

# DISCIPLINING STANDARD FORM CONTRACT TERMS THROUGH ONLINE INFORMATION FLOWS: AN EMPIRICAL STUDY

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*Standard Form Contracts (SFCs) are at the heart of an ongoing debate among legal and empirical scholars about the extent to which market forces serve to discipline sellers into providing fair contract terms. Scholars have long assumed that consumers do not read SFCs ex ante (e.g., at the time of purchase or installation) but have generally left open the possibility that consumers might read SFCs ex post (e.g., if there is a breakdown in service or functionality). This Note examines empirically the extent to which online product ratings might serve as a conduit of information regarding contract terms from ex post to ex ante consumers. Comparing online product ratings from Epinions.com and Amazon.com with software license agreements graded according to a contract bias index, I find that product ratings on Amazon.com surprisingly bear a negative correlation with contract bias. That is, more highly rated products tend to come bundled with more pro-seller terms. My results suggest that while product ratings may contain information about contract terms, this information is not conveyed in a way that is useful to ex ante consumers and, accordingly, is unlikely to discipline sellers. This Note thus provides guidance for future research and policy initiatives seeking to explore ways to discipline sellers into providing fairer and more efficient contract terms.*

## INTRODUCTION

Standard form contracts (SFCs)—non-negotiated contracts presented to buyers on a take-it-or-leave-it basis—govern an enormous range of transactions.<sup>1</sup> All of us have entered into these contracts, whether or not we realize it. Everyday examples range from warranties on electronic appliances to fine print on concert tickets.<sup>2</sup>

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<sup>1</sup> W. David Slawson, *Standard Form Contracts and Democratic Control of Lawmaking Power*, 84 HARV. L. REV. 529, 529 (1971). For an encyclopedic review of the scholarship regarding standard form contracts, see Clayton P. Gillette, *Standard Form Contracts* (N.Y. Univ. Sch. of Law Ctr. for Law, Econ. & Org., Working Paper No. 09-18, 2009), available at <http://ssrn.com/abstract=1374990>.

<sup>2</sup> Florencia Marotta-Wurgler, *What's in a Standard Form Contract? An Empirical Analysis of Software License Agreements*, 4 J. EMPIRICAL LEGAL STUD. 677, 678 (2007).

Merely installing a computer program or opening a software package can legally bind you to the contract terms accompanying the product,<sup>3</sup> potentially limiting, among other things, your ability to return the product, make a copy for a friend, or sue the vendor if the program causes your computer to crash. The rise of commerce over the Internet has resulted in an increased use of SFCs known as “click-wrap” and “browsewrap” agreements,<sup>4</sup> both of which courts have held enforceable.<sup>5</sup>

Although SFCs are “standard” insofar as they provide a set of terms that govern a particular product sold to numerous consumers, they vary considerably across sellers and across products. Any given contract term can be drafted in a way that favors one party over the other. For example, a contract term that allows the consumer to return a defective software product for a refund favors the consumer, whereas a contract term that categorically precludes refunds favors the seller.<sup>6</sup> The decision to include either term represents a risk allocation—the former would require the seller to bear restocking and reshelving costs, whereas the latter would require the consumer to bear the risk of losing money paid for a product that does not work.

The fact that SFCs are drafted unilaterally by sellers and often presented to consumers only after purchase<sup>7</sup> has sparked intense debate among scholars regarding the question, “To what extent will firms include the most onerous possible clauses?”<sup>8</sup> Scholarly

<sup>3</sup> See, e.g., *Brower v. Gateway 2000, Inc.*, 676 N.Y.S.2d 569, 572–73 (App. Div. 1998) (enforcing terms shipped in box with computer equipment).

<sup>4</sup> Clickwrap agreements are standard terms to which a buyer must click “I agree” prior to purchasing a particular piece of software; browsewrap agreements are agreements not directly presented to a consumer but available for viewing—for example, privacy policies and terms of use on websites. Mark A. Lemley, *Terms of Use*, 91 MINN. L. REV. 459, 459–60 (2006).

<sup>5</sup> See *id.* at 459 & n.2 (citing cases and noting that every court scrutinizing clickwrap agreements has found them enforceable); *id.* at 462–63 & n.7 (citing cases and noting that courts have occasionally rejected browsewrap agreements to protect unwitting consumers but have generally upheld those entered into by sophisticated commercial entities in competition with drafter).

<sup>6</sup> See *infra* Appendix Table 1 for examples of the variation in common contract terms.

<sup>7</sup> These types of SFCs are known as rolling contracts. See Clayton P. Gillette, *Rolling Contracts as an Agency Problem*, 2004 WIS. L. REV. 679, 681 (discussing contracts presenting terms to buyers concurrently with delivery or first use of goods).

<sup>8</sup> Margaret Jane Radin, *Boilerplate Today: The Rise of Modularity and the Waning of Consent*, 104 MICH. L. REV. 1223, 1225 (2006); see also Friedrich Kessler, *Contracts of Adhesion—Some Thoughts About Freedom of Contract*, 43 COLUM. L. REV. 629, 640 (1943) (“Standard contracts in particular could thus become effective instruments in the hands of powerful industrial and commercial overlords enabling them to impose a new feudal order of their own making upon a host of vassals.”); Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203,

responses to this question have taken various shapes,<sup>9</sup> but the dominant position today is that of Law and Economics (L&E) scholars,<sup>10</sup> who would answer, “Only so far as competitive pressures fail to discipline firms into offering fair and efficient clauses.” These scholars agree that if existing conditions—for example, the possibility that consumers will read SFCs when deciding which products to purchase—effectively prevent sellers from providing unfair or unjust provisions, then there is no need for legal intervention such as legislatively mandated terms or judicial review.<sup>11</sup> However, the key divergence among these scholars is whether such conditions exist and function effectively to discipline sellers.

An important recent contribution to the debate comes from Shmuel Becher and Tal Zarsky, who propose that, although prospective buyers typically do not read contract terms at the time of purchase or installation (*ex ante*), experienced buyers may examine SFCs after there has been a breakdown in product functionality (*ex post*).<sup>12</sup> Of course, in order to discipline sellers, this information must flow from *ex post* to *ex ante* consumers. While the rise of online commerce has greatly increased the prevalence of SFCs, the Internet has also given birth to wholly new channels of information dissemination.<sup>13</sup> Becher and Zarsky point out that, whereas previously seller reputation might only have been conveyed through word of mouth,

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1205–06 (2003) (“[Sellers] have an incentive to make attributes buyers do not consider (‘non-salient’ attributes) favorable to themselves . . .”).

<sup>9</sup> See *infra* Part I.A (describing evolution of scholarly approaches ultimately embracing SFCs as market-driven and efficient).

<sup>10</sup> Avery Wiener Katz, *Standard Form Contracts*, in 3 NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 505 (Peter Newman ed., 1998).

<sup>11</sup> See *infra* Part I.B (describing Law and Economics (L&E) approach to SFCs, which conditions intervention by courts and legislatures on market failure and assumes that SFC terms reflect tradeoffs with other product features).

<sup>12</sup> See Shmuel I. Becher & Tal Z. Zarsky, *E-Contract Doctrine 2.0: Standard Form Contracting in the Age of Online User Participation*, 14 MICH. TELECOMM. & TECH. L. REV. 303, 315 (2008) (“Some aggrieved consumers . . . might examine the SFC they originally formed with the vendor to acquaint themselves with their rights and obligations.”); see also *infra* Part I.C (summarizing Becher and Zarsky’s framework and detailing unique benefits and challenges in online context). A recent empirical study confirms that, at the very least, the number of consumers who read SFCs *ex post* far exceeds the number who read such contracts *ex ante*. See Shmuel I. Becher & Esther Unger-Aviram, *The Law of Standard Form Contracts: Misguided Intuitions and Suggestions for Reconstruction* 13–14 (Aug. 7, 2009) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1443908](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1443908) (presenting survey data reflecting that “a significantly larger proportion of consumers . . . report intent to read the contract *ex post* (rather than *ex ante*)”).

