived from it. However, many laws also significantly affect social welfare by manipulating subjective perceptions of the risks that they address (e.g., assuring the public that the law will mitigate the risk). The sense of assurance may in itself be a psychic effect, but the change in the perceived risk has an objective, measurable impact that is distinct from both objective and psychic effects of a law. This largely ignored effect is a law's "Placebo Effect" – the impact on social welfare of a change in individuals' subjective assessment of the legal action's benefits. Failure to consider placebo effects may cause significant overstatement or understatement of a law's benefits. Through application of literature on cognitive biases, the direction and magnitude of the placebo effect can be estimated, leading to more accurate evaluation of the feasibility of laws.

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This largely ignored effect is a law's "Placebo Effect" – the impact on social welfare of a change in individuals' subjective assessment of the legal action's benefits. Failure to consider placebo effects may cause significant overstatement or understatement of a law's benefits. Through application of literature on cognitive biases, the direction and magnitude of the placebo effect can be estimated, leading to more accurate evaluation of the feasibility of laws.

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## I. Introduction

On September 11, 2001, terrorists hijacked four passenger airplanes and flew them into the World Trade Center and the Pentagon, murdering at least 2,985 people, including all 265 people on the planes.<sup>1</sup> Among the many repercussions of this terrible calamity was a panic regarding aviation security. In the following month, commercial passenger traffic dropped by over 45%.<sup>2</sup> “Some terminals at New York’s Kennedy International Airport looked like ghost towns, with restaurants shut down and only an occasional taxi passing outside.”<sup>3</sup> Other airports, and airlines, fared no better.<sup>4</sup> Two months later, on November 19, the Aviation and Transportation Security Act<sup>5</sup> was signed into law. Its announced goal was to improve aviation security.<sup>6</sup> By August 2002, the number of passengers was

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<sup>1</sup> See *September 11, 2001 attacks*, available online at: [http://en.wikipedia.org/wiki/September\\_11,\\_2001\\_attacks](http://en.wikipedia.org/wiki/September_11,_2001_attacks), at §1.1. One of the planes crashed near Shanksville, Pennsylvania. It is speculated that passengers’ resistance prevented the plane from being used to hit another target. *Id.*, at § 1.2.

<sup>2</sup> According to the U.S. Bureau of Transportation, the number of passengers on domestic flights dropped by 45.6% between August and September 2001; Bureau of Transportation Statistics, *Airline Traffic Statistics – September 2001*, available online at: [http://www.bts.gov/airline\\_information/indicators/airtraffic/special/sept\\_traffic.html](http://www.bts.gov/airline_information/indicators/airtraffic/special/sept_traffic.html). Also see: Oliver Morgan, *Dark Skies for Airlines*, *The Guardian* (December 16, 2001) (“Business dropped 40 per cent on the twelfth’... after the immediate effect – the 40 per cent year-on-year fall in the aftermath of the attacks...”); Chris Kilroy, *Special Report: September 11, 2001 Terrorist Attacks*, AirDisaster.Com, available online at: <http://www.airdisaster.com/special/special-0911.shtml> (“The airline and travel industries were hit particularly hard following the attacks, with commercial passenger traffic in the United States dropping nearly 40% between September 10 and October 10, 2001, and world-wide traffic decreasing some 18%.”).

<sup>3</sup> CBS News, *Returning to the Air* (Sept. 15, 2001), available online at: [www.cbsnews.com/stories/2001/09/12/national/printable311000.shtml](http://www.cbsnews.com/stories/2001/09/12/national/printable311000.shtml). The reporter noted that some airport terminals were busy due to a large number of passengers stranded in the days immediately following the attack, when most air traffic was shut down. *Id.* However, for the most part airports experienced a very sharp decline in traffic.

<sup>4</sup> Mark Zdechlik, *Ventura Agrees to Guard Troops at Airport*, Minnesota Public Radio (September 27, 2001), available online at: [http://news.minnesota.publicradio.org/features/200109/27\\_zdechlikm\\_airportsecurity](http://news.minnesota.publicradio.org/features/200109/27_zdechlikm_airportsecurity) (“Even with dramatically scaled back flight schedules, large and small airlines report many empty seats. There are nowhere near enough passengers to make money. Airlines have laid off hundreds of thousand of employees because of plunging passenger numbers.”).

<sup>5</sup> The Aviation and Transportation Security Act, Pub. L. No. 107-71, 115 Stat. 597 (2001) (codified in scattered sections of 49 U.S.C.) (“ATSA”).

<sup>6</sup> *Id.*, at the preamble to the Act.

only 9.2% lower than August 2001, and by August 2003 it was lower by only 5.7%.<sup>7</sup> Though this rebound suggests that the public's security concerns were assuaged, the effectiveness of the ATSA is disputed. Critics claim that the security checks are permeable to determined terrorists, and anecdotes of security failures abound.<sup>8</sup>

Suppose, *arguendo*, that the ATSA's ability to stop determined, well-informed terrorists is limited.<sup>9</sup> Would this suffice to deem the ATSA a failure? When assessing the ATSA's impact on social welfare, should one consider the ATSA's effect of reassuring the public and increasing air travel, even if the underlying security threat was not fully dealt with? Broadening the inquiry beyond this specific law: Does reassuring of the public, independent of the objective acts that cause the reassurance, increase social welfare? If so, then many laws impact social welfare in a way that is invisible to an analysis that focuses solely on objective effects.

In this article I will argue that legal actions<sup>10</sup> have, besides their objective effect and their psychic effect<sup>11</sup> a third, previously unrecognized form of impact on social welfare, which I call the placebo effect of a law. The placebo effect of a law manipulates individuals' expectations regarding a risk that the law addresses (for example, the ATSA caused

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<sup>7</sup> Bureau of Transportation Statistics, *BTS Releases August Airline Traffic Data; Eight Month Domestic Traffic Down (7.1) Percent from Pre-Sept. 11, 2001*, at Table 2, available online at: [http://www.bts.gov/press\\_releases/2003/bts027\\_03/html/bts027\\_03.html](http://www.bts.gov/press_releases/2003/bts027_03/html/bts027_03.html). Forecasts predict continued growth in air travel in the near future. See: CNN.Com, *Rebound in Air Travel Forecast* (July 29, 2005).

<sup>8</sup> See, e.g., Committee Hearing, U.S. House Homeland Security Committee, Economic Security, Infrastructure Protection, and Cybersecurity Subcommittee (June 29, 2005) ("We have a CAPPS I system that uses behavioral rules that, as the chairman said in his opening, are fairly well known outside of TSA and thus fairly ineffective and fairly easy to avoid. And we have a no-fly list watch matching system that, as Mr. Anderson's experience shows, is ineffective and catches the wrong people."); Carl Hulse, *Lawmakers Criticize Bush's Air Safety Efforts*, THE NEW YORK TIMES, P. A7 (August 9, 2003); Editorial, *TSA Has Lost Focus, Integrity*, THE DENVER POST, P. B7 (April 25, 2005) ("One report disclosed that screeners continue to miss knives, guns and other prohibited items in checkpoint undercover tests. While screeners are diligent, the report said, they are not better than they were before the Sept. 11 attacks."); Libby Spencer, *TSA in Trouble*, THE DETROIT NEWS, P. 11 (April 12, 2005) ("The Transportation Security Administration, gatekeeper of the airways, was the big deal right after September 11, but it appears the agency's days are numbered... Its performance in the airports has been annoying and often ineffective...).

<sup>9</sup> I use the ATSA as an example of a law with significant placebo effects, and take no position regarding its merit and effectiveness.

<sup>10</sup> For the sake of simplicity, I will use throughout the article the term "law" to refer to all types of legal actions – legislative, judicial, administrative and executive. I will refer to the implementation of the legal action as "enacting the law", and to the implementer as the "politician."

<sup>11</sup> I will explain below what a psychic effect of a law is, and how it differs from a placebo effect. *Infra*, Section II.1.

individuals to believe that the risk of airplane hijacking was reduced, and the effect of this belief was independent of the ATSA's actual effect on the same risk). Just as the medical placebo effect of a drug may induce healing that is independent of the objective effects of the drug,<sup>12</sup> so do legal placebo effects impact welfare independent of the objective effects of the law. To make the analogy more explicit: A law is analogous to medical treatment. The law impacts individuals subject to the law (the "patients"), correcting their biased perception of a risk<sup>13</sup> (the "illness") and causing it to converge with the objective risk.<sup>14</sup> Thus, like its medical counterpart, the law's effect on expectations (the "placebo effect of the treatment") results in a benefit that is distinct from the objective effect of the law in reducing the objective risk.

While the analogy to medicine is useful, medical placebo effects illustrate only the tip of the legal placebo effect iceberg. In the medical sphere, placebo effects are tested on medicine but not on poison. The expectation of the patient, if she has any expectation, is that the medicine/placebo will make her better. While the patient may instead believe that the medicine would not improve her condition, it is unlikely that she would believe that the medicine would worsen her condition. In contrast, laws may create either an expectation that they would reduce a risk that they purport to address, or that they would exacerbate it. Therefore, expectations are manipulated in a medical placebo effect in only one direction, between having no effect at all at one end, and fully curing the illness. On the other hand, legal placebo effects may manipulate expectations in both directions, either mitigating or exacerbating the risk that they purport to address. Thus, the world of

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<sup>12</sup> On the Placebo Effect in the field of medicine, see: Walter A. Brown, *The Placebo Effect*, SCIENTIFIC AMERICAN 90 (January 1998); *All in the Mind*, SCIENTIFIC AMERICAN 16 (October 2001); Margaret Talbot, *The Placebo Prescription*, THE NEW YORK TIMES (January 9, 2000); Steve Stewart-Williams, *The Placebo Puzzle: Putting Together the Pieces*, 23 HEALTH PSYCHOLOGY 198 (2004). Closely related to the placebo effect is the connection between religion and health. From a secular point of view, religious belief reduces subjective uncertainty (even if it does not affect objective uncertainty), not unlike a placebo. On the connection between religion and health see: R. P. Sloan, E. Bagiella and T. Powell, *Religion, Spirituality and Medicine*, 353 THE LANCET 664 (1999) (describing and critiquing polls, theoretical and empirical work that finds a positive connection between spirituality and health).

<sup>13</sup> I will explain, *infra* Section III, why individuals would likely have a biased perception of many risks.

<sup>14</sup> As I will explain below, legal placebo effects are more varied than medical placebo effects in their manipulation of expectations, and therefore not all placebo effects cause the perceived and objective biases to converge. In some cases the law would exacerbate preexisting biases and cause the perceived risk to diverge with the objective risk. These phenomena, which I categorize into two groups called negative placebo effects and negative anti-placebo effects, will be explained *infra*, Sections V.2 and V.3, respectively.

legal placebo effects is richer than that of medical placebo effects in the effects of its manipulation of expectations.

The concept of placebo effects is helpful in explaining how law operates. Many laws rely on their placebo effect as much as they do on their real effect, which impacts not only the content of the law, but also the speed in which it is enacted and the manner in which it is publicized. It is no wonder that the ATSA took only two months to enact – to succeed in reassuring the public that air travel was safe, the law had to take effect immediately. As explained below,<sup>15</sup> the type of placebo effect that resulted from the ATSA (a positive placebo effect) occurs when individuals over-estimate a risk. Over time, individuals may re-assess the probability of the risk (e.g., reduce the perceived probability when they do not hear of additional incidents). By enacting a law to address over-estimated risks, politicians may capture some of the credit for what individuals perceive as a reduction in the risk (but in effect is a process of de-biasing or learning). In effect, enacting the law is a form of arbitrage between subjective and objective risk, and politicians compete with the private sector (e.g., insurance companies) in executing this arbitrage. I will discuss this in greater detail later in this article.<sup>16</sup>

This article will focus on one aspect in which the concept of placebo effects improves legal scholarship: enhancing the accuracy of assessing a law's benefits. A significant portion of legal scholarship assesses the merits and demerits of laws. The discourse, though diverse in the positions it takes and the analytical tools used, looks almost exclusively at the objective results of implementing the laws: the benefits that would in fact result and the costs that would in fact be incurred. But, as I said above and will explain in more detail below, a legal analysis that considers only objective outcomes may significantly overstate or understate the benefits conferred by a law, because it ignores the placebo effect of the law: the effect on welfare of a reduction (or in some cases – an increase) in the perceived risk which the law purports to address.

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<sup>15</sup> *Infra*, Section II.1.

<sup>16</sup> *Infra*, Section IV.2.

The placebo effect impacts social welfare by causing a convergence or a divergence between an objective risk and the perceived level of the same risk. As I will explain below,<sup>17</sup> research on cognitive biases has documented that the human mind is susceptible to certain patterns of misperception.<sup>18</sup> Specifically, the perception of risk is affected by the vividness of the risk,<sup>19</sup> the extent to which one can recall instances in which she saw or was told of the risk,<sup>20</sup> and the degree to which the risk concerns other people with whom one interacts.<sup>21</sup> As a result of these biases, most people consistently over-estimate certain risks and under-estimate others.

When an individual over-estimates a risk that she cannot eliminate, she modifies her behavior to avoid the risk. Such behavior is desirable when a risk is correctly perceived, but leads to excessive avoidance of desirable activity when the risk is over-estimated. In economic jargon, this over-estimation of risk creates a dead-weight loss.<sup>22</sup> A law that reduces the discrepancy between the perceived risk and actual risk – by assuring an individual who over-estimates a risk that the risk will be mitigated – reduces this excessive avoidance and in that way increases the individual’s utility beyond the objective effect that it has on the individual.

In saying that laws have a placebo effect, I am not claiming that they are pure placebos. The placebo effect of a law complements, rather than substitutes, its objective effect. In fact, one would expect that very few laws would be pure placebos, because there is likely to be some correlation between the actual effect of a law and its perceived effect: the more effective a law is, the more likely it is to be perceived as effective. It would be a mistake, however, to look at the objective effectiveness of a law as its only contribution.

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<sup>17</sup> *Infra*, Section III.

<sup>18</sup> See, e.g., Amos Tversky & Daniel Kahneman, *Judgement Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124 (1974); Cass R. Sunstein, *The Laws of Fear*, 115 HARV. L. REV. 1119 (2002).

<sup>19</sup> This is known as the vividness bias. See: Harry S. Gerla, *The “Reasonableness” Standard in the Law of Negligence: Can Abstract Values Receive Their Due?*, 15 U. DAYTON L. REV. 199, 210 (1990).

<sup>20</sup> This is known as the availability bias. See: Tversky & Kahneman, *supra* note 18, at 1127 (The availability bias causes people to “assess the frequency of a class or the probability of an event by the ease with which instances or occurrence can be brought to mind.”).

<sup>21</sup> This is known as social amplification. See: Sunstein, *supra* note 18, at 1130-1137.

<sup>22</sup> See, e.g., Oliver Williamson, *Economics as an Antitrust Defense, The Welfare Tradeoffs*, 58 AM. ECON. REV. 18, 21-23 and n. 4 (1968); Herbert Hovenkamp, *FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE* 19-20 (3<sup>rd</sup> ed., 2005).

If the public over-estimates a risk, then it might (unnecessarily) avoid that risk even if the law had eliminated the risk. The placebo effect of the law would assure the public that the risk has been eliminated (or at least reduced), further increasing social welfare.

Placebo effects are not uniform. This article distinguishes between four categories of placebo effects:<sup>23</sup> (1) Positive placebo effects, which occur when individuals over-estimate a risk prior to the implementation of the law, and perceive the law as mitigating that risk; (2) Negative placebo effects, which occur when individuals under-estimate a risk prior to the implementation of the law, and perceive the law as mitigating that risk; (3) Positive anti-placebo effects, which occur when individuals under-estimate the risk and perceive the law as increasing that risk; and (4) Negative anti-placebo effects, which occur when individuals over-estimate the risk and perceive the law as increasing that risk.

This article contributes to the accuracy of evaluations of laws by bringing attention to laws' placebo effects and suggesting a method to assess the direction of their impact (increasing or decreasing utility) and its magnitude. In Section II, I will explain what placebo effects are and how they are distinguishable from "real" psychological effects of a law (such as a sense of pleasure from the symbolic government endorsement of a norm, or from retribution against norm violators).

Placebo effects enhance social welfare when they reduce the divergence between an actual (objective) risk and a perceived (subjective) risk. In Section III, I will rely on the literature on cognitive biases to explain why objective and subjective risks diverge in the first place. In Section IV I will assess the effect of placebo effects on utility, and discuss how placebo effects should be incorporated into an analysis of a law's effectiveness, in order to make such analysis more accurate.

Section V will distinguish between, and illustrate, the four categories of placebo effects mentioned above. Section VI will illustrate the application the concept of placebo effects

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<sup>23</sup> A graph demonstrating the distinction between the four types of placebo effects is presented below, at Section V. That section also discusses the four placebo effect types in greater depth.

to the evaluation of measures addressing corporate misconduct.<sup>24</sup> I will conclude in Section VII.

## II. The Invisible Subjective Effect of Law

Legal scholarship varies widely in its methodology, style and subject, so much so that one scholar avoided any categorical definition and stated that “[l]egal scholarship is what legal scholars do”.<sup>25</sup> The bulk of legal scholarship, however, is dedicated to an analysis and evaluation of past, present or proposed laws - legislation,<sup>26</sup> judicial decisions,<sup>27</sup> administrative rules and adjudication<sup>28</sup> and executive actions.<sup>29</sup>

Some scholars employ a deontic analysis,<sup>30</sup> which denies that right action is exclusively a function of consequences.<sup>31</sup> However, most legal scholarship employs variations of consequential analysis, under which the outcomes of the law (the net benefits of its implementation) are compared to those of alternatives. Sometimes this analysis takes the

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<sup>24</sup> I suggested this application in: Amitai Aviram, *In Defense of Imperfect Compliance Programs*, 32 FLA. ST. U. L. REV. 397 (2005).

<sup>25</sup> Arthur A. Leff, *Afterword*, 90 YALE L.J. 1296, 1296 (1981).

<sup>26</sup> See, e.g., Orin S. Kerr, *Internet Surveillance Law After The USA PATRIOT Act: The Big Brother That Isn't*, 97 NW. U. L. REV. 607 (2003); Thomas D. Morgan, *Sarbanes-Oxley: A Complication, Not a Contribution*, *In The Effort To Improve Corporate Lawyers' Professional Conduct*, 17 GEO. J. LEGAL ETHICS 1 (2003).

<sup>27</sup> See, e.g., George S. Geis, *Empirically Assessing Hadley v. Baxendale*, 32 FLA. ST. U. L. REV. (forthcoming 2005); Nicholas L. Georgakopoulos, *Meinhard v. Salmon and the Economics of Honor*, 1999 COLUM. BUS. L. REV. 137 (1999); Lynn A. Stout, *In Praise of Procedure: An Economic and Behavioral Defense of Smith v. Van Gorkom and the Business Judgment Rule*, 96 NW. U. L. REV. 675 (2002).

<sup>28</sup> See, e.g., Stuart Minor Benjamin, *Evaluating the Federal Communications Commission's National Television Ownership Cap: What's Bad For Broadcasting is Good For the Country*, 46 WM. & MARY L. REV. 439 (2004); Thomas Lee Hazen, *Administrative Law Controls on Attorney Practice – A Look at the Securities and Exchange Commission's Lawyer Conduct Rules*, 55 ADMIN. L. REV. 323 (2003).

<sup>29</sup> See, e.g., Robert W. Hahn & Cass R. Sunstein, *A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit Analysis*, 150 U. PA. L. REV. 1489 (2002).

<sup>30</sup> See, e.g., Charles Fried, *CONTRACT AS PROMISE: A THEORY OF CONTRACTUAL OBLIGATION* (Harvard University Press, 1981) (a Kantian analysis of contract law); Ernest J. Weinrib, *THE IDEA OF PRIVATE LAW* (Harvard University Press, 1995) (a Kantian analysis of tort law). For an argument that deontic and consequential analyses are not mutually exclusive, see: Jody S. Kraus, *The Unity of Deontic and Economic Theories of Contract Law* (unpublished manuscript, March 24, 2005, on file with the author).

<sup>31</sup> See, e.g., Jody S. Kraus, *Philosophy of Contract Law* 687, 693, in *THE OXFORD HANDBOOK OF JURISPRUDENCE & PHILOSOPHY OF LAW* (Jules Coleman & Scott Shapiro, eds., 2002): “[D]eontic theory treats doctrinal justifications offered by judges as constitutive elements of the law. Outcomes serve as constraints on plausible interpretations of these doctrinal statements, but do not in themselves have independent legal significance.”

form of an explicit (and occasionally, quantified) cost-benefit analysis.<sup>32</sup> Other times, the assessment of costs and benefits is implicit.

## **1. Real, Psychic and Placebo Effects of a Law**

The accuracy of any consequential analysis, explicit or implicit, is highly dependent on the inclusion of all relevant consequences. Nearly all consequential analysis in legal scholarship focuses on “real” effects of the analyzed law – the impact on behavior prompted by objective changes the law causes to incentives or payoffs.<sup>33</sup> For example, when assessing the suitability of the Sarbanes-Oxley Act,<sup>34</sup> scholars debate the extent to which the Act will succeed in curbing the harm against which it was enacted – corporate misconduct, by increasing the probability of detecting and the severity of punishing such misconduct.

Some scholars also take into account ‘psychic’ effects – the benefit (or harm) that individuals reap from their satisfaction (or dissatisfaction) with the expected outcome of the law.<sup>35</sup> For example, individuals may experience psychic effects from learning of the enactment of the Sarbanes-Oxley Act, because they are happy that unethical managers will get their just deserts. Psychic effects derived from a law are distinct from,<sup>36</sup> though related to,<sup>37</sup> the “real” effect of that law.

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<sup>32</sup> See, e.g., Darryl K. Brown, *Cost-Benefit Analysis in Criminal Law*, 92 CAL. L. REV. 323 (2004); Kevin E. Davis, *Promissory Fraud: A Cost-Benefit Analysis*, 2004 WIS. L. REV. 535 (2004). Also see Michael Abramowicz, *Information Markets, Administrative Decisionmaking, and Predictive Cost-Benefit Analysis*, 71 U. CHI. L. REV. 933 (2004) (suggesting a method of policy evaluation that combines cost-benefit analysis with information markets).

<sup>33</sup> See, e.g., Michael Abramowicz, *An Industrial Organization Approach to Copyright Law*, 46 WM. & MARY L. REV. 33 (2004); Ian Ayres & Paul M. Goldbart, *Optimal Delegation and Decoupling in the Design of Liability Rules*, 100 MICH. L. REV. 1 (2001).

<sup>34</sup> Pub. L. No. 107-204, 116 Stat. 745 (2002).

<sup>35</sup> See, e.g., Donald J. Boudreaux, Roger E. Meiners & Todd J. Zywicki, *Talk is Cheap: The Existence Value Fallacy*, 29 ENVTL. L. 765, 768 (1999); Daniel N. Shaviro, *Psychic Income Revisited: Response to Professors Johnson and Dodge*, 45 TAX L. REV. 707, 710-712 (1990); Amy L. Wax, *Expressive Law and Oppressive Norms: A Comment on Richard McAdams’s “A Focal Point Theory of Expressive Law”*, 86 VA. L. REV. 1731, 1739 note 9 (2000).

<sup>36</sup> Psychic utility and “real” utility are distinct because individuals may fail to derive psychic utility (despite the law’s effectiveness) if they are unaware of either the law’s effectiveness or of the harm that is caused by the misconduct that the law attempts to prevent. Likewise, individuals may derive psychic utility even though the law is ineffective, if they are under a false impression that the law is effective. In some cases

Scholars to date have failed to recognize a third effect that laws frequently have, which I call the placebo effect of the law. Placebo effects are a hybrid which has objective effects on behavior that are driven by a law's manipulation of the (subjective) perceived risk. Thus, like psychic effects, placebo effects are caused by a law's manipulation of subjective perception. But, like real effects and unlike psychic effects, placebo effects have an objective impact on the behavior of individuals – an increase or decrease in activity related to the risk that is addressed by the law. It is this objective impact that causes the placebo effect to increase or decrease utility, but unlike real effects of a law, the placebo effect is triggered by the law's perceived (not actual) effectiveness.

## **2. Pessimism, Optimism and Efficient Risk Avoidance**

To illustrate the placebo effect, I return to the example of the Sarbanes-Oxley Act. The Act intends to prevent corporate misconduct, which may harm investors<sup>38</sup> and employees.<sup>39</sup> Suppose that there is a 5% probability that any given U.S. company would commit corporate fraud that would eliminate a substantial portion of its shareholders'

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individuals may derive psychic utility or disutility from the symbolic value of a law even if they know that it will not be effective or even enforced. For example, a colonial Massachusetts law enacted in 1675 prohibits Native Americans from entering the city of Boston. See *Menino Seeks to Repeal 1675 Law Against Native Americans – Symbolic Act Seen as Step Forward*, THE BOSTON GLOBE, Dec. 25, 2004, P. B4. People may take offense of the existence of such law (i.e., derive negative psychic utility) even though it has not been enforced for centuries and is unconstitutional and therefore unenforceable.

<sup>37</sup> Psychic utility and “real” utility are related because psychic utility from a law often increases with the perceived effectiveness of the law.

<sup>38</sup> For example, facing an unexpected decline in business, a CEO causes his corporation's reported financial statistics to be manipulated so as to meet analysts' expectations. See *Indictment, U.S. v. Bernard J. Ebbers*, 2004 WL 1263386 (S.D.N.Y., 2004). Ebbers was convicted on all counts on March 15, 2005. These events led to several class actions suits by investors. See *California Public Employees' Retirement System v. WorldCom, Inc.*, 368 F.3d 86 (2<sup>nd</sup> Cir. 2004).

<sup>39</sup> Employees may be harmed by corporate misconduct indirectly, either because of losing their job due to the corporations failure following corporate misconduct, or in their role as investors in their company, for example by having their retirement plan invest in their employer's stock. See *In re WorldCom, Inc. ERISA Litigation*, 354 F.Supp.2d 423 (S.D.N.Y. 2005) (Plaintiffs were Worldcom employees and discovered that their 401(k) plan invested in Worldcom stock). Employees may also be harmed by corporate misconduct directly in their capacity as employees, for example due to workplace discrimination. See, e.g., *Williams v. ConAgra Poultry Co.*, 378 F.3d 790 (8<sup>th</sup> Cir 2004) (employee alleges that employer subjected him to a hostile work environment and terminated his employment based on his race).

investment.<sup>40</sup> Knowing this, investors are less likely to purchase shares, and are more likely either to invest elsewhere (e.g., in treasury bonds) or to consume their wealth rather than invest it. Some investors may not be deterred from investing in a company because of a 5% probability of fraud, especially if their opportunity costs are low (e.g., this investment looks much more attractive than the next best alternative). But on the margin, investors will decide that the risk of fraud makes other uses of their wealth more attractive and will therefore refrain from investing in U.S. companies. Naturally, the number of people who would refrain from investing in U.S. companies will increase as the perceived risk of fraud increases.<sup>41</sup>

This pattern of avoiding activities that expose an individual to a risk that cannot be mitigated is analogous to economic analysis of strict liability in tort law.<sup>42</sup> In effect, an injured party is “strictly liable” for injuries inflicted on it that cannot or are not prohibited by public and private legal systems, in the sense that the risk of injury would cause the injured party to both take the optimal degree of care to avoid injury, but where care is insufficient to avoid injury, to reduce their activities that run the risk of this type of injury.

A related response of individuals to risk is expending efforts to mitigate the risk. If individuals do not expect others (such as government) to address a risk that concerns them, they may decide to take action themselves to remove the risk or its causes. Whether they choose to eliminate the risk or not depends on the cost of taking such action, the cost of activity avoidance (which is the other option individuals have to cope with the risk) and the perceived threat from the risk. Activity avoidance and efforts to

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<sup>40</sup> The 5% probability was chosen arbitrarily, and does not purport to suggest the actual probability of corporate misconduct.

<sup>41</sup> Theoretically, law could prevent this activity avoidance by eliminating the risk involved in the activity. For example, if fraud can be prevented by the legal system, investors need not react to this risk because the threat of legal sanction would discipline the companies. However, the legal system is imperfect and companies may find that they can commit fraud in a way that cannot be detected or proven in court. If a certain probability of fraud is inevitable (in the sense that no cost-effective law enforcement can reduce fraud below that probability), then some reduction in investment is both the likely and the efficient response to the risk of fraud. Furthermore, even if law succeeds in eliminating fraud, individuals will avoid some investment opportunities if they do not know or do not believe that there is no risk of fraud.

<sup>42</sup> See Richard A. Posner, *ECONOMIC ANALYSIS OF LAW* 192-197 (5<sup>th</sup> ed., 1998) (addressing strict liability in tort law).

mitigate risks are both affected by placebo effects in the same manner. In the interest of brevity I will use the term ‘activity avoidance’ to refer to both coping strategies.

It is the perceived risk of fraud, rather than the actual risk, that determines the extent of activity avoidance. A law such as Sarbanes-Oxley may affect the actual risk of corporate misconduct through manipulating the incentives and payoffs of misconduct, but it also affects the expected probability of misconduct. If the public perceives this law as reducing the likelihood of corporate misconduct to, say, 1%, they will (again, on the margin) increase their investment in U.S. companies compared to their investment prior to the law’s enactment.<sup>43</sup>

This increase in activity affects social welfare, but more information is necessary to determine the magnitude of the effect and even its direction (i.e., whether the placebo effect increases or decreases social welfare). If the perceived risk is exaggerated (i.e., the risk is perceived to more likely occur than it actually is), then individuals’ avoidance of the risk will be excessive, and will result in a dead weight loss not unlike the one caused by a monopoly.<sup>44</sup> This dead weight loss may be mitigated by the placebo effect, if the placebo effect reduces the perceived risk so as to more accurately approximate the actual risk. This reduction of dead weight loss is a welfare increase caused by the placebo effect.

Optimism, however, does not always enhance social welfare. If a risk (such as corporate misconduct) exists and cannot be mitigated in a cost-effective manner, it may be efficient

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<sup>43</sup> Conversely, if the public believes that the law will somehow increase the likelihood of corporate misconduct to, say, 10% (perhaps because they perceived the law as ineffective or having loopholes that exculpate formerly suspect practices), then they will reduce further their investment in U.S. companies.

<sup>44</sup> See, e.g., Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807, 807 (1975) (“When market price rises above the competitive level, consumers who continue to purchase the seller’s product at the new, higher price suffer a loss... exactly offset by the additional revenue that the sellers obtain at the higher price. Those who stop buying the product suffer a loss... not offset by any gain to the sellers. [The latter] is the “deadweight loss” from supracompetitive pricing and in traditional analysis its only social cost, [the former] being regarded merely as a transfer from consumers to producers.”). Risk involved in an activity is a cost of that activity, and therefore an artificial increase in perceived risk has analogous effects to a monopolist’s increase of a product’s price.

to avoid activities that expose individuals to that risk.<sup>45</sup> In such situations, increasing individuals' risk by causing excessive optimism regarding the risk (e.g., by causing individuals to believe that the Sarbanes-Oxley Act would reduce corporate misconduct) would cause them to excessively engage in activities that subject them to the risk.

### ***3. Placebo Effects Occur Only if Objective and Subjective Risks Diverge***

If perceived probabilities never diverged from actual risks, placebo effects would not exist. A law that would reduce an actual probability of a risk (a “real” effect), will reduce individuals' perceived probability of the same risk (a placebo effect). Since the perceived probability of the risk is identical to the actual probability both before and after the enactment of the law, individuals will avoid the risk at an optimal level both before and after the enactment.

But, as I will explain in the next section, this would be an unrealistic assumption. Perceived probabilities diverge from actual probabilities ubiquitously. Not only do objective and subjective probabilities diverge, but they follow certain patterns in doing so. In other words, one can predict when most individuals would over-estimate a given probability and when they would under-estimate a probability. I will describe these patterns in the following section.

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<sup>45</sup> Whether it would be efficient to avoid an activity depends on the benefit from the activity, the harm that may result, and the probability of the harm occurring. For example, if investing in a company has an expected return of \$10 and an expected loss of \$100 if the company's officers defraud investors, then it would be efficient to avoid the investment if the risk of fraud is over 10%, and inefficient to avoid the investment if the risk of fraud is below 10% (assuming either: (1) that this investment does not limit the ability to also invest in other ventures; or (2) that other investments do not offer better returns after factoring in their risk).