<sup>13</sup> Yannis Bakos & Chrysanthos Dellarocas, *Cooperation Without Enforcement? A Comparative Analysis of Litigation and Online Reputation as Quality Assurance Mechanisms* 2 (MIT Sloan Sch. of Mgmt., Working Paper No. 4295-03, 2003), available at <http://ssrn.com/abstract=393041> (“Information technology is having dramatic impacts on the cost, scale and performance of reputation mechanisms.”).

online product rating websites now serve as fora for conveying information about sellers and their products.<sup>14</sup> Some consumers may specifically incorporate contract bias<sup>15</sup> into their product rating, while others may rate a product based on a problem that actually results from the SFC.<sup>16</sup> Accordingly, online fora can potentially discipline sellers by providing indicia of the bias of the contract terms that accompany a particular product.<sup>17</sup>

This Note explores Becher and Zarsky's proposal empirically through multiple regression analysis<sup>18</sup> of the relationship between contract bias and online product ratings. Specifically, my regressions test the question antecedent to whether ex ante consumers actually use and rely on product ratings: whether online product ratings convey any information about contract bias at all. To measure contract bias, I rely upon the methodology laid out by Florencia Marotta-Wurgler in her article, *What's in a Standard Form Contract? An Empirical Analysis of Software License Agreements*.<sup>19</sup> I collect product ratings from Epinions.com (Epinions),<sup>20</sup> a prominent con-

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<sup>14</sup> Becher & Zarsky, *supra* note 12, at 306 (discussing potential of “blogs, virtual communities, and places of virtual congregation [to] promote efficient and fair . . . contracting”); *see id.* at 351 & n.208 (citing Epinions.com (Epinions) as feedback system that aggregates consumers' numerical rankings “into one overall number (or grade) that accounts for all the users”).

<sup>15</sup> “Bias” means the extent to which the contract terms favor buyers or sellers.

<sup>16</sup> *See* Becher & Zarsky, *supra* note 12, at 315 (noting that travelers prevented from changing trip dates may complain about airline carrier's “lack of flexibility” when this actually pertains to specific contractual provisions). For example, one reviewer of Alsoft's DiskWarrior on Epinions indicated that she was denied a refund when she discovered that the product would not work on her Mac—a right that most likely was withheld in the SFC. *See* Ouduke, *Alsoft Sucks—Alsoft Disk Warrior Full Version for Mac (WDD104)*, EPINIONS (July 11, 2006), [http://www99.epinions.com/review/pr-Alsoft\\_DiskWarrior\\_For\\_Mac/content\\_241507208836](http://www99.epinions.com/review/pr-Alsoft_DiskWarrior_For_Mac/content_241507208836) (complaining that company “never warned me that this product doesn't work on Intel Macs, and when I asked for a refund (before they even shipped it!!) I was told no”).

<sup>17</sup> Of course, in order to discipline sellers, it would also be necessary for ex ante consumers to read and internalize the information presented—an empirical question that is beyond the scope of this Note.

<sup>18</sup> Multiple regression analysis is a statistical tool designed to explain the relationship between a dependent variable and one or more explanatory variables. *See generally* Daniel L. Rubinfeld, *Reference Guide on Multiple Regression*, in FEDERAL JUDICIAL CENTER REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 179 (2d ed. 2000).

<sup>19</sup> *See* Marotta-Wurgler, *supra* note 2, at 689–702; *see also infra* Part II.A (providing background on software license agreements and related scholarship); *infra* Part II.D.1 (detailing Marotta-Wurgler's contract bias methodology, which compares twenty-three terms to UCC default rules and assigns positive or negative points accordingly).

<sup>20</sup> EPINIONS, <http://www.epinions.com> (last visited Sept. 20, 2010); *see also infra* Part II.B.1 (providing background on Epinions); *infra* Part II.D.2 (describing product rating system featured on Epinions).

sumer reporting website, and Amazon.com (Amazon),<sup>21</sup> the largest online retailer according to InternetRetailer.com.<sup>22</sup>

My main finding is that, while the product ratings on Epinions do not bear a statistically significant relationship to cumulative contract bias, the product ratings on Amazon correlate negatively and statistically significantly with cumulative contract bias. That is, products with more pro-seller contract terms tend to have higher product ratings. This suggests that, at least with respect to Amazon, the average ratings of products contain information relating to the bias of the contract terms associated with the product. However, the counterintuitive result that highly rated products tend to have more pro-seller contract terms suggests that ratings may not convey this information in a way that is useful to *ex ante* consumers. The negative coefficient also suggests inferentially that any relationship between contract terms and bias is indirect: Most *ex post* buyers rate products based not on the contract terms but on other attributes, which in turn relate to contract terms. The normative implication of this finding is that online product ratings most likely do not effectively discipline sellers into providing fair contract terms, and that future research should focus on other ways to reduce the likelihood that sellers will provide inefficiently pro-seller terms.

This Note proceeds as follows. Part I provides background on scholarly approaches to SFCs and describes the potential market pressure that online product ratings may provide. Part II presents the sample of products I used and outlines my methodology. Part III examines the correlation between contract bias and product ratings and discusses normative implications, as well as suggestions for further research.

## I

### STANDARD FORM CONTRACTS AND ONLINE INFORMATION FLOWS: BACKGROUND AND HYPOTHESIS

In this Part, I provide background on standard form contracts and the evolution of scholarship regarding their use. The dominant position of scholars is the L&E perspective that intervention by courts or legislatures is inappropriate absent market failure. Several scholars have suggested that market failure may result from the failure of most consumers to read SFCs and the inability of an informed minority of

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<sup>21</sup> AMAZON, <http://www.amazon.com> (last visited Sept. 20, 2010); *see also infra* Part II.B.2 (providing background on Amazon); *infra* Part II.D.2 (describing product rating system featured on Amazon).

<sup>22</sup> *See The Top 500 List*, INTERNET RETAILER, <http://www.internetretailer.com/top500/list/> (last visited Sept. 20, 2010).

consumers who do read SFCs to understand them. However, Becher and Zarsky assert that experienced buyers may nonetheless convey information regarding SFCs to potential buyers through online fora and thereby discipline sellers.<sup>23</sup> It is this proposal that I seek to test empirically.

### A. *Standard Form Contract Theory*

The basic paradigm of contract law envisions parties freely and autonomously negotiating over<sup>24</sup>—and mutually manifesting assent to<sup>25</sup>—a set of terms and conditions to govern an exchange of goods or services. SFCs feature few, if any, of these characteristics.<sup>26</sup> Instead, the seller provides boilerplate language to consumers with the expectation that it will not be amended, or perhaps even understood.<sup>27</sup> Thus, a consumer's only choice is either to accept the terms or to refrain from purchasing the product at all.<sup>28</sup> For most consumers, the answer is simple: Ignore the terms, purchase the product, and let the chips fall where they may.<sup>29</sup> Given the tendency of consumers to disregard SFCs, these types of contracts have stretched the traditional con-

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<sup>23</sup> Becher & Zarsky, *supra* note 12, at 306; *see also infra* Part I.C (outlining Becher and Zarsky's theory).

<sup>24</sup> Becher & Zarsky, *supra* note 12, at 308.

<sup>25</sup> *See* RESTATEMENT (SECOND) OF CONTRACTS § 17 (1981) (“[T]he formation of a contract requires a bargain in which there is a manifestation of mutual assent to the exchange and a consideration.”).

<sup>26</sup> SFCs are drafted in advance by the seller, who is typically the party with greater market power and sophistication. *See* Michael I. Meyerson, *The Efficient Consumer Form Contract: Law and Economics Meets the Real World*, 24 GA. L. REV. 583, 594–95 (1990) (describing SFCs as adhesion contracts drafted by seller). In this sense, they are rarely the outcome of bargaining. Shmuel I. Becher, *A “Fair Contracts” Approval Mechanism: Reconciling Consumer Contracts and Conventional Contract Law*, 42 U. MICH. J.L. REFORM 747, 748 (2009). SFCs governing online purchases are not presented by an in-person representative of the seller, and even in-person agents of sellers are typically not empowered to make changes to the content of SFCs. Becher & Zarsky, *supra* note 12, at 308. *But see* Jason Scott Johnston, *The Return of Bargain: An Economic Theory of How Standard-Form Contracts Enable Cooperative Negotiation Between Businesses and Consumers*, 104 MICH. L. REV. 857, 865 (2006) (arguing that, while contractual forms are standard, firms give certain employees discretion to depart from SFC terms and to deliver more than promised if in firm's best interest).

<sup>27</sup> *See* RESTATEMENT (SECOND) OF CONTRACTS § 211(2) (1981) (“[Standardized agreements are] interpreted wherever reasonable as treating alike all those similarly situated, *without regard to their knowledge or understanding* of the standard terms of the writing.” (emphasis added)).

<sup>28</sup> For some SFCs known as “rolling contracts,” the terms are presented only after the user has purchased the product, in which case the consumer's choice is to accept the terms or refrain from using the product and return it to the retailer, if permitted. Gillette, *supra* note 7, at 681.