### **III. Cognitive Biases: Divergence between Objective and Subjective Probabilities**

#### ***1. The Effect of Risk Divergence on Activity Avoidance***

Laws attempt to modify incentives and payoffs in order to reduce the actual (objective) likelihood of harmful behavior (risks). But reducing the objective probability of a risk – and even eliminating the risk altogether – does not always bring social welfare to the same level it would be at if the risk never existed. Because individuals' activity is based on their perceived risk rather than on the actual risk involved in it, a discrepancy between the perceived and actual probabilities of risk reduces social welfare by leading to either excessive or insufficient avoidance of activities that expose individuals to the perceived risk.

To illustrate welfare loss due to excessive avoidance, suppose that following a wave of terrorist attacks, the risk of a suicide bombing at a given mall is 0.000001% (one in a million). Given the low probability, it may be efficient for some individuals to slightly reduce their visits to the mall, but few would find it sensible completely avoid going there – the risk of death in a car accident on the way to the mall may be higher! However, assume also that following the wave of attacks the public perceives the same risk (of a suicide bombing at their local mall) to be 10%.<sup>46</sup> This would cause all but a few patrons to avoid the mall entirely, and the brave (or foolhardy, or desperate) patrons that will go to the mall may find the mall closed because most employees would refuse to show up believing that there is a one-in-ten probability of a suicide bombing at their workplace.

This outcome is sub-optimal – many people would have gone to the mall and enjoyed themselves had they properly perceived the risk. Thus, a placebo effect that assures the

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<sup>46</sup> The probability figures are arbitrary. Later in this Section I will explain why the likelihood of events such as terrorist attacks is prone to over-estimation.

public of a law's ability to mitigate a risk may increase social welfare if prior to enacting the law the public over-estimated the risk.<sup>47</sup>

Now, to illustrate welfare loss due to insufficient avoidance, suppose that in an AIDS-plagued nation, the probability of contracting HIV from unprotected intercourse is 10%.<sup>48</sup> Under these circumstances, it would be efficient to undertake significant precautions to reduce this risk, and if those precautions are unavailable or unacceptable to the individual, then it would be efficient to avoid intercourse altogether. Assume, however, that the public perceives the probability of contracting HIV from unprotected intercourse as 0.000001% (one-in-a-million, a proxy for what is perceived to be a negligible risk).<sup>49</sup> Since individuals act on the probabilities they perceive rather than the (unknown) actual probabilities, a few people may take precautions or abstain, but for the most part behavior would be similar to that in a world without AIDS. The result is deadly: over-optimism about the risk of infection may lead to rampant spread of the disease and death.

## **2. Cognitive Biases and Risk Divergence**

The placebo effect of law mitigates the discrepancy between actual and perceived probabilities and thus captures some of the social welfare lost because of this discrepancy. But why do actual and perceived probabilities diverge?

This is hardly a surprise if one adopts a static view: a tossed coin has a 50% chance of landing on "heads". If I throw the coin only once and it lands on "tails", I may be under the impression that tossed coins always lands on "tails". Of course, none of us have this intuition, because we have seen coins tossed more than once. Human beings have the capacity to learn from experience, so that wrong assessments of probability (e.g., coins

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<sup>47</sup> I will discuss in more detail below, *infra* Section IV, the conditions required for a placebo effect to increase welfare.

<sup>48</sup> Again, the figures for actual and perceived risk are arbitrary and used for illustration purposes only.

<sup>49</sup> Perhaps the low perceived probability is due to an under-estimation of the number of people infected or of the likelihood of infection. Later in this Section I will explain when biases cause individuals to under-estimate risks.

fall on tails 100% of the time) are gradually corrected as we observe more coins being tossed.<sup>50</sup>

Some events are infrequent and do not allow observers the opportunity to hone their assessment of probabilities. Often the outcome of an event is affected by a complex interaction of circumstances, and observers are at a loss as to which of the circumstances caused the outcome. In both of those cases the perceived probability of a risk has little correlation with the actual probability. However, in both cases the perceived probability has a random quality to it; it may be higher or lower than the actual probability, by a large margin or a small one. If we do not know whether the perceived probability is higher than the actual probability or lower, we cannot know if the placebo effect of a law corrects this discrepancy (and thus increases social welfare) or exacerbates the discrepancy. Had perceived probability diverged from actual probability in a random fashion, placebo effects would exist but their use in assessing the benefits of laws would be very limited.

Fortunately, perceived probabilities diverge from actual probabilities in a more predictable fashion. As Amos Tversky & Daniel Kahneman observed, people adopt heuristics – mental shortcuts – to respond quickly to complex situations. Heuristics are important, because in many circumstances a response would be untimely if it were suspended until a full analysis of the situation took place. But heuristics are imperfect, and their failures tend to follow certain patterns. Tversky, Kahneman and scholars who followed their footsteps have documented cognitive biases: patterns in which heuristics fail.

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<sup>50</sup> See, e.g., Venkatesh Bala & Sanjeev Goyal, *Learning from Neighbours*, 65 REV. ECON. STUD. 595 (1998) (developing a model of social learning and demonstrating that the ability to learn from other's experience leads to conformity); Scott R. Herriott, Daniel Levinthal & James G. March, *Learning from Experience in Organizations*, 75 AM. ECON. REV. 298 (1985) (presenting a model of incremental experimental learning by firms); Donald Wittman, Daniel Friedman, Stephanie Crevier & Aaron Braskin, *Learning Liability Rules*, 26 J. LEG. STUD. 145 (1997) (examining how individuals learn to adopt their behavior to different liability rules).

### **3. Criticism of the Cognitive Biases Literature**

Not all scholars agree that heuristics are biases; that is, that they are irrational or inefficient methods of processing information. Some, such as Charles Yablon, argue that in many circumstances in which information is incomplete there is no “correct” way of assessing objective probabilities (or, at least, statistical analysis is not necessarily the “correct” way). Therefore, in these circumstances subjective assessment of probabilities and risk through heuristics is no less rational or efficient than a statistical analysis.<sup>51</sup> This article does not take a position as to the rationality of heuristics. As I describe below several documented heuristics, I will suggest rational justifications for their use. Placebo effects do not depend on the irrationality of heuristics: Even if heuristics rationally economize on analytical and informational resources, they make subjective perceptions more predictable and therefore allow us to predict situations in which a risk would be over- (or under-) estimated.

Another criticism of behavioral economics, voiced by Gregory Mitchell, questions whether biases documented in experiments can be generalized into predictive principles,<sup>52</sup> and points out that individuals are not all biased in the same way and magnitude.<sup>53</sup> This criticism poses a greater challenge than Yablon’s to the ability to predict placebo effects; if biases discussed in the literature are anecdotal and useless for predicting general behavior, then it would be difficult to assess whether people are likely to over- or under-estimate a given risk in given circumstances. Fortunately, I believe that Mitchell’s critique may be less applicable to placebo effects than to other applications of behavioral biases (such as a justification for paternalism). In this article I consider the impact of placebo effects on social welfare, which is an aggregate of the welfare of all individuals. The placebo effect on any single individual is of limited importance to the

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<sup>51</sup> Charles Yablon, *The Meaning of Probability Judgments: An Essay on the Use and Misuse of Behavioral Economics*, 2004 U. ILL. L. REV. 899 (2004).

<sup>52</sup> See, e.g., Gregory Mitchell, *Taking Behavioralism Too Seriously? The Unwarranted Pessimism of the New Behavioral Analysis of Law*, 43 WM. & MARY L. REV. 1907 (2002) (arguing that behavioral economics wrongly treats outcomes of experiments, that are generally true for the group as an aggregate, as generalized principles, that are presumed true of all individual members of the group).

<sup>53</sup> Gregory Mitchell, *Why Law and Economics’ Perfect Rationality Should Not Be Traded for Behavioral Law and Economics’ Equal Incompetence*, 91 GEO. L. J. 67 (2002).

overall social welfare, particularly when the aggregate is a very large group, as is often the case with the size of a group subject to a given law. Therefore, a predictor of the behavior of most of the group is almost as useful for my purposes as a predictor of the behavior of every individual member of the group.

#### **4. An Illustration of Common Biases**

Since cognitive biases are the cause of both a misperception of risks (that prompts the enactment of laws),<sup>54</sup> and a misperception of the law's impact on the risk (which causes the placebo effect), it is worthwhile to briefly illustrate a few of the biases that are commonly addressed in the literature and that frequently affect biased perceptions of laws and of the risks they address: availability bias, vividness bias, and social amplification.

##### **(a) The Availability Bias**

One heuristic that is extensively documented and discussed in the literature is the availability bias. The availability bias causes people to “assess the frequency of a class or the probability of an event by the ease with which instances or occurrence can be brought to mind.”<sup>55</sup> Events are more “available” (i.e., more easily brought to mind) when we encounter them ourselves or learn about them from others. Tversky & Kahneman demonstrated this bias in the following experiment:<sup>56</sup>

“Subjects were asked to estimate in relative terms the number of words in which the letter “r” appears as the first letter of the word versus the number of words in which the letter “r” is the third letter of the word. The subjects consistently judged that words containing the letter “r” as the initial letter outnumbered words containing the “r” as the tertiary letter. In

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<sup>54</sup> Of course, a biased perception of risk (e.g., a panic) is not the only cause for enacting laws. Other reasons, such as the influence of interest groups, better explain the enactment of some laws. However, laws that are prompted by a biased perception of risk are likely to be “marketed” by the politician differently than laws that are prompted by other causes, in order to optimize their placebo effect. For example, a politician will widely publicize a law she enacted to respond to a financial panic, but will try to keep discreet a law that gives tax benefits to a special interest group.

<sup>55</sup> Tversky & Kahneman, *supra* note 18, at 1127.

<sup>56</sup> Tversky & Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOLOGY 207, 212 (1973).

fact, words with "r" as the third letter are much more common than words in which "r" is the initial letter. The reason subjects continually made this mistake is that words which began with the letter "r" are much easier to recall than words which have "r" as the third letter."<sup>57</sup>

While the availability heuristic sometimes fails, it is not baseless. As mentioned above,<sup>58</sup> people learn from their observations (and from others' observations that were communicated to them). The more observations one has of the sun rising in the east, the more likely one is to predict that the sun is likely to rise in the east tomorrow. The same holds for risks – the more occasions one has witnessed or heard of crime in a given setting, the higher one is likely to estimate the probability of a crime taking place there.

The flaw in this pattern lies in failing to account for observations that are unavailable to us. Often there is a pattern to the information that we lack. The media, for example, is more likely to bring to our attention a dramatic and unusual event than a mundane one. If one person was a victim of violent crime on a given day while thousands of others had an uneventful day, the media is obviously likely to report the crime rather than the routine day others experienced. The result is that individuals experience their own (perhaps uneventful) day, but can also bring to mind the crime they learned of from the media. They cannot, however, bring to mind the numerous ordinary experiences of others, since they neither observed them nor heard of them from others. The result is that individuals may, due to availability bias, over-estimate the likelihood of crime taking place.

Availability bias may also cause the opposite effect – a pattern of under-estimating certain events. If a certain value or belief is sacred in a given society, people will probably be reluctant to share with others that they disagree with it or act contrary to it. Discussion of violating or disagreeing with such beliefs, in the media as well as in polite conversation, may be seen as inappropriate. Because individuals do not learn from others about this “non-conformist” behavior, they will be less able to bring instances of such

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<sup>57</sup> Gerla, *supra* note 19, at 210-11, describing Tversky & Kahneman, *id.*

<sup>58</sup> *Supra* note 50 and related text.

behavior to mind, and thus will likely underestimate the probability of such behavior taking place.<sup>59</sup>

## (b) The Vividness Bias

A related pattern of inaccurate heuristics has been called the vividness bias. The vividness bias causes individuals to “place more weight on concrete, emotionally interesting information than on more probative abstract data.”<sup>60</sup> An experiment performed by Borgida and Nisbett demonstrates this bias:<sup>61</sup>

“Psychology students at the University of Michigan were asked to select courses they wished to take in the psychology department. In one phase of the experiment students were given two sources of information. One source was the statistical summary of the comments of the entire population of students taking the course. The other source was the live comments of three students. Statistically, the impressions of the complete population are more likely to be accurate than the impressions of a possibly unrepresentative sample of three students. Nonetheless, the student subjects were much more influenced by the live testimony of three students than by the cold, but probably more accurate, aggregate data.”<sup>62</sup>

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<sup>59</sup> There are several explanations for people’s tendency to adopt views, norms and beliefs that are visible to them and common among their peers. Cognitive biases, such as the availability bias and social amplification (discussed *infra*, in this Section) describe the phenomenon but do not offer a rational explanation for it. Whether this phenomenon is a result of a rational process or not, some rational explanations have been suggested:

“Social norms are patterns of behavior that are widely adhered to by some group of individuals, at least in part because of social pressures to conform to that norm. In close-knit settings, this social pressure may take the form of ostracism or the loss of esteem for those who violate existing social norms, and increased esteem for those who enforce or abide by these norms (the ‘Richard McAdams theory’), or a desire to obtain the economic rewards that are conferred upon those who signal their suitability for cooperative exchanges by enforcing or abiding by existing norms (the ‘Eric Posner theory’). Alternatively, as I will argue... the social pressure engendering norm enforcement can be self-imposed: an individual may conform to a norm because her self esteem depends on her compliance with it.”

Lior Jacob Strahilevitz, *Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks*, 89 VA. L. REV. 505, 537 (2003). Cass Sunstein examines this pressure to conform, which he calls “reputational cascades” in connection with risk perception cascades. See Sunstein, *supra* note 18, at 1133-1135. I will address reputational cascades and their impact on placebo effects and on social welfare, *infra*, Section IV.

<sup>60</sup> Gerla, *supra* note 19, at 210, *citing* R. Nisbett & L. Ross, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT 55-61 (1980).

<sup>61</sup> Borgida & Nisbett, *The Differential Impact of Abstract vs. Concrete Information on Decisions*, 7 J. APPLIED SOC. PSYCHOLOGY 258, 261 (1977).

<sup>62</sup> Gerla, *supra* note 19, at 210, describing Borgida & Nisbett, *id.*

The vividness bias, too, may attempt to economize on decision making by focusing on data that an individual has a relative advantage in processing. Most people are more proficient in reading body language than mathematic formulae. Few people have the knowledge, time or data to evaluate the adequacy of the statistical analysis presented to them. Many people may feel more capable of evaluating intuitively and almost instantaneously the sound and demeanor of others who provide them with information. Also, people who are not in a position to verify subjective information that they receive may use as a proxy for the information's adequacy the similarity between them and the person providing the information. Using Borgida and Nisbett's experiment as an example, students may know that course preference is subjective – people who are similar to them would like similar courses, while people who are different may prefer other courses. Therefore, information from like-minded students is more accurate than aggregate information from the entire student body. Vivid evidence, such as live comments from students, allows an evaluation of each student's character to identify whether they and the test-subject are like-minded. Statistical evidence allows no such evaluation.

Thus, the vividness heuristic focuses attention away from abstract evidence that is difficult and time consuming to evaluate, to concrete evidence that most people have more experience evaluating (and may evaluate not only for accuracy of the content, but for the judgment of the information provider).<sup>63</sup> Despite this advantage, the vividness heuristic fails in many circumstances. First, it fails if the selection of vivid evidence is not representative of the population as a whole.<sup>64</sup> Second, it fails if people, institutions or organizations acquire expertise in manipulating the intuitions that the vividness heuristic relies on. Indeed, many politicians, actors, news reporters and others have developed proficiency in evoking empathy or a desired emotion in their audience. Movies usually

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<sup>63</sup> It would be interesting to examine whether individuals who are particularly proficient in abstract quantitative analysis (e.g., statisticians) are less prone to vividness bias (because of their relatively superior ability to evaluate non-vivid, abstract evidence). I am not aware of any experiment that examined this issue.

<sup>64</sup> E.g., if the three students who provided live comments in Borgida & Nisbett's experiment were not representative of the preferences of the test-subjects.

succeed in causing the viewers to feel the desired sense of sympathy, fear, love or hate.<sup>65</sup> As the movie “Wag the Dog”<sup>66</sup> caricaturizes, politicians persuade voters by manipulating vivid images (in that movie, fabricated personal stories of victims and heroes of a non-existent war) rather than by emphasizing abstract policies. The vividness heuristic becomes a vividness bias because the heuristic creates an incentive for people to specialize in manipulating the bias to their own ends. Since this vulnerability can be exploited, potential beneficiaries from the bias will ensure that it will be exploited.

### (c) Social Amplification

I will mention one other bias that has a significant effect in causing a divergence between objective and subjective probabilities – social amplification.<sup>67</sup> Social amplification is a heuristic by which an individual relies on others’ beliefs when the individual has little independent knowledge on the matter.<sup>68</sup> This causes people to perceive as more probable those risks that also concern others with which they interact. As a result:

“[H]ighly visible, dramatic events that capture media attention generate immense public concern that is disproportionate to the actual risk. According to both Slovic and Sunstein, the accident at Three Mile Island in 1979 is an example. Although no one was killed or even harmed by the accident, the event triggered strict regulations, cutbacks in the use of reactors worldwide, and enhanced opposition to nuclear power. By contrast, other risks are so familiar that “social attenuation of risk” takes place. Because a danger is taken for granted, the risk is systematically underestimated and insufficient measures are taken to prevent it. Relying on Slovic, Sunstein cites smoking, indoor radon, and driving without a seat belt as examples.”<sup>69</sup>

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<sup>65</sup> See, e.g., Ed S. Tan, EMOTION AND THE STRUCTURE OF NARRATIVE FILM: FILM AS AN EMOTION MACHINE (translation: Barbara Fasting, 1996) reviewed in Stephen Prince, *Book Review*, 51 *FILM Q.* 45 (1997) (“...a pragmatic contract exists between the makers and viewers of such films. Each is required to do something. The film-maker shapes form so as to cue emotion; the viewer comes prepared to invest sustained interest (in following the narrative and responding to the depicted events) in the finished product.”). For an example of the commercial use and effect of emotion-manipulation in TV programs, see: Marvin E. Goldberg & Gerald G. Gorn, *Happy and Sad TV Programs: How They Affect Reactions to Commercials*, 14 *J. CONSUMER RESEARCH* 387 (1987).

<sup>66</sup> WAG THE DOG (1997). Information on this movie is available at: <http://www.imdb.com/title/tt0120885/>.

<sup>67</sup> The literature on cognitive biases has identified other biases as well, but they are less pertinent in the context of placebo effects of laws.

<sup>68</sup> See Sunstein, *supra* note 18, at 1130.

<sup>69</sup> Rachel F. Moran, *Fear Unbound: A Reply to Professor Sunstein*, 42 *WASHBURN L.J.* 1, 3 (2002), describing Sunstein, *supra* note 18, and Paul Slovic, *THE PERCEPTION OF RISK* (2000).

Like other heuristics, social amplification economizes on information collection costs at the price of a reduction in the information's reliability, by mimicking the behavior of others in areas in which one has little independent information. Social amplification further economizes on information collection costs (but also further reduces the reliability of the information) by using the popular opinion as a proxy for the most informed opinion. The presumption that "fifty million Frenchmen can't be wrong,"<sup>70</sup> to the extent that it is driven by rational action rather than herd behavior,<sup>71</sup> assumes that an evolutionary process would weed out baseless concerns and therefore prevalent popular concerns are likely to be well-founded.

But like other heuristics, social amplification may frequently lead to a divergence between the perceived risk and the actual risk. Drawing from the literature on social cascades,<sup>72</sup> Cass Sunstein describes how social amplification leads to "risk perception cascades:"

"Ann is unsure whether global warming is a serious problem, but Bob, whom Ann trusts, believes that it is. Influenced by Bob's views, Ann concludes that global warming is indeed a serious problem. Carl is inclined, on his own, to discount the risk; but confronted with informational signals given by the shared views of Ann and Bob, Carl might well come to believe that global warming is indeed a serious problem. Deborah, a skeptic about global warming, would need a great deal of confidence in the correctness of her view to reject the shared belief of Ann, Bob, and Carl. The members of this little community will come to share the belief that global warming is a matter of considerable concern."<sup>73</sup>

The three biases I described above – the availability bias, vividness bias and social amplification – often occur at the same time and reinforce each other. A vivid risk is

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<sup>70</sup> This is a well-known but anonymous saying, dating back to World War I or before. It was the title of a song recorded by Sophie Tucker in 1927, and of a Cole Porter musical in 1929. See THE COLUMBIA WORLD BOOK OF QUOTATIONS (1996) 3653, available at: <http://www.bartleby.com/66/53/3653.html>.

<sup>71</sup> See, e.g., Abhijit V. Banerjee, *A Simple Model of Herd Behavior*, 107 Q.J. ECON. 797 (1992).

<sup>72</sup> See, e.g., Lisa R. Anderson & Charles A. Holt, *Information Cascades in the Laboratory*, 87 AM. ECON. REV. 847 (1997); Sushil Bikhchandani, David Hirshleifer & Ivo Welch, *Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades*, 12 J. ECON. PERSP. 151 (1998); Andrew F. Daughety & Jennifer F. Reinganum, *Stampede to Judgment: Persuasive Influence and Herding Behavior by Courts*, 1 AM. L. & ECON. REV. 158 (1999).

<sup>73</sup> Sunstein, *supra* note 18, at 1132.

more noticeable to an individual and is over-estimated due to the vividness bias, but it also makes an attractive issue for the media to report. The media report causes viewers to be able to recall another instance of this event, thus causing further over-estimation of the risk. But the media report also affects many people's biases at the same time, and as a result of social amplification, each individual further over-estimates the risks that she and her acquaintances already over-estimate due to the other two biases. As a result, for example, "[m]any perceived "epidemics" are in reality no such thing, but instead a product of media coverage of gripping, unrepresentative incidents."<sup>74</sup>

As mentioned above,<sup>75</sup> if perceived probabilities never diverged from actual risks, placebo effects would not exist. But, due to the combination of an availability bias, vividness bias and social amplification, the probability and magnitude of risks that are vivid and highly publicized is usually over-estimated. The over-estimation of risks leads to an excessive avoidance of activities that are related to the risk, and therefore creates a dead weight loss. If placebo effects succeed in de-biasing individuals,<sup>76</sup> reducing the discrepancy between the perceived and actual probability of a risk, they will mitigate the excessive avoidance of related activities and thus increase social welfare.<sup>77</sup>

Thus far we examined placebo effects from the perspective of an objective actor whose only goal is to maximize social welfare. In the remainder of the section we will turn our focus to the incentive structure and resulting behavior of the actors who enact laws – the politicians.

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<sup>74</sup> Cass R. Sunstein, *Hazardous Heuristics*, 70 U. CHI. L. REV. 751, 758-759.

<sup>75</sup> *Supra* Section II.

<sup>76</sup> On de-biasing see: Richard P. Larrick, *Debiasing*, in BLACKWELL HANDBOOK OF JUDGMENT AND DECISION MAKING (Derek J. Koehler & Nigel Harvey, eds., 2004).

<sup>77</sup> Even if placebo effects of a law increase social welfare, the law does not necessarily increase social welfare. For example, the real effects of the law may reduce social welfare. In addition, a law that causes a welfare-enhancing placebo effect may not increase net social welfare if it prevents the enactment of other laws which increase social welfare more than does the placebo effect.

## **5. Bias Arbitrage: The Role of Biases in the Creation of Law**

Cognitive biases do not impact laws randomly. The people who enact laws – politicians – shape both the issues that laws address and the manner in which laws are drafted and presented to the public in a manner that best harnesses these biases. It would be naïve to think that politicians are exclusively concerned with maximizing social welfare. Even a well-intentioned politician has to be responsive to the public’s concerns (ill-founded as such concerns may be) or she would not be elected to office and able to implement the policies that she believes would maximize social welfare.

Let’s re-examine our earlier example of the risk of a suicide bombing in a shopping mall, to illustrate the politician’s perspective in utilizing placebo effects. In that example, the probability of terrorists attacking a shopping mall is 0.000001% (one-in-a-million), but following news of a terrorist attack elsewhere, the public perceives the risk of a future attack as 10%. Assume that no action by the government can immediately prevent all future suicide bombings. Rather, the most effective solution would take five years to implement. The public may well adjust to living for five years with a risk of one-in-a-million of a suicide bombing. But very few people would be willing to live for five years with a 10% risk (in comparison, about 2% of American Soldiers serving in South Vietnam during the Vietnam war died during their service there,<sup>78</sup> and many would view a one-year tour of duty in South Vietnam during that war as a grave risk; our example suggests a perceived risk that is five times as great and persists five times as long). Thus, a politician who bluntly claims that her solution would take five years to implement is likely to lose an election to a rival who promises an alternative solution that would immediately reduce the risk of suicide bombings to a one-in-a-million probability. Since this is the objective probability of the risk, a law dealing with suicide bombings would not need to achieve any objective effects. It would only need to achieve a placebo effect that makes the public believe that the law reduced the probability of suicide bombings.

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<sup>78</sup> Vietnam Conflict – Casualty Summary, available online at: <http://web1.whs.osd.mil/mmid/CASUALTY/vietnam.pdf>.

The use of a placebo effect does not rule out implementing laws with objective effects. The politician could implement the five-year solution as part of the law, but would have to add measures to the law and focus its presentation on the creation of the placebo effect (i.e., assuring the public that portions of the law would have an immediate effect of reducing the risk of suicide bombings to a one-in-a-million probability). The probability of suicide bombings would then decrease further as the objective effects of the law (the five-year solution) realize.

Placebo effects are most visible (and most conveniently illustrated) in cases of widespread panics. However, they exist (albeit with a more subtle effect) almost ubiquitously, since cognitive biases cause misperceptions of risks among some segments of a politician's constituency and those biases create an opportunity for the politician who identified them to respond (with a law containing a placebo effect) and capture credit for mitigating the perceived risk to more closely approximate the actual risk. This is a form of bias arbitrage – just as currency traders cause the convergence of exchange rates by identifying divergences and transacting in a manner that diminishes the exchange rate divergence and profits them, so do politicians profit from identifying misperceived risks and transacting (enacting laws) in a way that causes perceived risks to converge with actual risks.<sup>79</sup>

A significant part of a politician's success depends on skillful bias arbitrage: first, in identifying risks that are over-estimated; and second, in manipulating biases in the presentation of enacted laws so that a law is perceived as reducing the risk to a greater extent than it actually does (if a politician only convinces the public that the law is as effective as it actually is, there will be no placebo effect<sup>80</sup> and the politician will lose credit that she could otherwise receive for mitigating the perceived risk further).

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<sup>79</sup> The risk arbitrage arena is not wholly public, or law-based. As I will discuss *infra*, in Section IV.2, politicians compete in bias arbitrage not only with private legal systems, but with private commercial entities (such as insurance companies).

<sup>80</sup> See *supra*, Section II.3.

Because politicians' success is significantly affected by their skill in bias arbitrage, they develop an intuition for identifying cognitive biases and manipulating them, even when they do not recognize the biases in their abstract form. In the previous section I discussed three prevalent biases, but they are by no means the only biases that affect the public's perception of a risk or of a law's effect on a risk. Some biases have opposite and offsetting effects. This does not prevent a politician from engaging in bias arbitrage. Ex ante (when choosing the risk that will be addressed in a law) the politician looks at the end result: after all the biases take effect, what risks are highly over-estimated?<sup>81</sup> Ex post (after enacting the law) the politician manipulates the biases that would be most useful to create the desired placebo effect, and avoid those biases that are unhelpful for the placebo effect's creation (e.g., utilizing media exposure to create social amplification, or describing the law in vivid and intuitive examples that would trigger the vividness bias – for example, facilitating a tax cut by sending checks to taxpayers, rather than discussing aggregate, non-tangible figures).

Thus, politicians engage in bias arbitrage by identifying risks that their constituents over-estimate and enacting laws that are presented in a way that creates a placebo effect. Politicians are not the only group that can capitalize on bias arbitrage. I will now address the role of two other groups that can act as bias arbitrageurs – experts and insurers – and explain why they are usually unable to preempt politicians and correct biases without the intervention of law's placebo effects.

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<sup>81</sup> The politician may not even always identify whether a risk is over-estimated; only that the public estimates a certain risk as significant. However, for a politician it is more attractive to deal with an over-estimated risk than with an equally high objective risk, because a placebo effect is more likely to be effective in the former case, while in the latter case excessive optimism from the law may quickly fade as individuals face the unmitigated objective risk, which the placebo effect did nothing to reduce.

## IV. Incorporating Placebo Effects into Legal Analysis

### 1. Reputational Cascades: Why Don't Experts Correct Risk Divergence?

Earlier I discussed risk perception cascades.<sup>82</sup> One may expect a risk perception cascade to be stopped by an intervention of an expert. If individuals rely on popular opinion as a proxy for informed opinion, then the opinion of an informed expert should be more persuasive than its purported proxy, the popular opinion. In terms of the earlier hypothetical about global warming, Deborah would not be swayed by the opinion shared by Ann, Bob and Carl if Ellen, a renowned scientist, assures her that global warming does not pose a danger. Sunstein presents another mechanism, however, that weakens the ability of experts to correct false risk perception cascades – reputational cascades:<sup>83</sup>

“Suppose, for example, that Alan and Betty would think ill of anyone who argued that global warming is not a problem. Charles, who is unsure what to think about global warming, might be unmoved privately by the views of Alan and Betty and might even consider them fanatical. But Charles might nonetheless be unwilling to incur the scorn of Alan and Betty, or to appear ignorant or indifferent to the welfare of future generations. If so, Charles might not express opposition to a proposal to take dramatic steps to halt global warming and might even agree publicly with Alan and Betty that such steps are necessary. If Dana is otherwise undecided, she might be extremely reluctant to oppose Alan, Betty, and Charles publicly. Mounting reputational pressure might well lead Ellen, Frank, George, Helen, and many more to join the bandwagon. Eventually the result would be to change law and policy, as citizens support massive social efforts and ask their representatives to respond.”<sup>84</sup>

Sunstein presents a couple of comments that demonstrate the constraints imposed on experts by reputational cascades. He quotes a medical researcher who questions the accuracy of many Lyme disease diagnoses: "Doctors can't say what they think anymore. If you quote me as saying these things, I'm as good as dead."<sup>85</sup> He also quotes a

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<sup>82</sup> *Supra*, Section III.

<sup>83</sup> Sunstein, *supra* note 18, at 1133-1135.

<sup>84</sup> *Id.*, at 1133.

<sup>85</sup> *Id.*, *id.*, quoting David Grann, *Stalking Dr. Steere*, N.Y. TIMES, July 17, 2001 (Magazine), at 56.

sociologist who suggests that if you raise doubts publicly about the health threats posed by mad-cow disease, "[y]ou get made to feel like a pedophile."<sup>86</sup>

From the perspective of discovering truth, a reputational cascade is clearly a negative phenomenon. It weakens the ability of experts to voice their views precisely at times in which individuals' views may be severely biased by risk perception cascades. In other words, it correlates biases in popular opinion and in expert opinion.

From the perspective of maximizing welfare, the effect of reputational cascades is more difficult to determine. On one hand, reputational cascades reduce welfare because they help maintain false beliefs that are caused by risk perception cascades and other biases. Thus, reputational cascades support risk perception cascades in creating a misallocation of policy-makers' attention and social resources, towards risks that are less severe but perceived (due to the cascades) as more severe. For example, if a risk perception cascade causes people to over-estimate the risk in global warming and under-estimate the risk from smoking, and reputational cascades cause experts to support this belief (or at least refrain from countering it), then the government is likely to spend its efforts and resources on programs that address global warming, at the expense of programs that address smoking.

Furthermore, reputational cascades may sway policy makers away from implementing policies that are better able to mitigate the risk, or sway them to refrain from implementing policies that best mitigate the risk. For example, an information cascade may cause the public to support an ineffective but persuasive policy for global warming, and the reputational cascade may prevent experts from speaking against this policy.

But reputational cascades also have a positive effect on welfare: they preserve the placebo effects of laws enacted in response to the over-estimation of risk resulting from the risk perception cascade. For example, suppose that a risk perception cascade causes

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<sup>86</sup> *Id.*, at 1133-1134, quoting Andrew Higgins, *It's a Mad, Mad, Mad-Cow World*, WALL ST. J., Mar. 12, 2001, at A13.

people to grossly over-estimate the magnitude and immediacy of global warming. People will move away from warm areas (perceived to soon become too warm to inhabit) and from coastal areas (perceived to be flooded by oceans swelling with water from melting icecaps). The abandonment of productive land that results from over-perceiving the risk is a dead weight loss that reduces social welfare. Government is likely to respond to this concern, partially motivated by a desire to increase social welfare by eliminating this dead weight loss, and partially motivated by a desire to win votes by being seen as responsive to voters' concerns. There is no feasible immediate solution to global warming; the causes of global warming can be addressed immediately, but the trend would take years to reverse.<sup>87</sup> If government implements a long-term solution (and informs the public that results will only be seen in the far future), while the public (wrongly) anticipates immediate harm from global warming, dead-weight loss will persist until the program begins to show its effect. Furthermore, the public may view the government as non-responsive to the immediate impact of global warming, and vote it out of power.