<sup>29</sup> *See infra* notes 41–42 and accompanying text (describing scholarly consensus that buyers do not read contracts).

cept of assent to the breaking point, particularly in the online context.<sup>30</sup>

The shape of scholarly and judicial responses has evolved over the last several decades to embrace SFCs as a product of market forces. Scholars initially responded with deep suspicion that apparent assent by consumers was tantamount to “a subjection more or less voluntary to terms dictated by the stronger party, terms whose consequences are often understood only in a vague way, if at all.”<sup>31</sup> Nonetheless, some scholars recognized SFCs as an economic reality necessary to reduce transactional costs attendant to the rise of mass production.<sup>32</sup> The 1980s marked a shift in which L&E scholars began to gain traction with the “market assent” theory: Consumers who shop for buyer-friendly SFC clauses may exert the competitive pressure needed to force sellers to provide efficient contract terms.<sup>33</sup> Under the L&E view, contract terms represent optimal risk allocations between buyer and seller,<sup>34</sup> and uniformity in terms may indicate that the industry is highly competitive.<sup>35</sup> In the 1990s, the Supreme

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<sup>30</sup> Lemley, *supra* note 4, at 465 (“[I]n today’s electronic environment, the requirement of assent has withered away to the point where a majority of courts now reject any requirement that a party take any action at all demonstrating agreement to or even awareness of terms in order to be bound by those terms.”).

<sup>31</sup> Kessler, *supra* note 8, at 632. By the mid-1970s, scholars and courts had come to view SFCs as a form of fraud perpetrated by sellers. *See, e.g.*, W. David Slawson, *Mass Contracts: Lawful Fraud in California*, 48 S. CAL. L. REV. 1, 2 (1974) (“Sellers often mislead buyers into expecting more than the law will say that the buyers are entitled to and then, with impunity, deliver to them even less than this.”); *see also* Henningsen v. Bloomfield Motors, Inc., 161 A.2d 69, 87 (N.J. 1960) (“Because there is no competition among the motor vehicle manufacturers with respect to the scope of protection guaranteed to the buyer, there is no incentive on their part to stimulate good will in that field of public relations.”); *cf.* William C. Whitford, *Law and the Consumer Transaction: A Case Study of the Automobile Warranty*, 1968 WIS. L. REV. 1006, 1056 (“Over 50 percent of the [survey] respondents thought [mistakenly that maintenance operations] had to be performed at the selling dealer or at any authorized dealer. . . . [This was likely because] dealers’ verbal explanations stress the desirability of having the work performed by the dealer . . .”).

<sup>32</sup> *See* Slawson, *supra* note 1, at 530 (arguing that SFCs are necessary to providing services at reasonable cost in mass production society).

<sup>33</sup> *See* Alan Schwartz & Louis L. Wilde, *Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests*, 69 VA. L. REV. 1387, 1402 (1983) (discussing influences on warranty terms).

<sup>34</sup> *See* George L. Priest, *A Theory of the Consumer Product Warranty*, 90 YALE L.J. 1297, 1298–99 (1981) (describing warranties as allocation of risk between manufacturer and consumer).

<sup>35</sup> Robert A. Hillman & Jeffrey J. Rachlinski, *Standard-Form Contracting in the Electronic Age*, 77 N.Y.U. L. REV. 429, 439 (2002) (“Because the best allocation of risks is not likely to vary between businesses within an industry, most businesses will offer terms similar to those offered by their competitors.”); *see also* Schwartz & Wilde, *supra* note 33, at 1390–91, 1403 (presenting model in which “the only possible equilibrium in which all the firms charge the same price occurs when that price is competitive” and suggesting that sellers are similarly responsive to consumer demands for warranty protection).

Court implicitly accepted this view in *Carnival Cruise Lines, Inc. v. Shute*.<sup>36</sup>

### B. *The Law & Economics Approach*

The L&E position essentially states that courts, legislatures, and administrative agencies should not intervene unless the market fails to exert pressure upon sellers to provide fair and efficient standardized terms.<sup>37</sup> Intervention is generally inappropriate because a pro-seller clause may reflect a tradeoff with other features, such as price or product quality. L&E scholars maintain that contracts are not legal instruments wholly disconnected from the products and services they govern; rather, a contract is an integral part of the product.<sup>38</sup> Even

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<sup>36</sup> 499 U.S. 585, 593–94 (1991) (upholding enforceability of forum-selection clause found in SFC printed on back of consumer cruise-line ticket because “passengers who purchase tickets containing a forum clause like that at issue in this case benefit in the form of reduced fares reflecting the savings that the cruise line enjoys by limiting the fora in which it may be sued”).

<sup>37</sup> See, e.g., Becher & Zarsky, *supra* note 12, at 310–11 (“L&E scholars’ Non-Intervention Approach (hereinafter NIA) is premised on competitive market forces. These forces allegedly generate a desired equilibrium at which vendors have adequate incentives to draft efficient standardized terms. . . . [T]he NIA relies on the existence of market pressure, generated by a crucial group of Marginal Consumers.”); Katz, *supra* note 10, at 505 (“[T]he relevant policy question is whether state regulation of form contracts can improve on the unregulated market.”). Under this view, legal intervention encroaches on individual autonomy and smacks of state paternalism, given that contracts represent private arrangements between the contracting parties. Becher & Zarsky, *supra* note 12, at 310. This view also rests on an assessment of institutional competence: Firms as repeat players are best situated to determine the appropriate content of SFCs, whereas courts lack the expertise to analyze the specific transaction and market, and legislatures cannot readily determine whether a pro-seller clause will be offset by a pro-buyer clause. See Clayton P. Gillette, *Pre-approved Contracts for Internet Commerce*, 42 HOUS. L. REV. 975, 982 (2005) (“Confronted with a clause that in isolation appears to be one-sided and unable to decipher how that clause fits into the contract as a whole, judicial processes are likely to focus on the injuries suffered by a particular consumer and identify apparent unfairness with exploitation.”); Gillette, *supra* note 7, at 713 (“Courts may have difficulty perceiving the manner in which invalidation of a term affects other buyers, including those who would not have found the term oppressive or otherwise would have considered the term reasonable in light of the contract as a whole.”); *id.* at 717 (“[A]dministrative agencies . . . cannot readily analyze proposed risk allocations to determine whether a proseller clause is sufficiently offset by a probuyer [clause] elsewhere in the document.”); Robert A. Hillman, *Rolling Contracts*, 71 FORDHAM L. REV. 743, 751 (2002) (“[B]etween business people and judges, the former should be more capable of assessing the appropriate content of form contracts because business people inevitably gain understanding and experience through their day-to-day . . . activities.”).

<sup>38</sup> See, e.g., Douglas G. Baird, *The Boilerplate Puzzle*, 104 MICH. L. REV. 933, 933 (2006) (“For a higher price, I can buy a computer with a bigger screen. . . . So too with the attributes that are legal terms. . . . [For example,] I can buy a service contract that extends the warranty.”); Radin, *supra* note 8, at 1229 (“If a cell phone contains a chip that will fail in one year and also comes with boilerplate exonerating the seller of liability for consequential damages, its market value is affected in exactly the same way by these two fea-

though take-it-or-leave-it contracts do not involve the bargaining between a buyer and a seller envisioned in traditional autonomy-based accounts of contract formation,<sup>39</sup> the assumption is that if a seller provides terms that favor its own interests, then it will accordingly confer other benefits to the buyer. That is, a seller may allocate contractual risk to the buyer, but offset this through price or other product features. For example, if a corporation provides a forum selection clause stating that any lawsuit brought by the consumer must be litigated exclusively in the corporation's home jurisdiction, that corporation can then incorporate the money that it saves (for example, by not having to fly its attorneys across the country) into its balance sheet as savings that it can then pass on to consumers.<sup>40</sup>

If contract terms are indeed an attribute of the product as a whole, then consumers should care about the quality of the contract terms because they are paying for not only the product's functionality but the contract terms as well. Yet L&E scholars generally agree that most buyers do not read SFCs at the time of purchase.<sup>41</sup> Recent

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tures; for economic purposes, they are both just features of the product.”); *see also* Lewis A. Kornhauser, *Unconscionability in Standard Forms*, 64 CAL. L. REV. 1151, 1168 (1976) (“The myriad clauses in fine print represent a detailed description of the commodity to which the price . . . attaches. One buys not just a Chevrolet of a given model year . . . but also a complex of rights and liabilities, risks and insurance outlined by the purchase order form.”); Arthur A. Leff, *Contract as Thing*, 19 AM. U. L. REV. 131, 144–51, 155 (1970) (proposing that we “talk[] about contracts as things, as ‘part of’ the goods being sold”). Some courts appear to have echoed this assumption. *See, e.g.*, Hill v. Gateway 2000, Inc., 105 F.3d 1147, 1149 (7th Cir. 1997) (“Customers as a group are better off when vendors skip costly and ineffectual steps such as telephonic recitation, and use instead a simple approve-or-return device.”); ProCD v. Zeidenberg, 86 F.3d 1447, 1453 (7th Cir. 1996) (“Terms of use are no less part of ‘the product’ than are the size of the database and the speed with which the software compiles listings.”); Digital Equip. Corp. v. Uniq Digital Techs., 73 F.3d 756, 762 (7th Cir. 1996) (“‘Free’ tech support is not free; customers pay for it in the price of the product, and a marginal cost of zero for calling means that it will be overused, and hence can add quite a bit to the price of a computer or a software package.”).