To mitigate the dead-weight loss in the interim and to remain in office, government might implement a highly publicized program that promises (falsely) to bring about more immediate effects. Because the public over-estimates the short-term impact of the global warming, even a program that is a pure placebo (i.e., that has no "real" effects) would seem effective. The assured public would reduce dead weight loss by continuing to use coastal land, and will allow the incumbent politicians to remain in office and implement the long-term solution to global warming.<sup>88</sup>

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<sup>87</sup> Chiara Giorgetti, *From Rio to Kyoto: A Study of the Involvement of Non-Governmental Organizations in the Negotiations on Climate Change*, 7 N.Y.U. ENVTL. L.J. 201, 204 (1999) ("To control the consequences of climate change, the climate system requires the adoption of long-term solutions."); Rudy Perkins, *Electricity Deregulation, Environmental Externalities and the Limitations of Price*, 39 B.C. L. REV. 993, 1038 (1998) ("Where the costs of an electricity option are not fully manifest for scores of years, or even centuries-as may be the case with the global warming impacts of CO<sub>2</sub> emissions-the inherent near-sightedness of individual consumer choices based on price may be even more problematic.").

<sup>88</sup> There is a separate question of whether the politicians would implement a long-term solution at all (and whether voters would want them to do so) if its effects will only be seen in the distant future. See Ross Sandler & David Schoenbrod, *DEMOCRACY BY DECREE: WHAT HAPPENS WHEN COURTS RUN GOVERNMENT* 171 ("Politicians are regularly tempted to sacrifice the long-term public interest for their own short-run private political gain"); Mark Tushnet, *"Sir, Yes, Sir!": The Courts, Congress, and Structural Injunctions*, 20 CONST. COMMENT. 189, 193-194 (2003) ("[V]oters no less than politicians overlook long-

Besides risks that have only long-term solutions but raise (false) short-term concerns, there are two other situations in which placebos may be particularly useful. The first situation occurs when it is not cost-effective to mitigate a risk, but the public overperceives the risk and therefore wants government to take costly actions to mitigate the (exaggerated) risk. From an objective perspective, it is best to take no action against the risk, but should government do that, the public would vote the incumbents out of office, and would avoid activities that expose it to the risk, creating a dead weight loss. A placebo may placate the public's concerns and prevent the dead weight loss, while costing less than a program that would wastefully reduce the objective risk.

The second situation occurs when the risk in question is exacerbated by the public's reaction, creating a negative feedback loop in which the public's exaggerated concerns increase the severity of the risk, which in turn increases further the public's concerns. Economic recession is as an example of such a risk. People who anticipate a recession may increase their savings to buffer a potential loss of employment. If the perceived risk of recession is exaggerated, the excessive savings would result in an excessive reduction in consumption, which would reduce demand for firms' products, which in turn may require them to downsize. The resulting lay offs may further exacerbate individuals' concern with the recession, resulting in even more saving and less consumption, which could require another round of downsizing, and so forth. In this case, a law that has the effect of persuading people that the recession will soon end (or will never materialize) may stop the cycle of negative feedback, even if it does not have any "real" effects (i.e., even if it does not affect whatever causes are seen to have led to the recession).<sup>89</sup>

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term costs in pursuit of apparent short-run benefits... This suggests that politicians who pursue short-run goals while disregarding long-run costs may well be faithful servants of a shortsighted public.").

But this problem exists whether or not a placebo short-term program is implemented. If the politicians lack an incentive to implement long-term solutions, then they will not do so whether or not a placebo is also implemented. If politicians have an incentive to implement long-term solutions, they would likely only be able to do so if they stay in office long enough. A placebo would help them stay in office and therefore have the ability to implement a long-term plan.

<sup>89</sup> Laws that apply to this category of situations (in which the risk is objectively exacerbated by an increase in the perceived risk) seem to contain a greater portion of placebo effects in relation to "real" effects, and are sometimes pure placebos. For example, the effect of a monetary policy is primarily a placebo effect. An expansive monetary policy (reducing the interest rate) increases economic development because people

How are these placebo effects related to reputational cascades? If not for reputational cascades, experts would have a strong incentive to disabuse the public of overly optimistic expectations from a law.<sup>90</sup> This is always good if one's goal is to maximize knowledge. It may also be good if one's goal is to maximize welfare, if prior to enacting the law the perceived probability of a risk was no higher than the actual risk. But if the perceived probability of a risk was higher than the actual risk (i.e., the public is overly-pessimistic), then an over-optimistic assessment of the impact of the law (which triggers the placebo effect of the law) may set-off the previous pessimism and re-align the perceived and actual probabilities of the risk. An expert's rebuttal of the placebo effect could then reduce social welfare.

## **2. Why Don't Markets Correct Risk Divergence?**

Reputational cascades may explain why experts do not have an incentive to correct divergences between objective and subjective risks when they detect them. An expert openly taking a position that opposes the consensus may incur reputational costs. But what would prevent that expert from profiting off of her knowledge by arbitraging between the objective and subjective risks? Returning to the example presented above, Ellen the expert may not want to risk her reputation by openly announcing that global warming is not nearly as significant a threat as it is perceived to be by Ann, Bob, Carl and others; however, she may want to open a business selling insurance against harms caused by global warming (e.g., flooding). She could charge a hefty premium, since individuals who over-estimate the risk of global warming will pay more for insurance against it than

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believe that it does. Its objective effect, increasing the supply of money, has little effect in itself because without the subjective belief in its effect, it would cause inflation that would devalue money to its former value. Dennis J. Snower, *Rational Expectations, Nonlinearities, and the Effectiveness of Monetary Policy*, 36 OXFORD ECONOMIC PAPERS 177, 177 (1984) ("One of the most prominent propositions in the recent literature on monetary policy is that systematic monetary policy has no effect on production and employment if all agents in an economy have rational expectations and all markets clear." But Snower then goes on to challenge this proposition under certain circumstances.

<sup>90</sup> Experts would also have an incentive to disabuse the public of overly pessimistic expectations from a law, but politicians are unlikely to enact a law that is perceived by the public to make matters worse. I will discuss this later in this Section, when addressing anti-placebo effects.

would individuals who correctly assess the risk. If Ellen is correct about the risk and her portfolio of insurance contracts is diversified enough, she should make a decent profit.

In effect, Ellen has sold the biased individuals “private” placebo effects, and her excess profit is the return for the placebo effects she provided. For the insured party, insurance does not affect the probability that the risk will occur, but it mitigates the magnitude of the harm if the risk occurs (assuming that the individual expects the insurer to be able to honor the insurance contract). Thus, Ann over-estimates the probability of global warming, but insurance allows her perception of the threat of global warming (probability times magnitude) to converge with the objective threat by reducing Ann’s expected magnitude.<sup>91</sup>

Bias arbitrage may raise ethical concerns for some, particularly when the arbitrager’s main goal was not to profit from the transaction, and she feels that she gained an unfair advantage because of another party’s biased risk perception. For example, doctors who test drugs require volunteers. The volunteers risk unknown and possibly very serious side effects of the new drug, in return for the hope to prevent a disease or treat a disease they have. Some doctors conducting tests in new drugs that prevent the onset of breast cancer expressed concern that women who over-estimate the risk to them from breast cancer may be too willing to risk the drug’s potential side effects.<sup>92</sup>

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<sup>91</sup> For example, Ann is considering the purchase of a coastal property. Suppose that there is a 1% probability of harm from global warming, in which case Ann’s property would be flooded and destroyed, causing her a loss of \$100,000. The objective threat of global warming is therefore \$1,000 (1% x \$100,000). Ann perceives the risk to be 5%, and therefore her subjective threat is \$5,000. She buys insurance for a price greater than the objective threat and less than her subjective threat; say, \$2,000. Ann now perceives the magnitude of the loss in case of global warming to be zero, and therefore the threat to Ann from global warming is zero (5% x \$0) plus the cost of insurance. She will not avoid purchasing the coastal property now, but her cost has increased by \$2,000. This may reduce the likelihood of purchase on the margin, but not by as much as it would if she did not buy insurance and perceived a global warming-related cost of \$5,000. The effect of the insurance is not unlike the effect of an environment-friendly law that would have caused Ann to believe that the risk of global warming has declined to 2%.

<sup>92</sup> Rob Stein, *Study of Breast Cancer Pill Raises Hopes and Concerns*, THE WASHINGTON POST (May 22, 2005) A01 (“Women have an increased fear of getting breast cancer over and above what the true likelihood is,” said Heidi Malm, associate professor of bioethics at Loyola University Chicago. “That could lead people to enroll in studies with probably a bigger hope of benefit than is actually realistic.”)

While ethical impediments may not stop some arbitrageurs, other reasons may make bias arbitrage unworkable. Insurance and other forms of private placebo effects may not work when the would-be insured does not believe that the insurer would be able or willing to honor the insurance contract. For example, if Ann believes that global warming would wipe out civilization – or even merely cause sufficient harm to bankrupt the insurer – then the insurance contract does little to reduce her perceived harm from global warming. Bankruptcy is particularly a point of concern the more widespread the risk is perceived to be; yet our discussion of social amplification suggests that risks believed to affect a large number of people are often likely to be grossly over-estimated because they concern a large group of people.

Insurance also does not help when money cannot compensate for the expected harm. For example, fear of terrorism tends to focus on concern for life and limb, not for harm to one's property. While life insurance provides some benefit to dependents of a victim, it is highly unlikely that a person perceiving themselves as likely to be victims of terrorism would see life insurance as an adequate substitute to actions perceived to reduce the risk of terrorist attacks. More generally, government is more likely than insurers to affect not only the perceived magnitude of a risk, but also its perceived probability.<sup>93</sup> Thus, where a perceived threat is more likely to converge with the objective threat by manipulating the probability of the risk rather than its magnitude, government rather than private insurers would likely dispense the placebo effects.

Finally, another reason for the implausibility of market arbitrage of risk divergence, in many circumstances, is that biases and reputational cascades affect everyone, including experts, and in many circumstances the actual risk is very difficult to ascertain. Thus, even if the would-be arbitrageur senses that people over-estimate a given risk, she does not know precisely by how much. This information is important in deciding the pricing of the insurance and even the feasibility of offering insurance in the first place, and therefore the bias arbitrage business may be less lucrative than it seems at first blush.

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<sup>93</sup> Private legal systems, like government, may also be perceived in some circumstances as being able to enforce norms that reduce a risk. Insurers are unlikely to be seen as reducing the likelihood of a risk, but some insurers may monitor the insured parties and enforce on them norms that do reduce the risk.

But if private parties are too blind to arbitrage on risk divergence, is the same not true of the politicians that enact laws with placebo effects? It is – politicians are probably no better than others in assessing objective risks. Like others, they may be able to identify that a certain risk is over-estimated (i.e., identify a panic), without knowing by how much the risk is exaggerated. But unlike private arbitragers, this may be all they need to know. Politicians benefit from enacting a law when the public perceives that law as effective in reducing a risk that concerns it. While “over-selling” laws they endorse may reduce social welfare by making the public over-optimistic, this does not inflict a cost on the politician (who is credited with the perceived optimistic situation). Therefore, a politician may only need to identify which risks pose the greatest concern to her constituents, and then present the law she enacts in a way that causes it to be perceived as most effective (often, more effective than it actually is). The politician does not care to know how much the public over-estimated the risk, and whether the law’s placebo effect exceeded that bias. An insurer, in comparison, would lose money by miscalculating the public’s bias and therefore mispricing the insurance contracts it sells. Therefore, when the ability to accurately measure the magnitude of a bias is limited, insurers may be hindered more than politicians in dispensing placebo effects.

Bias arbitrage exists, and competes with various legal systems in “selling” placebo effects. For reasons mentioned above, often government and the public legal system has a relative advantage over private parties in dispensing placebo effects, in which case the placebo effects would be dispensed through laws. Even when government does not have a relative advantage in providing placebo effects, arbitragers compete with private legal systems that can enact laws of their own to provide placebo effects.<sup>94</sup> Private arbitrage of risk divergence does not, therefore, preempt placebo effects provided by legal systems.

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<sup>94</sup> For example, some firms that operate critical infrastructures create and participate in Information Sharing and Analysis Centers in which firms within the industry share information in order to better protect against and respond to attacks on the infrastructure. See Amitai Aviram, *Network Responses to Network Threats: The Evolution into Private Cybersecurity Associations*, in *THE LAW AND ECONOMICS OF CYBER-SECURITY* (Mark Grady & Francesco Parisi, eds.) (Cambridge University Press, forthcoming 2005). While these centers may have real effects, their publicity suggests that they are also intended to reduce the public’s concern of the failure of critical infrastructures.

### **3. Placebo Effects in the Analysis of a Law**

I illustrated above that in certain situations a law's placebo effect increases welfare, and that experts and markets may not correct the risk divergence as effectively as a law can. This does not mean, however, that legal placebo effects are always welfare enhancing. As I will discuss in more detail below,<sup>95</sup> some placebo effects (e.g., negative placebo effects) reduce social welfare. In addition, a law has other effects – real effects, psychic utility, costs of implementation and operation. How is the placebo effect incorporated in the analysis of a law?

Two steps are required to assess whether a placebo effect increases or decreases social welfare. First, one must determine whether the law has a placebo effect: that is, that people's subjective expectation of the law's ability to reduce the risk differs from the law's objective ability to reduce the risk. This will increase with the extent to which the public is aware of the law<sup>96</sup> and with the extent to which the public believe the law would have “real” effects. Perhaps counter-intuitively, the placebo effect will decline as the “real” effects of the law increase (holding the perceived effect of the law constant). The placebo effect is determined not by the perceived effect of the law, but on the net of that perceived effect after deducting the actual effects of a law). For example, suppose that the probability of a given risk is 3% but the public perceives it as being 6%. The public expects a new law to reduce this risk by 1%, but the law actually reduces the risk by 2%. The real risk is now 1%, but the public perceives it to be 5%. Activity avoidance would now be lower in absolute terms than it was before the law, but compared to the (now lower) actual risk, activity avoidance has relatively increased. In other words, when assessing the laws benefits, one would over-estimate the benefits if she credited the law

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<sup>95</sup> *Infra* Sections V.2 and V.3.

<sup>96</sup> One expects that politicians will try to focus the public's attention on laws that have a placebo effect, and attempt to keep attention away from (or possibly not enact at all) laws that they want to enact but expect the public would perceive as making a certain risk more probable. See, e.g., Arthur Seldon, *Economists and the Politician*, 9 *MANAGERIAL & DECISION ECON.* 89, 89 (1988) (“Politicians exhibit the occupational failing of wanting policies that are easy to sell to the electorate more than policies that are generally desirable... proposals are resisted or rejected not because they are unacceptable by the public but because politicians fail in the power they claim to persuade the public of their advantages.”).

with the full effect of a 2% reduction in the risk, because some of this benefit will be lost due to the failure of the public to recognize the law's full effect.

Conversely, assume again that the probability of a given risk is 3% and the public perceives it as being 6%, but this time assume that the public expects the new law to reduce the risk by 2%, while the law actually reduces the risk by 1%. Now the actual risk is 2%, and the perceived risk is 4%. Crediting the law only with the benefit of reducing the risk by 1% would under-estimate the law's benefit, because in addition to that the law reduced somewhat (though not completely) the excessive avoidance of activities related to the risk.

The second step in assessing the effect of placebo effects on social welfare requires determining whether the public over-estimates or under-estimates the risk (or risks) that the law purports to address. A placebo effect will be welfare enhancing if it causes a convergence (a reduction in the difference) between the perceived probability of a risk and the actual probability. Conversely, it will be welfare reducing if it increases the divergence between the perceived and actual probabilities.<sup>97</sup>

Naturally, a useful analysis of a law requires consideration of other proposed or existing laws that are seen as substitutes. When comparing the alternative laws, the placebo effect should be considered together with the "real" effects, psychic utility, and the costs of implementing the law. If implementing the analyzed law does not preclude the adoption of other proposed laws, then the analyzed law should be enacted if the net benefits are positive. However, if implementing the law would preclude the adoption of other proposed laws, then the law's net benefit (after deducting costs) should be compared to the net benefit of the proposed laws.

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<sup>97</sup> To increase social welfare, a positive placebo effect must not 'overshoot.' Suppose (as in most examples in this article) that prior to the enactment of the law the public over-estimated the probability of the risk and also over-estimated the law's ability to reduce the risk. In these circumstances, a placebo effect might reduce welfare if, after enactment of the law, the public would be over-optimistic and under-estimate the risk.

To illustrate why this is necessary, suppose that the public over-estimates the risk of global warming, and that global warming does have a cost-effective solution, but implementing it would discredit a law that is pure placebo (e.g., a global-warming version of a rain dance). A pure placebo may increase welfare – it would not affect the actual risk of global warming, but if it reduces divergence between the perceived risk and the actual risk, it would prevent excessive abandonment of coastal and warm-climate locations. Even though the placebo law increases welfare compared to a having no law, the placebo law’s net benefit must be compared to the net benefit of the alternative solution that reduces the real risk of global warming (and any other law that is incompatible with it).

#### ***4. A Note on Measuring Placebo Effects***

It is difficult to quantify precisely any of the variables that affect the magnitude of the placebo effect’s impact on social welfare: the degree to which the public over-estimates a risk, the degree to which the public over-estimates a law’s ability to mitigate the risk, or the reduction in activity avoidance resulting from the convergence or divergence of objective and subjective risks. However, very few aspects of legal analysis of any kind have readily-available, exact data. Most of the evidence available to regulators (and to other institutions that form laws) is inexact. Agencies, courts and legislators manage to form policies and enact laws while relying on approximations. Incorporating placebo effects into the analysis would be no more, but also no less exact than other factors that are considered.

Since this article breaks new ground in identifying the placebo effect, there is to my knowledge no existing empirical study of legal placebo effects. In this sub-section of the article I will briefly sketch an outline of how empirical examination of placebo effects might be attempted.

Measurements can be done *ex ante* (before the enactment of the law) or *ex post* (after enactment). *Ex post* measurements tend to be more accurate because they can assess the

objective manifestation of the placebo effect (activity avoidance),<sup>98</sup> rather than estimate what that objective manifestation would be based on the subjective aspect of the placebo effect (the convergence or divergence of objective and subjective risks). Subjective effects are less accurate to measure and compare among individuals. Also, they require the additional step of estimating the objective effect (i.e., activity avoidance) that would result from the subjective effect that was measured.<sup>99</sup>

On the other hand, ex post measurements can only take place after the law was enacted, precluding their use in earlier stages. Some laws may avail themselves of this form of testing by implementing the law in a limited jurisdiction at first, measuring the effects of the law in that jurisdiction before expanding the law's reach. Ex post testing is also useful when an existing law is evaluated to determine whether amendments (or even its repeal) are warranted. Finally, ex post testing of some laws may provide a helpful indicator to the magnitude of placebo effects of similar laws that are presently considered.

Testing the magnitude of a placebo effect ex post may be done in a manner similar to the testing of medical placebo effects. Ideally, such a method requires a comparison of the level of activity avoidance<sup>100</sup> of three groups of similar composition that are exposed to the same risk. The first two groups should be subject to the law. Group A should include individuals that have informed themselves about the law, while Group B should include individuals that have not informed themselves about the law (and thus cannot have any placebo effects of the law) but are nonetheless subject to the law (and therefore should receive its real effects). Alternatively, Group B may include individuals that have

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<sup>98</sup> Another possible objective manifestation of placebo effects is an expenditure of effort by the individual to mitigate the risk by herself. The more the individual over-estimates a risk, the more she may expend efforts and resources to mitigate the risk. These efforts may not be cost-effective from the perspective of a person who correctly assesses the risk.

<sup>99</sup> Once a placebo effect's subjective effect on risk divergence is assessed, the difference in risk divergence can be treated as a change in the cost of activities that expose individuals to that risk. Therefore, if we know the demand curve for that activity, we can estimate the effect of the increased or decreased risk on demand, and thus the dead-weight loss increased or decreased as a result of the placebo effect. This change in the dead-weight loss is the placebo effect's impact on welfare, and should be incorporated in the (explicit or implicit) cost-benefit analysis of the law.

<sup>100</sup> Of activities that expose individuals to the risk that the law purports to address.

informed themselves about the law, but live in an area in which the law is not enforced (and thus, if the law is not self-enforcing, they should receive the law's placebo effects but not its real effects). Finally, to rule out the possibility that changes over time (that have nothing to do with the law) are responsible for changes in individuals' activity level, Group C may include individuals who are exposed to the same risk as the other two groups, but are not subject to the law (and thus receive neither the law's placebo effects nor its real effects).<sup>101</sup>

This note does not attempt to limit the ways in which placebo effects may be measured, but merely to suggest first steps in executing such measurements. As placebo effects become more central to the assessment of laws, better techniques and datasets for their measurement will likely be developed.

## V. Taxonomy of Placebo Effects

### 1. *Positive Placebo Effects*

Thus far this article has focused primarily on placebo effects that occur in one set of circumstances: the public over-estimates the law's ability to reduce the risk as issue, and prior to the enactment of the law the public over-estimates the probability of the risk. But placebo effects occur any time there is a divergence in these risk assessments. I classify a placebo effect as a "positive placebo effect" when it occurs in the set of circumstances on which I have focused on thus far. Positive placebo effects increase social welfare, and are probably the most common of placebo effects, because laws often address highly-publicized issues (and thus affect voters' assessment of the entity enacting the law). As mentioned above,<sup>102</sup> issues that are highly-publicized are more likely to cause availability bias and social amplification, and therefore are likely ones in which the public over-

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<sup>101</sup> This testing loses reliability if the groups are not similar in their composition and perception of the risk. Adding Group C may reduce the accuracy of the testing, because one may imagine that a jurisdiction that chooses not to enact a law addressing a risk that other jurisdictions have addressed may not suffer as much from that risk.

<sup>102</sup> *Infra*, Section III.

estimates the risk (which is why politicians may find it easier to respond to these concerns than to ones that require an actual improvement in order to satisfy the public). Politicians are also adept in manipulating cognitive biases in order to publicize their actions, and therefore one may expect that they would publicize the laws they enact in a way that would make the public over-optimistic about the law's effect.

Since placebo effects occur any time there is a divergence in both the assessment of the law's effect and the assessment of the risk, and each divergence can be of one of two types (over-estimating or under-estimating the actual risk), one can classify placebo effects into four categories. In addition to positive placebo effects, there are also negative placebo effects, and positive and negative anti-placebo effects. The figure below illustrates the classification of placebo effects.

## ***2. Negative Placebo Effects (and their relation to moral hazard)***

Negative placebo effects reduce social welfare, because they make the public expose itself excessively to the risk (i.e., insufficiently avoid activities related to the risk).

Negative placebo effects occur when the public is optimistic and perceives a risk as less

probable than it actually is even before a law is enacted, and then over-estimates the effect of the law.

Why would the public be so optimistic? The biases discussed earlier<sup>103</sup> explain under-estimation of risks just as they explain over-estimation. Just as there is social amplification of some risks, there is a social attenuation of others, by which individuals become less concerned with a risk because the risk does not seem to concern others. Just as the vividness bias causes vivid risks to seem more likely, there is an under-estimation of risks that are dull, abstract and emotionally uninteresting. Finally, just as the availability bias causes people to over-estimate risks that they can recall encountering or hearing of, it has the reverse effect of causing an under-estimation of risks that the individual does not encounter or hear about. One may also add to these the illusion of control, which causes individuals to be over-optimistic about outcomes that depend on both skill and chance.<sup>104</sup>

When negative placebo effects occur, the harm that is caused by the public's increased exposure to the risk after enacting the law should be deducted from the law's benefits. Failing to take into account the negative placebo effects results in crediting the law with a greater benefit than it will achieve. Some (and perhaps all) of the "real" benefits of the law may be lost because of the law's unintended side effect of increasing individuals' excessive exposure to the risk.

For example, suppose that individuals are overly-optimistic about their ability to survive a car accident without wearing a seat belt. To mitigate the same risk (car accidents), Congress passes a law requiring car manufacturers to implement in all cars safety devices and that reduce the risk of car accidents. If the public is overly-optimistic about these

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<sup>103</sup> *Infra*, Section III.

<sup>104</sup> See Amitai Aviram & Avishalom Tor, *Overcoming Impediments to Information Sharing*, 55 ALA. L. REV. 231, 254-257 (2004); Ellen J. Langer, *The Illusion of Control*, 32 J. PERSONALITY & SOC. PSYCHOL. 311 (1975); David V. Budescu & Meira Bruderman, *The Relationship Between the Illusion of Control and the Desirability Bias*, 8 J. BEHAV. DECISION MAKING 109, 110 (1995). This illusion stems from people's inability to distinguish between "skill" and "chance" situations and their more general desire to believe they can control the world around them. It leads to inflated expectations of personal success in tasks whose outcomes depend, in part or in whole, upon chance factors. *Id.* at 109-10; Langer, *supra*, at 313.

safety devices' ability to reduce the number or severity of car accidents, then some individuals may reduce further the precautions they take, including wearing seat belts. Some of the individuals that lower their precautions because of the law will be harmed in car accidents. Therefore, in an evaluation of the law's benefits (which include mainly the "real" effect of mitigating the risk of car accidents by implementing the safety devices) one must deduct the negative placebo effect (the expected harm caused by the lower precautions undertaken by individuals as a result of their over-estimating the law's effect).

Jonathan Klick and Gregory Mitchell make a theoretical argument that runs in parallel lines to this article's analysis of negative placebo effects.<sup>105</sup> Klick and Mitchell argue that paternalistic laws that are justified by the existence of cognitive biases exacerbate the same biases. Their argument is supported by the framework laid out in this article. Paternalistic intervention is often justified by cognitive biases that cause individuals to under-estimate risks (and therefore fall prey to people who manipulate these biases).<sup>106</sup> If the overly-optimistic individual knows about the paternalistic law and over-estimates its effect in mitigating the risks it was designed to address, then she may further reduce the precautions she takes against the same risks. This is precisely a negative placebo effect.

Perceptive readers may notice the connection between negative placebo effects and a phenomenon known as moral hazard. Economists have long ago noted that a third party's actions that reduce an individual's risk may lead to an incentive for the individual to take less precautions against the same risk,<sup>107</sup> and therefore to a possibly offsetting increase in the risk.<sup>108</sup> This phenomenon became known as "moral hazard",<sup>109</sup> and has

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<sup>105</sup> Jonathan Klick & Gregory Mitchell, *Government Regulation of Irrationality: Moral and Cognitive Hazards*, 90 MINN. L. REV. (forthcoming 2005); Joseph E. Stiglitz, *Risk, Incentives and Insurance: The Pure Theory of Moral Hazard*, 8 GENEVA PAPERS ON RISK & INS. 4 (1983).

<sup>106</sup> *Id.*, at note 2.

<sup>107</sup> By 'precautions' I mean to include not only a greater level of care, but also avoidance of the risk where additional care is not cost effective. Thus, part of the precaution-reduction that characterizes a moral hazard (and a placebo effect) may be an increase in participation in the risky activity.

<sup>108</sup> Among the earliest works to identify the "moral hazard" is Kenneth Arrow's analysis of the provision of healthcare. See Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medical Care*, 53 AM. ECON. REV. 941 (1963).

received significant attention from economists and legal scholars, who focused primarily on the welfare-reducing aspects of the reduced-precautions undertaken by the individual.<sup>110</sup>

Looking at moral hazard through the lens of placebo effects suggests that the category of phenomena that the literature refers to as moral hazard may be over-inclusive, and therefore less refined than the concept of placebo effects, when used to evaluate a law's impact on social welfare. A single category of moral hazard is over-inclusive because the group of situations in which an individual reduces precautions because of a third party's risk-reducing actions can either increase or decrease welfare, depending on the individual's assessment of the risk prior to the third party's actions. The moral hazard literature focuses on situations in which the reduction in precautions reduces social welfare, which is true if ex ante the individual either took an efficient level of precautions, or was over-optimistic and took insufficient precautions. But the same precaution-reducing effect could enhance welfare if ex ante the individual over-estimated the risk (and therefore took excessive precautions) – indeed, this is the positive placebo effect.

Moral hazard is often portrayed in the literature as a social cost of insurance,<sup>111</sup> and it is a cost when ex ante the insured party correctly estimates, or under-estimates, the insured

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<sup>109</sup> On the development of the term “moral hazard” and its use see: Tom Baker, *On the Genealogy of Moral Hazard*, 75 TEX. L. REV. 237 (1996).

<sup>110</sup> Baker, *id.*, at note 4, mentions many of the early works on moral hazard: Arrow, *supra* note 108; Mark V. Pauly, *The Economics of Moral Hazard: Comment*, 58 AM. ECON. REV. 531 (1968); Kenneth J. Arrow, *The Economics of Moral Hazard: Further Comment*, 58 AM. ECON. REV. 537 (1968); Richard Zeckhauser, *Medical Insurance: A Case Study of the Tradeoff Between Risk Spreading and Appropriate Incentives*, 2 J. ECON. THEORY 10 (1970); Isaac Ehrlich & Gary S. Becker, *Market Insurance, Self-Insurance and Self-Protection*, 80 J. POL. ECON. 623 (1972); Mark V. Pauly, *Overinsurance and Public Provision of Insurance: The Roles of Moral Hazard and Adverse Selection*, 88 Q.J. ECON. 44 (1974); John M. Marshall, *Moral Hazard*, 66 AM. ECON. REV. 880 (1976); Steven Shavell, *On Moral Hazard and Insurance*, 93 Q.J. ECON. 541 (1979); Bengt Holmstrom, *Moral Hazard and Observability*, 10 BELL J. ECON. 74 (1979).

<sup>111</sup> See, e.g., Thomas L. Greaney, *Managed Competition, Integrated Delivery Systems and Antitrust*, 79 CORNELL L. REV. 1507, 1511 (1994) (“Moral hazard distorts markets, causes an inefficient allocation of resources, and in the extreme case, can destroy the marketability of insurance.”); Louis Kaplow, *The Income Tax as Insurance: The Casualty Loss and Medical Expense Deductions and the Exclusion of Medical Insurance Premiums*, 79 CAL. L. REV. 1485, 1498 (1991); Timothy Stoltzfus Jost, *Managed Care Regulation: Can We Learn From Others? The Chilean Experience*, 32 U. MICH. J.L. REFORM 863, 891-892 (1999) (“If insurers are limited in their ability to control moral hazard, the cost of insurance will certainly increase and its availability will certainly decrease.”).

risk. But the same phenomenon of moral hazard is welfare-enhancing when the risks that are insured are over-estimated.<sup>112</sup> Indeed, the latter case (of the insured party over-estimating the insured risk) is likely more common than the former. Insurers respond to prospective customers' demand, and the customers are more likely to insure risks that are highly salient (and, due to biases, over-estimated) than to insure risks that are subtle and under-estimated.

Another difference between moral hazards and placebo effects is that the moral hazard focuses on who bears the risk, whereas the placebo effect focuses on a distortion between the actual and perceived risk (that is a result of a bias, not a result of another party bearing the risk). Thus, when no distortion occurs (the public correctly perceives a law's effect on the relevant risk), there will be no placebo effect, but there may be a moral hazard. For example, suppose that one empirically finds that expanding health insurance coverage to cover the treatment of alcoholism results in an increase in alcohol consumption.<sup>113</sup> Suppose also that the public correctly evaluates the effect of the increased coverage in terms of the reduction of the risk of alcoholism (because of prompt and better treatment) and a reduction in the harm to the alcoholic (as a result of the state bearing the cost of treatment). The increase in alcohol intake would be considered a moral hazard.<sup>114</sup> It would not create a placebo effect, however, since placebo effects occur only when a law (in this case, expanded health coverage) affects the divergence between the objective and perceived probabilities of the risk it aims to address. In this case, regardless of whether individuals correctly perceived ex ante the probability of

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<sup>112</sup> In these situations, the insurer is essentially selling (together with the insurance) a positive placebo effect, and is receiving compensation for it. The premium for insuring is set in relation to the (inflated) subjective risk, but the insurer bears only the cost of insuring the (lower) objective risk. The difference between the two is the insurer's compensation for selling a placebo effect. See discussion *supra*, Section VI.2.