<sup>39</sup> *See, e.g.*, Radin, *supra* note 8, at 1231 (“The traditional picture imagines two autonomous wills coming together to express their autonomy by binding themselves reciprocally to a bargain of exchange.”); *see also* Randy E. Barnett, *A Consent Theory of Contract*, 86 COLUM. L. REV. 269, 272 (1986) (referring to classical view as “will theory,” under which “contractual duties are binding because they are freely assumed by those who are required to discharge them”); Richard Craswell, *Remedies When Contracts Lack Consent: Autonomy and Institutional Competence*, 33 OSGOODE HALL L.J. 209, 210–11 (1995) (“[I]f someone signs a contract but does so only because the other party holds a gun to his head, no autonomy theorist would say that the first party had consented in any meaningful way. The same would apply if the first party had been tricked into signing . . .”).

<sup>40</sup> This was the Supreme Court's justification for upholding a standard form contract printed on the back of a cruise ticket in *Carnival Cruise Lines*, 499 U.S. at 593–94.

<sup>41</sup> *See, e.g.*, Meyerson, *supra* note 26, at 595 (“[C]onsumers do not read form contracts, or do not understand the terms, and are thus unaware of their contents.”); Todd D. Rakoff, *Contracts of Adhesion: An Essay in Reconstruction*, 96 HARV. L. REV. 1174, 1179 (1983)

empirical studies appear to confirm this conclusion.<sup>42</sup> Some have asserted that buyers' failure to read SFCs creates the potential for market failure, because sellers "have an incentive to make attributes buyers do not consider . . . favorable to themselves."<sup>43</sup> Accordingly, scholars have looked to other "existing institutional arrangements to see if the on-the-ground situation as it presently exists does enough to police the private use of boilerplate."<sup>44</sup>

One possibility is that an "informed minority" of buyers reads contract terms, and that sellers will compete for this informed minority by offering attractive terms from which nonreading buyers also benefit.<sup>45</sup> Some scholars, however, have suggested that sellers may discriminate between reading buyers and nonreading buyers insofar as these two groups have differing interests.<sup>46</sup> Other scholars have relied on behavioral psychology to demonstrate that even the consumers who read SFCs at the time of purchase may suffer from cognitive limitations that lead to market failure. These limitations include bounded rationality,<sup>47</sup> inability to accurately assess risk,<sup>48</sup> and

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("Virtually every scholar who has written about contracts of adhesion has accepted [that the adhering party is unlikely to read the standard terms before signing the document,] and the few empirical studies that have been done have agreed.").

<sup>42</sup> See, e.g., Becher & Unger-Aviram, *supra* note 12, at 13–14 (presenting surveys that support assertion that consumers tend not to read SFCs at time of assenting to contract); Robert A. Hillman, *Online Consumer Standard-Form Contracting Practices: A Survey and Discussion of Legal Implications*, in *CONSUMER PROTECTION IN THE AGE OF THE 'INFORMATION ECONOMY'* 283, 283 (Jane K. Winn ed., 2006) (surveying ninety-two law students and finding that few buyers read SFCs beyond price and description of goods or services).

<sup>43</sup> Korobkin, *supra* note 8, at 1205–06.

<sup>44</sup> Todd D. Rakoff, *The Law and Sociology of Boilerplate*, 104 *MICH. L. REV.* 1235, 1243 (2006).

<sup>45</sup> See, e.g., Baird, *supra* note 38, at 936 ("The sophisticated buyer provides protection for those that are entirely ignorant."); Gillette, *supra* note 7, at 691 (noting that under competitive conditions "the presence of reading buyers can serve as a proxy for nonreading buyers"); Alan Schwartz & Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 *U. PA. L. REV.* 630, 637–38 (1979) (suggesting that competition for informed consumers can "generate optimal prices and terms for all consumers").

<sup>46</sup> Gillette, *supra* note 7, at 692 (noting that "high-end computer[ ] [buyers] are likely to be more dependent on their computers and more attentive to the terms that allocate risks concerning the computer's performance" than low-end buyers, such that "[s]ellers could offer different terms with computers of different levels of sophistication"); *id.* at 694 (noting that "[r]eading buyers may also be imperfect surrogates for nonreading buyers" because "[r]eading buyers that purchase goods in high volume, for instance, may not need the class-action device, which is displaced by arbitration, to justify seeking redress for defects in goods").

<sup>47</sup> Korobkin, *supra* note 8, at 1206 (arguing that buyers "take into account only a limited number of product attributes and ignore others," such that sellers have incentive to make "non-salient" attributes favorable to themselves).

consumer satisfaction with limited or incomplete information.<sup>49</sup> Recent empirical scholarship casts further doubt on the assumption that an informed minority even exists, at least in the online software context.<sup>50</sup> However, the question these scholars leave open is: If buyers do not read standard form terms before purchasing products, what other institutional arrangements exist to prevent market failure?

### C. *The Flow of Information from Ex Post to Ex Ante Consumers*

In response to this question, Becher and Zarsky posit that, although consumers do not read or evaluate SFCs prior to or at the time of their formation, the ability of sellers to provide excessively pro-seller contract terms could be mitigated by information streaming to the market from experienced consumers who read SFCs *ex post*.<sup>51</sup> Specifically, Becher and Zarsky identify three “chokepoints” of information flow: (1) the *ex post* consumer viewing the contract, (2) the *ex post* consumer conveying this information, and (3) the *ex ante* consumer receiving and relying upon such information.<sup>52</sup>

The authors proceed to identify the unique challenges faced at each chokepoint and the advantages the Internet setting bears over traditional social feedback mechanisms.<sup>53</sup> With respect to the first chokepoint, *ex post* consumers may face fewer difficulties locating SFCs online.<sup>54</sup> Moreover, *ex post* consumers are less susceptible to the

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<sup>48</sup> Oren Bar-Gill, *Seduction by Plastic*, 98 Nw. U. L. REV. 1373, 1407 (2004) (asserting that credit-card holders’ tendency to undervalue penalty clauses allows issuers to set higher penalties).

<sup>49</sup> Hillman & Rachlinski, *supra* note 35, at 481, 484. Specifically, consumers may feel a sense of precontractual investment of time and effort in shopping that discourages them from reading contract terms that might prevent them from buying the product, or they may worry that gathering too much information will impair their decisionmaking process. *Id.*

<sup>50</sup> See Yannis Bakos, Florencia Marotta-Wurgler & David R. Trossen, *Does Anyone Read the Fine Print? Testing a Law and Economics Approach to Standard Form Contracts 3* (N.Y. Univ. Law & Econ. Research Paper Series, Paper No. 09-40, 2009), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1443256](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1443256) (tracking Internet browsing behavior and finding that only one out of one thousand retail software shoppers even view license agreements for at least one second).

<sup>51</sup> Becher & Zarsky, *supra* note 12, at 306.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.* at 320.

<sup>54</sup> *Id.* Specifically, online SFCs are often located on vendors’ websites, as opposed to physical documents that may be easily misplaced, though Becher and Zarsky acknowledge that vendors may make it difficult to find the SFC if they keep the relevant link hidden on the website. *Id.* at 320–21. However, the fact that most software products—and certainly all of the products in my sample—present the license agreement during installation and automatically save a copy of the agreement in the installed folder diminishes the impact of this type of vendor behavior.

cognitive errors that plague ex ante consumers.<sup>55</sup> Regarding the second chokepoint, Becher and Zarsky identify several avenues of information flow in the online context, including blogs, contamination or dilution of vendor brand reputation, social networks, and, most importantly for the purposes of this Note, virtual congregation points such as message boards and open fora.<sup>56</sup> These virtual congregation points face two key challenges: (1) accreditation, or information indicating whether the online rater is “knowledgeable, reliable, trustworthy and unbiased,”<sup>57</sup> and (2) motivation, or reasons for consumers to engage in reviewing products.<sup>58</sup> Several online fora mitigate these problems through tools allowing users to grade reviews by other users<sup>59</sup> and incentives such as prizes and external compensation to encourage participation.<sup>60</sup> With respect to the third chokepoint, the authors point out that the costs to ex ante buyers of considering information from ex post buyers are “substantially lower than directly confronting the SFC terms, which are usually cloaked in heavy legalese.”<sup>61</sup>

This Note seeks to examine from an empirical perspective the efficacy of the second chokepoint—namely, whether product ratings

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<sup>55</sup> *Id.* at 315–16. Such cognitive errors include: information overload given the complexity of SFC terms; purchasing environments characterized by noise, time constraints, and vendor manipulation; a limited ability to evaluate future contingencies; the sunk cost effect; and cognitive dissonance. *Id.* at 312–14.

<sup>56</sup> *Id.* at 321–33.

<sup>57</sup> *Id.* at 333. Online fora may be particularly susceptible to manipulation by firms given the ability to anonymously post reviews. However, Chrysanthos Dellarocas has noted that, “since the quality of honest content is high, firms will not be able to substantially change consumer beliefs through manipulation.” Chrysanthos Dellarocas, *Strategic Manipulation of Internet Opinion Forums*, 52 MGMT. SCI. 1577, 1590 (2006).