<sup>113</sup> See: Jonathan Klick & Thomas Stratmann, *Subsidizing Addiction: Do State Health Insurance Mandates Increase Alcohol Consumption?*, 35 J. LEG. STUD. (forthcoming 2006). Klick and Stratmann identify, in an empirical examination of the effects of laws mandating health insurance coverage, patterns that are consistent with this article's negative placebo effects. They find a correlation between alcohol consumption and the adoption of state laws that subsidize the treatment of alcohol abuse by regulating the terms under which health insurance policies cover treatment of alcoholism. In other words, individuals drink more (increasing their risk of alcoholism) if the state subsidizes the treatment of alcoholism.

<sup>114</sup> This leads Klick & Mitchell to assert that "moral hazard as it is invoked in the economics literature is simply an application of the law of demand, which states that, as the price of an activity decreases, an individual will increase his consumption of the activity." Klick & Mitchell, *supra* note 105, at note 64. The same cannot be said about the placebo effect.

suffering from alcoholism, the law did not change the discrepancy between the objective and perceived risk (the perceived risk was mitigated by the same amount as was the objective risk), and therefore the law's effect would be simply its "real effect" – the benefit from reducing alcoholism.<sup>115</sup>

Conversely, when the public misperceives a law's effect on a risk, yet the risk is not shifted away from the public, there will be a placebo effect, though it is questionable whether one would consider the effect to be a moral hazard. To illustrate, suppose that people under-estimate the risk to them from a car accident, and therefore don't always wear seat belts. Also suppose that a law that aims to reduce traffic accidents increases penalties for reckless driving, and that this law slightly (but not significantly) reduces reckless driving. Finally suppose that the law is touted by the sponsoring politicians as highly effective, and as a result the public believes that the law will significantly reduce reckless driving. This will result in even less people wearing seat belts, since they would balance the discomfort of wearing a seat belt with an unrealistically low perceived likelihood of facing a reckless driver. Thus, from the benefit of slightly reducing reckless driving one must offset the cost of a reduction in use of seat belts.

This effect looks very much like the moral hazard illustrated in the healthcare coverage law example above (in that as a result of a law, the public perceives a reduction in a risk and reduces precautions). However, unlike the healthcare coverage law, the reckless driving law does not create a subsidy; neither the government nor other third parties bear any of the risk that individuals perceived to have lowered. In the moral hazard example (the healthcare coverage law), one must eliminate the subsidy (which is often a goal of the law) in order to correct the welfare-reducing effect. In the placebo effect example (the reckless driving law), one may also correct the welfare-reducing effect by de-biasing the public.

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<sup>115</sup> Moral hazard does affect the cost of implementing this law – the increase in alcohol consumption may result in a need for more treatment. This is outside the realm of the placebo effects concept. As I said earlier, the placebo effect is relevant to the measurement of the benefits of a law, not its costs.

Finally, because the literature on moral hazards focuses on risk subsidies (which result in precaution-reduction), it ignores symmetrical situations in which risk is taxed (i.e., a law is perceived by the public to increase a risk more than it actually does). Such laws cause individuals to increase their precautions against the risk, rather than reduce them. The effect of such laws on social welfare is a mirror image of the precaution-reducing laws – they increase welfare if the public previously under-estimated the risk, and reduce welfare if the public previously over-estimated the risk or assessed it correctly. This effect, which I call an anti-placebo effect, will be discussed immediately below.

### **3. Anti-Placebo Effects**

The final two categories of placebo effects are the positive and negative anti-placebo effects. Anti-placebo effects are the impact on social welfare caused by the public's under-estimation of a law's effectiveness in addressing a risk. The results are a mirror image of placebo effects: if, prior to the enactment of the law, individuals over-estimated the risk (and therefore excessively avoided activities related to the risk), then after the law is enacted they will avoid activities even more excessively (either because they believe the law increases the risk, or because they believe that the law reduces the risk by very little and therefore justifies a very small increase in activity, while the law actually reduces the risk to a greater degree).<sup>116</sup> This effect reduces social welfare and therefore I call it a negative anti-placebo effect.

On the other hand, if the public under-estimated a risk prior to the enactment of the law, then after the law takes effect it would reduce individuals' excessive optimism and cause them to reduce their (excessive) exposure to the risk. Like positive placebo effects, these positive anti-placebo effects increase social welfare unless they 'overshoot' and cause the formerly too optimistic public to be too pessimistic and excessively avoid the risk.

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<sup>116</sup> Note, again, that this does not mean the law reduces social welfare. The fact that the placebo effect is negative merely means that the law's effect on social welfare would be over-stated if one only considered its "real" effects. In this case, the law might increase welfare significantly by reducing the actual risk, yet some of this welfare increase will not be realized (and therefore should be deducted from the analysis) because of the excessive avoidance of individuals who under-estimate the law's effect in reducing the risk.

An example of a negative anti-placebo effect may illustrate the concept. Until the 16<sup>th</sup> Century, witch hunts were rare in England,<sup>117</sup> though the belief in magic and witches who wielded it was widespread. People applied “friendly” magic (“white magic”) to protect themselves from perceived “hostile” magic (“black magic”). White magic was so extensively summoned to counter black magic that a contemporary remarked that “men ‘often became witches, by endeavouring to defend themselves against witchcraft’.”<sup>118</sup> Much of this magic was provided by the church. Believers drank holy water to cure their ailments, sprinkled it on their livestock or scattered it over their fields to ensure fertility.<sup>119</sup> Saints’ relics, crosses, amulets, the key to the church, the soil from the churchyard and the action of crossing oneself were used to ward off black magic.<sup>120</sup> People would carry the consecrated wafer in their mouth from mass rather than swallow it, and then use it to cure the blind or feverish or as a charm against caterpillars.<sup>121</sup> So great was most people’s faith in ecclesiastical magic, that the risk of black magic seemed manageable. A historian remarked: “if men had been a little less superstitious, the effects of their superstition would have been much more terrible.”<sup>122</sup>

All this changed dramatically beginning in the 16<sup>th</sup> Century. People suddenly felt great concern with witches and witchcraft: “the number of witches and sorcerers had everywhere become enormous... This kind of people... within these few last years are marvelously increased.”<sup>123</sup> Another commented: “‘The land is full of witches... They abound in all places.’ Without speedy preventive action, they would ‘in short time overrun the whole land’.”<sup>124</sup> Witch hunts followed the rising tide of fear. Unlike witch hunts in the European continent, many of which were stimulated by the upper classes and

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<sup>117</sup> Keith Thomas, *RELIGION AND THE DECLINE OF MAGIC: STUDIES IN POPULAR BELIEFS IN SIXTEENTH AND SEVENTEENTH CENTURY ENGLAND* 454-455 (1971).

<sup>118</sup> Thomas, *id.*, at 544, *quoting* R. Bovet, *PANDAEMONIUM* (1684).

<sup>119</sup> *Id.*, at 30.

<sup>120</sup> *Id.*, at 32-33.

<sup>121</sup> *Id.*, at 35.

<sup>122</sup> *Id.*, at 498, *quoting* W.E.H. Lecky, *HISTORY OF THE RISE AND INFLUENCE OF THE SPRIT OF RATIONALISM IN EUROPE* (1910).

<sup>123</sup> *Id.*, at 455, *quoting* a statement by Bishop Jewel in 1559, *cited* in *The Works of John Jewel* (ed. J. Ayre, 1845-50).

<sup>124</sup> *Id.*, at 455, *quoting* a statement by Lord Chief Justice Anderson in 1602, *cited* in C. L’Estrange Ewen, *WITCHCRAFT AND DEMONIANISM* (1933).

often had a financial motive (confiscating the accused person's property), most witch hunts in England seemed to be initiated by commoners and persecuted poor people (thus lacking a financial motive).<sup>125</sup> Thus, most of the English witch hunts of the time seem to stem out of fear of black magic. But the population had always believed in the existence of black magic. Why were witches not hunted earlier?

Historian Keith Thomas suggests that this was a result of the reformation: "The protestant position was that steadfast faith in God was an infallible protection against the Devil's onslaughts on men's souls, but did not provide a similar immunity for their bodies and goods."<sup>126</sup> The reformed church's determination to break away from Roman Catholic traditions required it to denounce ecclesiastical magic, even at the cost of causing individuals to perceive an increase in the risk from black magic due to the lack of protection. One may view this decision, to deny the existence of ecclesiastical magic and to refuse to provide it, as a law. Because it had no objective effect on the risk of black magic, but it increased the perceived risk, this law had an anti-placebo effect. Because the population over-estimated the risk of black magic (a risk which most people today would estimate at zero), the law increased the divergence between objective and subjective risk, creating a negative anti-placebo effect and reducing welfare. Individuals now faced a greater perceived risk, to which they could respond by avoiding activities related to the risk, or take actions to reduce the risk. Most contemporaries believed they could do nothing to avoid the risk, so they chose to take actions that they perceived as reducing the risk, by persecuting accused witches. As Thomas summarizes: "For what the religious changes of the mid-sixteenth century did was to eliminate the protective ecclesiastical magic which had kept the threat of sorcery under control... Ecclesiastical magic crumbled, and society was forced to take legal action against a peril which for the first time threatened to get dangerously out of hand."<sup>127</sup>

Anti-placebo effects occur when a law causes the perceived risk to increase more than the actual risk, or when a law causes the perceived risk to decrease by less than it decreases

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<sup>125</sup> *Id.*, at 456-459.

<sup>126</sup> *Id.*, at 495.

<sup>127</sup> *Id.*, at 498.

the actual risk. In many non-legal contexts welfare-enhancing actions increase the perceived risk more than the actual risk to combat over-optimism. For example, campaigns against drunk driving or encouraging the wearing of seat belts use vivid, sometimes gruesome or emotional commercials to increase individuals' perceived risk. This is designed to counter the illusion of control that causes some people to take insufficient precautions against car accidents.

Similarly, politicians and others manipulate cognitive biases to increase a perceived risk above the actual risk in order to influence ideological preferences<sup>128</sup> or to create an artificial fear that they can then calm (and take credit for) through positive placebo effects.<sup>129</sup> When considering the presidential emergency powers, Justice Jackson stated his belief that the founding fathers “suspected that emergency powers would tend to kindle emergencies.”<sup>130</sup> The electoral benefits of placating fear with a placebo effect may have a similar effect.

However, while politicians may take non-legal actions that have anti-placebo effects (such as scare campaigns), they would rarely intentionally use anti-placebo effects in laws. The payoff to a politician from a law that has anti-placebo effects is likely to be negative, because the public attributes the subjective effects of the law to the politician that sponsored it. Even if the population is over-optimistic about a risk and social welfare would increase if a law had positive anti-placebo effects,<sup>131</sup> the population would view the law as the cause of the increased risk and punish the politician that enacted it.

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<sup>128</sup> For example, ideologically-driven movies use vividness and capitalize on the availability bias and social amplification to portray opposing ideologies or ideological groups in a negative, sometimes dangerous fashion. E.g., *THE DAY AFTER TOMORROW* (2004) (portraying global warming as an immediate danger that leads to hundreds of millions of deaths), information on this movie is available at: <http://www.imdb.com/title/tt0319262/>; *THE PASSION OF THE CHRIST* (2004) (portraying Jews as vicious and bloodthirsty), information on this movie is available at: <http://www.imdb.com/title/tt0335345/>; *BOWLING FOR COLUMBINE* (2002) (portraying opponents of gun control and large businesses as heartless, violent or stupid), information on this movie is available at: <http://www.imdb.com/title/tt0310793/>.

<sup>129</sup> It is outside the scope of this article to address the potential abuse of placebo effects through the creation of a discrepancy between objective and subjective risk and then curing this discrepancy with a placebo law. This is yet another agency problem that constitutional law and administrative law need to address.

<sup>130</sup> *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 650 (1952).

<sup>131</sup> I.e., by increasing the public's concern, the law reduced the divergence between the under-estimated perceived risk and the actual risk

Similarly, politicians are unlikely to intentionally enact a law that reduced the perceived risk by less than it reduces the actual risk. As I mentioned earlier,<sup>132</sup> politicians are skilled in manipulating cognitive biases (e.g., through use of the media, framing issues in a vivid manner, etc.) in ways that cause voters to over-estimate the effect of the laws the politicians enacted. Since politicians are judged by the public based on the perceived effect of their laws on risk, they would not want to “undersell” their laws. They are likely to shy away from facilitating laws that are unlikely to be perceived as successful, regardless of whether the laws are in fact successful. If the context of a given law is such that it cannot be presented in a way that causes voters to over-estimate its effect, a politician may opt to spend her efforts enacting other laws.

Therefore, laws that intentionally have anti-placebo effects are rare. The example above of rejecting ecclesiastical magic was likely caused by the church’s determination that an important real effect (purity of religious doctrine) contradicted with a less important placebo effect, perhaps coupled with the church’s miscalculation of the extent of the anti-placebo effect that would result.<sup>133</sup>

As with placebo effects, an accurate assessment of a law containing an anti-placebo effect must incorporate the welfare impact (positive or negative) of the anti-placebo effects as well as the law’s real effect.

## **VI. Placebo Effects and Corporate Crime**

This article pointed out an important factor in the utility (or disutility) of laws, that is intuitively familiar to politicians yet is neglected in explicit (and even in implicit) evaluations of laws. Besides any other impact a law may have, it also has placebo effects in all cases in which there is a divergence between the objective and subjective assessment of: (a) the risk a law purports to address; and (b) the effect the law has (or will

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<sup>132</sup> *Supra*, Section III.5.

<sup>133</sup> Anti-placebo effects may also occur inadvertently, such as when the public becomes so disillusioned of the legal system’s ability or intention to address a risk, that it under-estimates a law’s effectiveness.

have) on that risk. Due to the cognitive biases described above,<sup>134</sup> such divergences are very frequent, and placebo effects are ubiquitous. Their effect varies according to the degree of divergence between objective and subjective risk assessments and according to the demand curve for the activities that are related to the risk (and that individuals may avoid or excessively participate in due to the divergence in risk assessment).

A law's "real" effects have an objective impact on individuals' behavior that does not depend on individuals' subjective attitudes towards the law. Conversely, psychic utility derived from a law does not have an objective impact on individuals' behavior and is derived from individuals' subjective attitudes. Placebo effects are a hybrid, which has an objective impact on individuals' behavior that is derived from individuals' subjective attitudes towards the law.

While placebo effects are not the only impact a law has on social welfare, neglecting them in the analysis of a law's benefits may significantly under-estimate or over-estimate the benefits of a law. If a law's placebo effects increase social welfare,<sup>135</sup> then neglecting to account for them would result in under-estimated a law's benefits. On the other hand, if a law's placebo effects reduce social welfare,<sup>136</sup> then failing to deduct their effect on social welfare would over-estimate a law's benefits.

Earlier<sup>137</sup> I described the steps required in incorporating placebo effects into the analysis of a law. I will now illustrate this process in the context of corporate compliance programs designed to mitigate corporate crime.<sup>138</sup>

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<sup>134</sup> *Supra*, Section III.

<sup>135</sup> As is the case with most positive placebo effects and positive anti-placebo effects. *See supra*, Section V.

<sup>136</sup> As is the case with all negative placebo effects and negative anti-placebo effects. *See supra*, Section V.

<sup>137</sup> *Supra*, Section IV.

<sup>138</sup> The following analysis is taken from Aviram, *supra* note 24.

Criminal liability can attach to an organization<sup>139</sup> whenever an employee of the organization commits an act within the scope of her employment,<sup>140</sup> even if the employee acted contrary to company policy and instructions.<sup>141</sup> To mitigate organizations' liability for an employee's unauthorized criminal acts and to create incentives for organizations to self-police, the U.S. Sentencing Commission amended the sentencing guidelines to consider the adoption by an organization of an "effective program to prevent and detect violations of law."<sup>142</sup> Such programs are known as compliance programs.

The existence or absence of a compliance program that is deemed effective by the Guidelines has substantial effects on an organization's liability: an effective compliance program reduces an organization's sentence,<sup>143</sup> the absence of an effective program may be a reason for the court to place an organization on probation,<sup>144</sup> and the implementation of an effective program may be a condition of probation for organizations.<sup>145</sup> The recent Supreme Court decision in *U.S. v. Booker*<sup>146</sup> weakened somewhat the force of the Guidelines by determining that they are advisory, rather than mandatory, and therefore

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<sup>139</sup> An organization is defined in the U.S. Criminal Code as "a person other than an individual." 18 U.S.C. § 18. This definition includes "corporations, partnerships, associations, joint-stock companies, unions, trusts, pension funds, unincorporated organizations, governments and political subdivisions thereof, and non-profit organizations." Commentary to §8A1.1 of the 2003 Federal Sentencing Guidelines, available online at: [http://www.ussc.gov/2003guid/tabcon03\\_1.htm](http://www.ussc.gov/2003guid/tabcon03_1.htm). This article will focus on corporations and corporate misconduct, though the same analysis will usually apply to all organizations.