<sup>58</sup> Becher & Zarsky, *supra* note 12, at 336.

<sup>59</sup> *Id.* at 334. As discussed in Part II.B, *infra*, Amazon allows users to indicate whether a given review is helpful or not, and Epinions allows users to rate the helpfulness of reviews. See, e.g., *Customer Reviews, Microsoft Office Professional 2007 Full Version*, AMAZON, [http://www.amazon.com/Microsoft-Office-Professional-2007-VERSION/product-reviews/B000HCVR30/ref=dp\\_top\\_cm\\_cr\\_acr\\_txt?ie=UTF8&showViewpoints=1](http://www.amazon.com/Microsoft-Office-Professional-2007-VERSION/product-reviews/B000HCVR30/ref=dp_top_cm_cr_acr_txt?ie=UTF8&showViewpoints=1) (last visited Sept. 20, 2010); see also *Rating Reviews on Epinions*, EPINIONS, [http://www0.epinions.com/help/faq/show\\_~faq\\_rating](http://www0.epinions.com/help/faq/show_~faq_rating) (last visited Sept. 20, 2010) (encouraging users to rate reviews in order to “help other users determine which reviews to read and which to avoid” and providing guidelines on how to rate reviews).

<sup>60</sup> Becher & Zarsky, *supra* note 12, at 336–37. As discussed in Part II.B, *infra*, Amazon encourages participation through follow-up emails, and Epinions encourages user participation through monetary compensation programs such as Eroyalties and Income Share. See *FAQs: Earnings on Epinions.com*, EPINIONS, [http://www.epinions.com/help/faq/?show=faq\\_earnings](http://www.epinions.com/help/faq/?show=faq_earnings) (last visited Sept. 20, 2010) (“Eroyalties credits are the tool to track how much [writers] earn for writing reviews[,]” and “[t]he Income Share program rewards writers who contribute reviews [by paying them] a share of the revenue gained from providing consumers with high-quality information . . .”).

<sup>61</sup> Becher & Zarsky, *supra* note 12, at 320.

written by ex post consumers contain information regarding contract bias. If observed, a statistically significant positive relationship between online product ratings and contract bias would suggest that ratings serve as a conduit of information from ex post consumers. Although such a relationship would be consistent with the assumption that ex post consumers do read and evaluate SFCs, product rating data cannot directly support this proposition because ex post consumers may instead rate products based on other attributes such as price or functionality. A correlation between product ratings and contract bias would tell us little about the third chokepoint in terms of whether a sufficient number of ex ante consumers use and rely upon ratings in order to discipline sellers.<sup>62</sup> However, the extent to which product ratings correlate with contract bias can inform normative conclusions regarding whether prospective buyers may rely on product ratings as indicators of contract bias and, accordingly, whether ratings at least have the potential to discipline sellers if the third chokepoint is also satisfied.

There are two alternative hypotheses I seek to test against the null hypothesis.<sup>63</sup> The first is Becher and Zarsky's assertion that ex post buyers directly incorporate their assessment of contract bias into product ratings, and do so to the extent necessary for ex ante buyers to potentially discern such information from the ratings. If this is the case, we would expect to see a positive correlation between contract bias and product ratings. The second is slightly different from Becher and Zarsky's proposal but is a logical follow-on from the L&E tradeoff model: that ex post buyers rate products based on other features, such as price or functionality, which indirectly relate to contract bias. If this is the case, we would expect to see either a positive or negative correlation between the two variables, depending on the relationship of contract bias and the other features that drive ratings.

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<sup>62</sup> Existing studies indicate that online product rating websites are important but do not address the prevalence of their use by ex ante consumers. See Sylvain Senecal & Jacques Nantel, *The Influence of Online Product Recommendations on Consumers' Online Choices*, 80 J. RETAILING 159, 167 (2004) (finding through targeted behavioral studies that consumers are influenced in their online product choices by online recommendations); Internet & American Life Project, Pew Research Ctr., *Online Activities, Total*, PEW INTERNET, <http://www.pewinternet.org//static-pages/Trend-Data/Online-Activities-Total.aspx> (last updated Dec. 4, 2009) (finding that 31% of internet users rate products online).

<sup>63</sup> In regression analysis, the null hypothesis represents the default assumption that "the results observed in a study with respect to a particular variable are no different from what might have occurred by chance, independent of the effect of that variable." Rubinfield, *supra* note 18, at 224.

## II SAMPLE AND METHODOLOGY

This Section explains my choice of data for empirical study: software license agreements and online product ratings from Epinions and Amazon. I then proceed to describe my sample of products. Finally, I lay out the methodology used to measure contract bias and product ratings.

### *A. Software License Agreements*

In this Note, I focus on software end user license agreements (EULAs).<sup>64</sup> There are several factors that make this subset of standard form contracts particularly attractive for my empirical study. First, software license agreements are pervasive in e-commerce transactions and are growing in importance, given that global software sales increased 6.5% to \$303 billion in 2008 alone.<sup>65</sup> Second, the consumers that purchase software are likely to be computer literate and particularly apt to engage in online information flows.<sup>66</sup> Third, software license agreements are at the heart of the debate about the enforceability of standard form contracts<sup>67</sup> and have been heavily litigated in recent years.<sup>68</sup> Fourth, non-customized, prepackaged

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<sup>64</sup> Software license agreements come primarily in the form of “clickwrap” agreements, which consumers sign electronically by clicking “I agree” to a standard set of terms. See *supra* note 4 (defining and distinguishing clickwrap and browsewrap agreements). Many of the software license agreements in my sample are rolling contracts—that is, clickwrap agreements that are not presented prior to purchase and instead appear upon installation. I do not distinguish in my tests between rolling contracts and regular clickwrap agreements for two reasons. First, my study focuses on the product ratings posted by buyers who have already purchased and installed the product. Accordingly, the timing of the presentation of the terms does not affect the analysis because the *ex post* buyer will have had the opportunity to view the terms regardless. Second, recent empirical work has shown that rolling contracts are not systematically more pro-seller than regular clickwrap agreements. See Florencia Marotta-Wurgler, *Are ‘Pay Now, Terms Later’ Contracts Worse for Buyers? Evidence from Software License Agreements*, 38 J. LEGAL STUD. 309, 341 (2009) (finding that contracts displayed prepurchase are, on average, slightly more pro-seller than rolling contracts).

<sup>65</sup> *Software: Global Industry Guide*, INFO EDGE, [http://www.infoedge.com/product\\_type.asp?product=DO-4959](http://www.infoedge.com/product_type.asp?product=DO-4959) (last visited Sept. 7, 2010). Software license agreements should also be a particularly accessible example to most readers, given that anyone who owns a personal computer has entered into such an agreement.

<sup>66</sup> Becher & Zarsky, *supra* note 12, at 365–66.

<sup>67</sup> See Marotta-Wurgler, *supra* note 64, at 317 (“[D]isagreement among scholars and consumer advocates over the enforcement of software shrink wrap and click wrap licenses have stalled recent efforts to create uniform laws to govern transactions of information goods over the Internet, such as the Uniform Computer Information Transactions Act . . .”).

<sup>68</sup> See, e.g., *Altera Corp. v. Clear Logic, Inc.*, 424 F.3d 1079, 1081 (9th Cir. 2005) (affirming lower court interpretation of use restrictions in software license agreement); *Davidson & Assocs. v. Internet Gateway*, 334 F. Supp. 2d 1164, 1177 (E.D. Mo. 2004)

software products are homogenous enough to allow for meaningful comparison of EULAs from different companies.<sup>69</sup>

Software license agreements are also the focus of a steadily developing body of empirical studies illuminating contract theory. In a series of recent articles, Florencia Marotta-Wurgler has developed a contract bias index<sup>70</sup> and applied it to a large sample of software license agreements to generate various statistically significant findings regarding the nature of SFCs. Marotta-Wurgler has found that larger and younger firms tend to have more pro-seller terms than smaller and older companies,<sup>71</sup> that competitive conditions such as market share are uncorrelated with the bias of standard terms,<sup>72</sup> and that the terms included in rolling contracts—where the terms are not presented until after purchase—are not systematically more pro-seller than those appearing in contracts disclosed pre-purchase.<sup>73</sup> In addition to being the only comprehensive contract bias methodology in the empirical legal field,<sup>74</sup> Marotta-Wurgler's methodology appears to be broadly recognized by legal scholars.<sup>75</sup> This Note seeks to push the

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(enforcing software license agreement associated with CD-ROM game); *Stenzel v. Dell, Inc.*, 870 A.2d 133, 144–45 (Me. 2005) (enforcing arbitration clause in software license agreement); *1-A Equip. Co. v. Icode, Inc.*, No. 0057CV467, 2003 WL 349913, at \*2 (Mass. App. Ct. 2003) (enforcing forum selection clause in software license agreement).

<sup>69</sup> Marotta-Wurgler, *supra* note 64, at 322. Several sets of products in my sample even offer similar functionality. For example, Symantec and McAfee offer virus scan software; Sony and Cakewalk offer music production software; H&R Block and Intuit offer tax filing software.

<sup>70</sup> Methodologies relying upon an index are not uncommon in the empirical literature. *See, e.g.*, Paul Gompers, Joy Ishii & Andrew Metrick, *Corporate Governance and Equity Prices*, 118 Q.J. ECON. 107, 114–15 (2003) (presenting index in which one point is added for every corporate governance provision restricting shareholder rights); Rafael La Porta et al., *Legal Determinants of External Finance*, 52 J. FIN. 1131, 1134 (1997) (presenting index in which one point is added for corporate anti-director rights).

<sup>71</sup> Marotta-Wurgler, *supra* note 2, at 713.

<sup>72</sup> Florencia Marotta-Wurgler, *Competition and the Quality of Standard Form Contracts: The Case of Software License Agreements*, 5 J. EMPIRICAL LEGAL STUD. 447, 475 (2008).

<sup>73</sup> Marotta-Wurgler, *supra* note 64, at 341.

<sup>74</sup> Ronald J. Mann and Travis Seibeneicher appear to have adopted a contract bias methodology similar to that employed by Marotta-Wurgler, focusing on terms that diverge from the UCC Article 2 default rules in ways that favor sellers. Ronald J. Mann & Travis Seibeneicher, *Just One Click: The Reality of Internet Retail Contracting*, 108 COLUM. L. REV. 984, 995 (2008). However, they focus only on nine terms rather than twenty-three, and they look exclusively at terms that favor sellers, without considering terms that favor consumers. *Id.* at 995–96.

<sup>75</sup> *See, e.g.*, Becher, *supra* note 26, at 767 n.81 (describing Marotta-Wurgler's 2007 article as "an interesting attempt to examine the content of software license contracts"); Mann & Seibeneicher, *supra* note 74, at 987 n.13 (citing Marotta-Wurgler's 2007 and 2009 articles and employing similar methodology); *see also* Zev J. Eigen, *The Devil in the Details: The Interrelationship Among Citizenship, Rule of Law and Form-Adhesive Contracts*, 41 CONN. L. REV. 381, 386 n.7 (2008) (citing Marotta-Wurgler's 2007 article); Theo-

SFC debate further by utilizing what has proven to be a robust and widely accepted contract bias methodology in order to test the effectiveness of a previously unexamined potential source of market pressure—online product ratings.

### B. Product Ratings

To measure the information flow from ex post consumers, I use the average star ratings, described by Becher and Zarsky as the “aggregated factors,”<sup>76</sup> of products listed on Epinions and Amazon. Whereas classifying the content of a written review would require inherently subjective determinations,<sup>77</sup> an average star rating provides a useful statistic because it is already quantified and thus easily measurable. Additionally, the average star ratings have the advantage of allowing prospective buyers to concentrate on concise information that encapsulates the entire product and is easy to understand.<sup>78</sup> Epinions and Amazon are particularly appropriate sources because both are online information dissemination tools frequently referenced by legal scholars<sup>79</sup> and behavioral psychologists,<sup>80</sup> and both are the

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dore Eisenberg & Geoffrey P. Miller, *The Flight to New York: An Empirical Study of Choice of Law and Choice of Forum Clauses in Publicly-Held Companies' Contracts*, 30 *CARDOZO L. REV.* 1475, 1476–77 n.3 (2009) (citing Marotta-Wurgler’s 2007 and 2009 articles); Robert W. Gomulkiewicz, *The Federal Circuit’s Licensing Law Jurisprudence: Its Nature and Influence*, 84 *WASH. L. REV.* 199, 247 n.290 (2009) (citing Marotta-Wurgler’s 2009 article).

<sup>76</sup> Becher & Zarsky, *supra* note 12, at 351 (noting that these aggregates solve information overload problem faced by ex ante buyers).

<sup>77</sup> For an empirical model reflecting this difficulty, see Kushal Dave, Steve Lawrence & David M. Pennock, *Mining the Peanut Gallery: Opinion Extraction and Semantic Classification of Product Reviews*, 12 *PROC. INT’L CONF. ON WORLD WIDE WEB* 519–20 (2003), available at <http://portal.acm.org/citation.cfm?id=775152.775226&type=series> (follow “Full text” hyperlink).

<sup>78</sup> Becher & Zarsky, *supra* note 12, at 351.

<sup>79</sup> See, e.g., *id.* at 325 n.82, 330 (describing how Amazon allows exchange of ideas and opinions regarding products and services); *id.* at 351 (describing Epinions as feedback system featuring aggregated numeric ratings of vendors); Clayton P. Gillette, *Reputation and Intermediaries in Electronic Commerce*, 62 *LA. L. REV.* 1165, 1177–78 (2002) (noting that websites such as Epinions and eBay allow users of goods and services to post reviews of their experiences); Lior J. Strahilevitz, *Reputation Nation: Law in an Era of Ubiquitous Personal Information*, 102 *Nw. U. L. REV.* 1667, 1706 (2008) (describing Epinions as “clearinghouse” for information about behavior of companies).

<sup>80</sup> See, e.g., Chrysanthos Dellarocas, *The Digitization of Word of Mouth: Promise and Challenges of Online Feedback Mechanisms*, 49 *MGMT. SCI.* 1407, 1408, 1413 (2003) (citing Epinions as noteworthy example of online feedback mechanism, and describing Amazon as feedback mechanism that controls form of information by requiring rating on scale of 1–5); Andrew D. Gershoff, Ashesh Mukherjee & Anirban Mukhopadhyay, *Consumer Acceptance of Online Agent Advice: Extremity and Positivity Effects*, 13 *J. CONSUMER PSYCHOL.* 161, 161 (2003) (citing Epinions as “ever-expanding database of ratings provided by actual consumers” and analyzing issue of conflicting advice across rating systems); Nolan Miller, Paul Resnick & Richard Zeckhauser, *Eliciting Informative Feedback: The*

focus of extensive empirical research.<sup>81</sup> Additionally, as detailed below, both Epinions and Amazon have made notable efforts to ameliorate the problems of accreditation and motivation inherent in any online rating system.<sup>82</sup> Lastly, the benefit of including both Epinions and Amazon in my study is that it allows for comparison between two websites with different purposes<sup>83</sup> but nearly identical rating systems.<sup>84</sup>

### 1. *Epinions.com*

Established in 1999, Epinions is a consumer review web platform that enables people to share their experiences in order to provide

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*Peer Prediction Method*, 51 MGMT. SCI. 1359, 1359–61 (2005) (describing honest reporting on reputation systems as Nash equilibrium and citing Epinions and Amazon as examples); Vanitha Swaminathan, *The Impact of Recommendation Agents on Consumer Evaluation and Choice: The Moderating Role of Category Risk, Product Complexity, and Consumer Knowledge*, 13 J. CONSUMER PSYCHOL. 93, 93–94 (2003) (investigating impact of recommendation agents under conditions of category risk and citing Epinions as example of “pure infomediary” based on customer reviews as opposed to expert opinions).

<sup>81</sup> See, e.g., Rajat Bhattacharjee & Ashish Goel, *Avoiding Ballot Stuffing in eBay-Like Reputation Systems*, 2005 PROC. ACM SIGCOMM WORKSHOP ON ECON. PEER-TO-PEER Sys. 133, available at <http://portal.acm.org/citation.cfm?id=1080192.1080203> (follow “Full text” hyperlink) (theorizing that transaction costs are necessary to prevent collusion to inflate positive or negative seller reputation on eBay, Amazon and Epinions); Dave, Lawrence & Pennock, *supra* note 77, at 520 (using Amazon as source of reviews in content-mining experiment); Juha Leino & Kari-Jouko Rähkä, *Case Amazon: Rating and Reviews as Part of Recommendations*, 2007 PROC. ACM CONF. ON RECOMMENDER Sys. 137, available at <http://portal.acm.org/citation.cfm?id=1297255> (follow “Full text” hyperlink) (focusing on effect of Amazon’s algorithm-based and user-generated recommendations on consumers’ ability to find items of interest); Haifeng Liu et al., *Predicting Trusts Among Users of Online Communities—an Epinions Case Study*, 9 PROC. ACM CONF. ON ELECTRONIC COM. 310 (2008), available at <http://portal.acm.org/citation.cfm?id=1386790.1386838> (follow “Full text” hyperlink) (applying taxonomy to predict Epinions users’ trust of other users); Paolo Massa & Paolo Avesani, *Controversial Users Demand Local Trust Metrics: An Experimental Study on Epinions.com Community*, 1 PROC. 20TH NAT’L CONF. ON ARTIFICIAL INTELLIGENCE 121 (2005) (on file with author) (using Epinions trust data to show that existence of controversial user demands personalized ways of predicting trust-worthiness of users); John O’Donovan & Barry Smyth, *Trust in Recommender Systems*, 10 PROC. INT’L CONF. ON INTELLIGENT USER INTERFACES 167 (2005), available at <http://portal.acm.org/citation.cfm?id=1040870> (follow “Full text” hyperlink) (discussing trust models built from data provided by users on Epinions).