<sup>140</sup> For a survey of the development of corporate criminal liability see V.S. Khanna, *Corporate Criminal Liability: What Purpose Does it Serve?*, 109 HARV. L. REV. 1477, 1479-1489 (1996).

<sup>141</sup> See, e.g., *NEW YORK CENT. & HUDSON RIVER R.R. v. UNITED STATES*, 212 U.S. 481, 493-494 (1909) ("It is now well established that, in actions for tort, the corporation may be held responsible for damages for the acts of its agent within the scope of his employment... And this is the rule when the act is done by the agent in the course of his employment, although done wantonly or recklessly or against the express orders of the principal... In this case we are to consider the criminal responsibility of a corporation for an act done while an authorized agent of the company is exercising the authority conferred upon him... Applying the principle governing civil liability, we go only a step farther... by imputing [an agent's] act to his employer and imposing penalties upon the corporation for which he is acting in the premises.").

<sup>142</sup> See: United States Sentencing Commission, 2003 Federal Sentencing Guideline Manual, Chapter 8 ("the Guidelines"), available online at: [http://www.ussc.gov/2003guid/tabcon03\\_1.htm](http://www.ussc.gov/2003guid/tabcon03_1.htm). On the development and goals of the Organizational Sentencing Guidelines see: Diana E. Murphy, *The Federal Sentencing Guidelines for Organizations: A Decade of Promoting Compliance and Ethics*, 87 IOWA L. REV. 697 (2002).

<sup>143</sup> Section 8C2.5(f) of the Guidelines, *id.*

<sup>144</sup> Section 8D1.1(a)(3) of the Guidelines, *id.*

<sup>145</sup> Section 8D1.4(c) of the Guidelines, *id.*

<sup>146</sup> *U.S. v. Booker*, 543 U.S. \_\_\_ 125 S.Ct. 738, 160 L.Ed.2d 621 (2005). On this case see, e.g., O. Dean Sanderford, *The Feeney Amendment, United States v. Booker, and New Opportunities for the Courts and Congress*, 83 N.C. L. REV. 736, 759-762 (2005).

judges are allowed to stray from their dictates. While it is too early to determine the impact of the *Booker* decision on the sentencing guidelines, the cases that have been decided since *Booker* suggest that judges have not significantly modified their sentences.<sup>147</sup>

Some scholars object to the leniency afforded to companies whose compliance programs are deemed effective, but have failed to prevent an employee from committing a crime. In particular, Kim Krawiec recently suggested that corporate criminal liability should be agnostic to the implementation of compliance programs.<sup>148</sup> Krawiec claims that judges are unable to assess the effectiveness of compliance programs and therefore cannot identify ineffective programs that are implemented solely to reduce the organization's liability.<sup>149</sup> Indeed, argues Krawiec, empirical research of compliance programs does not indicate that they are, in fact, effective.<sup>150</sup> Strict liability, achieved by a maintaining indifference to an organization's adoption of a compliance program, will not discourage effective programs (because the organization, subject to strict liability, will have the incentive to implement programs that reduce its exposure to criminal liability). At the same time, courts would avoid the pitfall of rewarding those compliance programs that are mere 'window dressing'.<sup>151</sup>

Contesting Krawiec's arguments about the small "real" effects of compliance programs and the organizational guidelines that endorse them is outside of the scope of this article. Rather, I will examine whether this analysis may be enhanced by considering placebo effects. Krawiec's analysis of the organizational sentencing guidelines, like most scholars' analysis of laws, looks only at "real effects" – the effectiveness of compliance

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<sup>147</sup> *Most Sentences Still Within Guidelines Following Booker Decision*, 73 THE U.S. LAW WEEK 2569 (March 29, 2005). This article cites a report by officials at the U.S. Sentencing Commission, which states that 62% of all sentences imposed since the Supreme Court's January 12 decision in *U.S. v. Booker* have been within the Guidelines' ranges. In comparison, 65% of sentences imposed in fiscal year 2002 were within the Guidelines' ranges. Since *Booker*, 36% of sentences were below the Guidelines' ranges and 1.9% were above those ranges, compared with 34.2% and 0.8%, respectively, in fiscal year 2002.

<sup>148</sup> Kimberly D. Krawiec, *Organizational Misconduct: Beyond the Principal-Agent Model*, 32 FLA. ST. U. L. REV. 263 (2005).

<sup>149</sup> *Id.*, at Section II.B.

<sup>150</sup> *Id.*, at Section IV.

<sup>151</sup> *Id.*, at Section I.

programs in deterring corporate misconduct. Compliance programs, however, may (and, I posit, do in fact) serve an additional purpose of assuring the public that the implementing corporation is less likely to violate the law. If the public over-estimates the probability of corporate crime, it would excessively avoid activities that may be affected by corporate crime, such as investing in corporations (if the crimes of concern involve corporate and securities laws),<sup>152</sup> or working for the corporation (if the crimes of concern involve anti-harassment or anti-discrimination laws). The placebo effect of a corporate compliance program would be a reduction of this dead weight loss by causing a convergence of the perceived and actual risk of corporate crime. This would be a positive placebo effect.

Step one in evaluating a placebo effect is examining whether people's subjective expectation of the law's ability to reduce the risk differ from the law's objective ability to reduce the risk. This depends to a large extent on whether people know that a given corporation has implemented a compliance program, whether they believe that the compliance program is effective, and whether the corporation is able to take advantage of cognitive biases to increase the public's perception of its program's effectiveness.<sup>153</sup>

The public may be suspicious of the corporation's motives. The corporation may be perceived as benefiting from the misconduct,<sup>154</sup> and thus lacking the incentive to self-police appropriately. On the other hand, while popular culture often portrays corporations as greedy, calculating and heartless,<sup>155</sup> it also seems to acknowledge and even emphasize a role for socially responsible companies.<sup>156</sup> The fact that companies engage in "PR activities" (well-publicized contributions to public causes) suggests that the public perceives some firms as "good" despite business' generally negative

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<sup>152</sup> See the Sarbanes-Oxley Act hypothetical above, *supra* Section II.

<sup>153</sup> E.g., through use of the media and frequent communication of vivid messages such as the application of the compliance program in individual cases, rather than abstract statistical data regarding the program.

<sup>154</sup> See Krawiec, *supra* note 148, at Section V.A.2.

<sup>155</sup> See, e.g., Larry E. Ribstein, *Film and Firms* (unpublished manuscript) available online at: <http://home.law.uiuc.edu/~ribstein/ribsteinmovies.pdf>, at pp. 26-27; Carol B. Swanson, *The Turn in Takeovers: A Study in Public Appeasement and Unstoppable Capitalism*, 30 GA. L. REV. 943, 957-958, 969-970 (1996).

<sup>156</sup> See Ribstein, *id.*

stereotype. Individuals thus decide whether to place a given corporation in the “good” or “bad” rubric, and assess the perceived effectiveness of their compliance programs accordingly.

This is where government endorsement plays a significant role: Criminal enforcement that is agnostic to the implementation of compliance programs – as proposed by Kraweic – sends a message to the public that compliance programs are ineffective. Kraweic is likely correct that if companies are held strictly liable to all consequences of their misconduct, they would still implement the programs that are most effective in mitigating misconduct, and reduce business activity that cannot be effectively self-policed. However, the public will not perceive the risk mitigated, and thus will itself reduce activity that is affected by corporate misconduct. This dead weight loss may be prevented if the placebo effects of compliance programs are embraced by signaling government’s belief that an effective compliance program reduced the risk of misconduct.

Thus, in step one as applied to our context one should examine the subjective beliefs of the class of people who could be injured from the type of corporate crime that the company is charged with. If these people are more likely over-optimistic than over-pessimistic about the effectiveness of the compliance program, then step one has been satisfied and a positive placebo effect may result from government endorsement of the compliance program.<sup>157</sup>

Step two requires determining whether the public over-estimates or under-estimates the risk (or risks) that the law purports to address. The risk of corporate misconduct is particularly susceptible to being over-estimated. As mentioned above, popular culture frequently portrays big business and the capitalists that control it as evil, calculating and

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<sup>157</sup> It seems that the outcome of the first step is highly dependent on the circumstances of individual corporations and specific corporate crimes. For example, a company may heavily publicize its compliance program to its employees and cause them to over-estimate its effectiveness, while not having the same effect on its investors or consumers.

heartless.<sup>158</sup> For example, several popular movies portray managers callously defrauding or manipulating shareholders or employees.<sup>159</sup> Though the audience is aware that the movies portray fictitious events, the movie makes corporate fraud more vivid, and creates a sense of familiarity with corporate fraud. This may trigger an availability bias and cause individuals to perceive corporate fraud as more likely. Because the same movies are seen by many people at the same time, they social amplification may exacerbate the over-estimation of the risk of fraud.

The business cycle is another cause for a divergence between perceived and actual risk of corporate misconduct. Allegations of corporate misconduct are more common when the alleged perpetrator is doing poorly.<sup>160</sup> There are at least two explanations for this pattern. First, it is easier for perpetrators to cover-up their misdeeds when the company is expanding and its profits increasing. Conversely, when the company is doing poorly misconduct is harder to conceal. Second, investors may be more trusting when the economy is doing well, or less forgiving when their investment did not fulfill their expectations.<sup>161</sup>

Business cycles cause many businesses' prospects improve and worsen at the same time. As many companies decline at the same time, each becomes more susceptible to allegations of misconduct. The public then becomes aware of many simultaneous allegations of wrong-doing, and this may bias individuals to over-estimate the probability of wrong-doing. Significant media coverage of these allegations, which finds and focuses on emotionally charged, vivid stories related to the misconduct, adds a vividness bias, and because many people see these reports at the same time, social amplification of

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<sup>158</sup> See note 155.

<sup>159</sup> E.g., WALL STREET (1987) (corporate raider/manager promises airline employees to keep the company operational in return for their support of his takeover, then proceeds to liquidate it); GLENGARRY GLEN ROSS (1992) (manager plays off his salesmen against each other, threatening to fire the underachievers); SOLID GOLD CADILLAC (1956) (managers overcompensate themselves, manipulate shareholder meetings and patronize small shareholders); THE HUDSUCKER PROXY (1994) (managers conspire to appoint an incompetent CEO to drive share prices down so that they can acquire control of the company).

<sup>160</sup> Larry E. Ribstein, *Bubble Laws*, 40 HOUS. L. REV. 77 (2003).

<sup>161</sup> *Id.*

the risk is likely as well.<sup>162</sup> As a result, during the nadir of the business cycle, cognitive biases may cause corporate misconduct to falsely seem to be an epidemic. The opposite effect, of social attenuation of risk, under-estimation of the risk of corporate misconduct and excessive risk taking, may occur at the peak of the business cycle.

Thus, at least during certain phases of the business cycle, the public is likely to over-estimate the risk of corporate crime and could benefit from a placebo effect. Depending on the quality of the data available about individuals' preferences and perceptions, an economist may be able to quantify the increase in activity (e.g., investing or employment) as a result of the placebo effect. When assessing the benefits of compliance programs, one must add this placebo effect to the program's "real" benefit in reducing corporate crime (a benefit that Krawiec seems to suggest is negligible). The balance may be sufficiently high to justify government's endorsement, through the organizational guidelines, of effective compliance programs.

The final step in the analysis compares the benefits (real, psychic and placebo) to those of any other law that is foreclosed if government is allowed to endorse compliance programs. This step is required because a placebo that increases social welfare might still be inferior to another action that increases social welfare even more, but would not be available if the law containing the placebo were enacted. In the case of the organizational guidelines' treatment of compliance programs it seems that this is not a concern.

Compliance programs do not hinder any government action to curb corporate misconduct, and do not eliminate incentives for the company to police itself effectively, since the company still suffers significant non-criminal sanctions (such as civil liability and harm to its public relations) for its misconduct.<sup>163</sup>

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<sup>162</sup> This is not to say that media coverage of corporate misconduct is welfare-reducing, only that it contributes to over-estimating the threat and making corporate misconduct seem ubiquitous. On the other hand, media coverage may deter some executives from wrong-doing by increasing both the probability of detection and the magnitude of punishment. "Sunlight is the best disinfectant; electric light the best policeman." Louis D. Brandeis, *OTHER PEOPLE'S MONEY* 92 (1914).

<sup>163</sup> See Aviram, *supra* note 24, at Section III.

It seems, therefore, that in many circumstances, but certainly not in all circumstances, compliance programs may increase social welfare through their placebo effects, even if they are not effective in reducing corporate crime. In such circumstances, the placebo effects would be lost if the policy Krawiec endorses (i.e., refraining from any government subsidy of compliance programs) were followed. A better policy may be one in which the Guidelines offer leniency to companies that implemented compliance programs that increase social welfare: either because of their “real” effects (the effectiveness of the compliance program, which the guidelines currently take into account), because of their placebo effects (if the three steps above were satisfied), or because of the combination of both “real” and placebo effects. Currently the guidelines only consider “real” effects. However, in a post-*Booker* court, a judge could stray from the Guidelines and reduce a sentence when a program likely caused positive placebo effects. Likewise, a judge should impose a harsher sentence on corporations whose actions have a welfare-reducing, negative placebo effect.

## VII. Conclusion

Legal scholarship evaluates legal actions almost exclusively according to their objective effects. But the social problems that these legal actions purport to address are often times misperceived,<sup>164</sup> and a legal action’s effect on the public’s subjective perception of the problem impacts welfare in a way that is distinct (and sometimes opposite) from the legal action’s objective effects. This effect, which I refer to as the placebo effect of a law, has the same objective impact as the objective (or “real”) effects – both effects cause an increase or decrease in individuals’ avoidance of activities that expose them to the risk that the law addresses.<sup>165</sup> In this article I suggested a framework to consider placebo effects in the assessment of legal actions. By incorporating placebo effects into

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<sup>164</sup> For example, sociologists refer to ‘moral panics,’ in which “substantial numbers of members of societies are subject to intense feelings of concern about a given threat which a sober assessment of the evidence suggests is either nonexistent or considerably less than would be expected...” Erich Goode & Nachman Ben-Yehuda, *Moral Panics: Culture, Politics and Social Construction*, 20 ANNUAL REV. SOCIOLOGY 149 (1994).

<sup>165</sup> Also, both effects possibly cause an increase or decrease in efforts individuals expend to eliminate the perceived risk.

theoretical analyses and improving our ability to measure them one may significantly improve the precision with which legal actions are evaluated.

In this article I undertook a positive analysis, not a normative one. It is not the goal of this article to either endorse or condemn the fostering of perceptions that differ from reality. Regardless of its merit, such behavior does occur. Understanding the resulting placebo effects will contribute to explaining and predicting the behavior of politicians who enact laws, of the individuals governed by those laws, and of the private markets of bias arbitrage that privately sell placebo effects. I am not making any moral or normative judgment on whether placebo effects are acceptable or desirable in a democratic society.

Furthermore, placebo effects are a second best solution, because they do not de-bias the individuals but rather re-bias – crease an opposite bias that hopefully approximates the original bias and offsets it. Because this article’s analysis is not normative, I am making no comparison between the use of placebo effects and de-biasing measures. Rather, I am positing that placebo effects are common and significant in their effects. Legal scholarship would improve the accuracy of its analyses by taking them into account.

The analysis presented in this article was preliminary and inevitably incomplete. The legal world is rife with placebo effects, yet they are to date largely (almost entirely) ignored. Further, this article focused on placebo effects in the legal context, but legal placebo effects are merely the tip of the iceberg. The creation of placebo effects plays a significant role in many other areas of social activity, such as politics, policy making, religion, sociology and psychology.<sup>166</sup> While placebo effects may be intuitive, their objective effects are measurable and therefore accommodate rigorous analysis. This article attempted to enhance the assessment of legal and social actions by extracting from the cluster of unmeasurable (and often ignored) “psychic effects” the measurable (and often significant) placebo effect.

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<sup>166</sup> See, e.g., Thomas, *supra* note 117 (an example in the realm of religion and sociology, described *supra*, Section V.3).