<sup>82</sup> See *supra* notes 57–58 and accompanying text (describing accreditation and motivation problems).

<sup>83</sup> Epinions is a pure product review website that exists primarily as a platform on which users can write reviews on various products, though it links to other sites that a consumer may visit to purchase products. By contrast, Amazon is primarily an online retail website that also features product ratings.

<sup>84</sup> See *infra* Part II.D.2 (summarizing product review instructions on Epinions and Amazon, both of which use 5-point rating systems and provide brief descriptions for each rating value).

comparison-shopping information.<sup>85</sup> Epinions ranked fourth in About.com's list of "The Top 10 Most Useful Web Sites, 2010,"<sup>86</sup> a meaningful external indicator of the website's value as a reputation system.

Epinions is particularly appropriate for measuring reputation for several reasons. First, it provides reviews free of charge, unlike other product review sites, such as ConsumerReports.org, that require paid subscriptions.<sup>87</sup> That Epinions is a free service makes it a more accessible source of product information because it is available to any consumer. Second, unlike other websites that appear to censor negative reviews,<sup>88</sup> Epinions is an independent rating website that does not remove reviews based on content.<sup>89</sup> To counter accreditation problems, Epinions allows users to rate reviews as "Not Helpful," "Somewhat Helpful," "Helpful," "Very Helpful," or "Off Topic."<sup>90</sup> It also enables users to add other members whose reviews they find valuable to their "Web of Trust," a feature intended to simulate live word-of-mouth networks.<sup>91</sup> Additionally, it has "[t]eams of experienced users who monitor the site for anyone covertly plugging products for an employer."<sup>92</sup> To counter motivation problems, Epinions has developed monetary incentives such as "Income Share," which pays reviewers "Royalties" for how much help their reviews give users in deciding to purchase (or not purchase) products.<sup>93</sup>

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<sup>85</sup> *Company Information: About Epinions*, EPINIONS, <http://www.epinions.com/about> (last visited Sept. 20, 2010). Epinions had 4.5 million unique visitors during the month of December 2009. *Site Profile for Epinions.com*, EPINIONS, <http://siteanalytics.compete.com/epinions.com> (last visited Sept. 7, 2010).

<sup>86</sup> Paul Gil, *The Top 10 Most Useful Web Sites, 2010*, ABOUT, [http://netforbeginners.about.com/od/readerpicks/ss/useful\\_sites\\_7.htm](http://netforbeginners.about.com/od/readerpicks/ss/useful_sites_7.htm) (last visited Sept. 20, 2010).

<sup>87</sup> *About Us*, CONSUMER REPORTS, <http://www.consumerreports.org/cro/aboutus/index.htm> (last visited Sept. 20, 2010).

<sup>88</sup> Tara Lane, *Epinions, Boing Boing Illustrates Rise in Transparent Brands*, SPARXOO (Feb. 3, 2010), <http://sparxoo.com/2010/02/03/epinions-boing-boing-illustrates-rise-in-transparent-brands>.

<sup>89</sup> *Company Information: About Epinions*, EPINIONS, *supra* note 85.

<sup>90</sup> *FAQs: Rating Reviews*, EPINIONS, [http://www.epinions.com/help/faq/?show=faq\\_rating](http://www.epinions.com/help/faq/?show=faq_rating) (last visited Sept. 20, 2010).

<sup>91</sup> *FAQs: The Web of Trust*, EPINIONS, [http://www.epinions.com/help/faq/show~faq\\_wot](http://www.epinions.com/help/faq/show~faq_wot) (last visited Sept. 20, 2010). The Web of Trust feature has been explored in depth by various economists and behavioral psychologists. See generally sources cited *supra* note 81.

<sup>92</sup> Nicholas Thompson, *Technology: More Companies Pay Heed to Their 'Word of Mouse' Reputation*, N.Y. TIMES, June 23, 2003, at C4.

<sup>93</sup> *FAQs: Earnings on Epinions*, EPINIONS, *supra* note 60.

## 2. *Amazon.com*

Established in 1994, Amazon is the largest internet retailer with web sales of roughly \$24.5 billion annually.<sup>94</sup> In 1995, the website began offering consumers the option of posting product reviews.<sup>95</sup> According to the company, the reader reviews are the most popular feature of Amazon's sites.<sup>96</sup>

Like Epinions, Amazon offers its ratings free of charge and does not delete negative reviews. Although occasional controversies have arisen in which companies were revealed to have posted fake reviews,<sup>97</sup> Amazon has mitigated accreditation problems through use of a software program that vets reviews for accuracy prior to posting.<sup>98</sup> As on Epinions, users can indicate whether or not a review was helpful.<sup>99</sup> In order to counter motivation problems, Amazon repeatedly sends emails requesting that users rate the products they have purchased.<sup>100</sup>

### C. *Sample*

My sample consists of the subset of companies from which I was able to obtain license agreements and that have products reviewed and rated on both Amazon and Epinions. Accordingly, my data is not entirely random. However, there is little reason to believe that the software products reviewed on both Amazon and Epinions should be considerably different from the software products reviewed only on one site or the other. Nor is the possibility of inherent selection bias

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<sup>94</sup> *The Top 500 List*, INTERNET RETAILER, *supra* note 22. Compete.com indicates that Amazon had 85.9 million unique visitors in December 2009. *Site Profile for Amazon.com*, COMPETE, <http://siteanalytics.compete.com/amazon.com> (last visited Sept. 7, 2010). Note that this statistic may not be indicative of the number of visitors that used the site for the purpose of reading reviews as opposed to merely purchasing products.

<sup>95</sup> Yubo Chen & Jinhong Xie, *Online Consumer Review: Word-of-Mouth as a New Element of Marketing Communication Mix*, 54 MGMT. SCI. 477, 477 (2008).

<sup>96</sup> Amy Harmon, *Amazon Glitch Unmasks War of Reviewers*, N.Y. TIMES, Feb. 14, 2004, at A1.

<sup>97</sup> See Rik Myslewski, *User-Generated Reviews—Blessing or Bull?*, REGISTER (Jan. 27, 2009, 5:00 AM), [http://www.theregister.co.uk/2009/01/27/user\\_generated\\_reviews/](http://www.theregister.co.uk/2009/01/27/user_generated_reviews/) (discussing admission by hardware manufacturer Belkin that employee paid rater to write positive, false reviews of Belkin products).

<sup>98</sup> *Id.* (discussing Amazon's policies on reviewing consumer ratings).

<sup>99</sup> See, e.g., *Customer Reviews, Microsoft Office Professional 2007 Full Version*, AMAZON, [http://www.amazon.com/Microsoft-Office-Professional-2007-VERSION/product-reviews/B000HCVR30/ref=dp\\_top\\_cm\\_cr\\_acr\\_txt?ie=UTF8&showViewpoints=1](http://www.amazon.com/Microsoft-Office-Professional-2007-VERSION/product-reviews/B000HCVR30/ref=dp_top_cm_cr_acr_txt?ie=UTF8&showViewpoints=1) (last visited Sept. 14, 2010); see also Dave Gussow, *Online Opinion Shapers: Everyone's A Critic*, ST. PETERSBURG TIMES (St. Petersburg, Fla.), Dec. 13, 2004, at 1D (describing consumer reviewing process).

<sup>100</sup> See Becher & Zarsky, *supra* note 12, at 339 & n.162 (describing such encouragement as "endless [ ] nagging").

with respect to the types of consumers who choose to rate products online particularly problematic. My study simply examines whether Amazon and Epinions provide any information regarding contract terms. The information provided need not be representative of the consumer population in order to be a useful tool for ex ante consumers.

I developed my initial list of firms by drawing on the seventy-five software categories reviewed on Epinions, ranging from “.NET” to “Word Processor.” Within each category, I sorted the list of products reviewed by “Rating,” from highest to lowest, in order to focus only on those firms that have star ratings according to Epinions’s five-point feedback system. I then recorded the average star ratings and the number of reviewers comprising each rating for every rated product in each software category. Finally, I collected from Amazon the average star ratings and the number of reviewers for all of the products represented in my Epinions sample.

After creating my initial sample, I attempted to obtain the EULA terms for each of the products for which I had obtained reviews on Epinions and Amazon. For some of the larger companies, such as Adobe and Microsoft, I pulled the EULAs directly from the company’s website. For most of the other companies, I emailed their user support representatives and asked them to send me the EULA for the relevant product.<sup>101</sup>

For a EULA to be included in the final sample, I required that certain company and product data be available. Specifically, I collected data on company revenue<sup>102</sup> and age,<sup>103</sup> defined as 2010 minus the year of incorporation or founding, with a maximum age of thirty because most firms are unlikely to have emphasized software before 1980.<sup>104</sup> Most of this data came from Hoover’s Company Directory.<sup>105</sup>

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<sup>101</sup> Several companies’ user support representatives refused to release their license terms to me and suggested that I purchase the relevant software in order to view the terms. Surprisingly, I was almost always able to obtain these terms by calling each company’s sales hotlines instead.

<sup>102</sup> The large revenue firms in my sample have a significant effect on the mean revenue (\$4.74 billion) considering the fact that the median revenue of \$38.15 million is significantly less than the mean and the standard deviation is \$16 billion.

<sup>103</sup> The median and the mean age of the firms in my sample are both roughly twenty-one years, corresponding to a 1989 year of incorporation, but my sample includes a mix of recent startups and long-established firms.

<sup>104</sup> See W. Edward Steinmueller, *The U.S. Software Industry: An Analysis and Interpretive History*, in *THE INTERNATIONAL COMPUTER SOFTWARE INDUSTRY* 15, 30–38 (David C. Mowery ed., 1996) (describing emergence of personal computer at beginning of 1980s and related software revolution).

<sup>105</sup> *Companies*, HOOVER’S, <http://www.hoovers.com/companies/100003475-1.html> (last visited Sept. 16, 2010).

Finally, I recorded the product price<sup>106</sup> based on the price listed on each company's website. The final sample came to 138 EULAs from 86 firms because several companies had multiple rated products.<sup>107</sup>

#### D. Methodology

##### 1. Contract Bias

The methodology I use to measure the contract bias of software license agreements is drawn from Florencia Marotta-Wurgler's rating system in *What's in a Standard Form Contract? An Empirical Analysis of Software License Agreements*.<sup>108</sup> In this article, Marotta-Wurgler creates an index based on twenty-three important common terms allocating risks between buyers and sellers.<sup>109</sup> Marotta-Wurgler then groups these terms into seven broader categories: acceptance of license, scope of license, transfer of license, warranties and disclaimers of warranties, limitations on liability, maintenance and support, and conflict resolution.<sup>110</sup> Each term is compared with the objective benchmark of the corresponding default rules found in Articles 1 and 2 of the Uniform Commercial Code, to which courts generally look in determining enforceability of contract terms.<sup>111</sup> If the term is more favorable to buyers than its benchmark, it receives one positive point, whereas if it is more favorable to sellers, it receives one negative point. If the contract is silent with regard to a specified term or the term matches the default rule, the term receives a zero score. After all twenty-three terms are scored in this fashion, the scores are combined to form an overall bias index.<sup>112</sup> The more pro-seller the contract, the lower, more negative score it will receive. Because each of the twenty-three terms carries the same weight, the assumption implicit in using the overall bias index is that consumers consider all terms equally.<sup>113</sup> I

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<sup>106</sup> The mean price of the products in the sample is \$224.37, with a median price of \$79.99. The mean was skewed upward somewhat dramatically by a few very expensive products.

<sup>107</sup> To get a sense of the representativeness of my sample, note that there were 994 rated software products on Epinions as of June 2010. See *Software Product Reviews and Prices*, EPINIONS, [http://www.epinions.com/Software---all/sec~product\\_list/pp\\_~1/sort\\_~rating/sort\\_dir\\_~des#list](http://www.epinions.com/Software---all/sec~product_list/pp_~1/sort_~rating/sort_dir_~des#list) (last visited June 15, 2010) (providing all software products sorted by rating). However, this number is likely inflated because dozens of the reviewed products have been discontinued. It is difficult to determine the total number of rated software products in the relevant Amazon categories, but there are likely several thousand.

<sup>108</sup> Marotta-Wurgler, *supra* note 2, at 689–702.

<sup>109</sup> Marotta-Wurgler looked to popular texts and trade publications in developing her list of contract terms. See *id.* at 691, 694 (describing authorities).

<sup>110</sup> See *id.* at 695–702 (discussing seven categories of contract terms in detail).

<sup>111</sup> *Id.* at 690.

<sup>112</sup> *Id.* at 691.

<sup>113</sup> *Id.*

relax this assumption by conducting additional regressions in Part III, which treat as independent variables the seven broader categories of contract terms noted above. Table 1 in the Appendix lists the twenty-three contract terms and describes how each term is scored under Marotta-Wurgler's methodology.

## 2. *Product Ratings*

I measure product reviews by recording the average star rating of products reviewed on Epinions and Amazon. Because the actual star ratings (on a scale of one to five) are given by various ex post consumers, I outline here the product review instructions that each website presents to such consumers.

Epinions features well-developed review guidelines, such as a twenty-word minimum for "Review Body" and fifteen-word maximums for the "Pros" and "Cons" sections.<sup>114</sup> These requirements likely engender careful thinking, not only with respect to the wording of reviews, but also with respect to the choice of the star rating to which the written review corresponds. The following descriptions provided to the reviewer at the time of ranking clarify the meaning of the star ratings in the five-point scale: (1) "Avoid It," (2) "Below Average," (3) "Average," (4) "Above Average," and (5) "Excellent."

Amazon features more minimal review guidelines, simply instructing the reviewer to be "detailed and specific" and to write "between 75 and 300 words."<sup>115</sup> Descriptions of the star ratings appear when a reviewer rolls over a given star icon with her cursor: (1) "I hate it," (2) "I don't like it," (3) "It's OK," (4) "I like it," and (5) "I love it."

## 3. *Explanatory Variables*

To test for any relationship between contract bias and product ratings, I use multiple regression analysis,<sup>116</sup> which allows me to incorporate additional explanatory variables<sup>117</sup> that might account for any effects on product ratings. As detailed below, several variables may

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<sup>114</sup> See EPINIONS, *supra* note 20 (select product, then click on "Write a Review" hyperlink to reach review guidelines).

<sup>115</sup> See *Create Your Own Review*, AMAZON, <http://www.amazon.com/review/create-review> (last visited Sept. 20, 2010).

<sup>116</sup> Multiple regression analysis is typically used to analyze data when there are several possible explanations for the relationship among a number of explanatory variables. Rubinfeld, *supra* note 18, at 181. It is useful for determining whether a particular effect is present as well as for measuring the magnitude of the effect. *Id.*

<sup>117</sup> Becher and Zarsky suggest the following as factors indicating the reliability of online ratings: "the vendor's size, revenue, market share, [and] the length of time it has been operational in the online realm." Becher & Zarsky, *supra* note 12, at 358.

affect an ex post consumer's rating of the product, the product's contract bias, or both.

a. Product Price

One variable that may affect the relationship between bias and ratings is the price of the product. Under the L&E assumption, price correlates positively with contract bias—that is, all other things being equal, sellers will demand higher prices in exchange for more pro-buyer contract terms.<sup>118</sup> If this assumption holds true, then the relationship between contract bias and product ratings will differ depending on whether ex post buyers rate products based on contract bias or on price. Specifically, contract bias will correlate positively with product ratings if most consumers rate based on contract bias. On the other hand, contract bias may negatively correlate with product ratings if consumers give higher ratings to products with lower prices, which in turn correspond to more pro-seller contract terms.<sup>119</sup> Of course, the latter theory assumes that price bears a non-negligible relationship to contract terms, which may not be true.<sup>120</sup>

b. Firm Revenue and Age

Firm characteristics such as size (based on revenue) and age may also affect the relationship between bias and ratings. Product ratings may directly relate to the firm's revenue. Firms with higher sales may be likely to have higher product ratings because high sales reflect customer satisfaction. Similarly, we would expect that longstanding firms have remained in business based on the success of their products, such that older firms may tend to have higher ratings. These effects would lead to a positive correlation between revenue and rating.

Revenue and age may also correlate indirectly with ratings by affecting seller reputation, which in turn affects ratings. Presumably, larger firms have greater resources for improving brand recognition through marketing and product promotion. Additionally, a firm that has been around for a long time is likely to have an established repu-

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<sup>118</sup> See *supra* note 40 and accompanying text (illustrating L&E tradeoff model forming basis for Supreme Court's decision in *Carnival Cruise Lines, Inc. v. Shute*, 499 U.S. 585 (1991)); see also Marotta-Wurgler, *supra* note 64, at 338 ("To the extent that the terms are 'priced,' we should expect that the resulting coefficient [of overall bias] on price would be positive and significant.").

<sup>119</sup> This relationship makes sense because if ex post consumers rate a product on the basis of price, we would expect that, between two products with similar functionality, the less expensive product would be more highly rated.

<sup>120</sup> Indeed, contrary to this assumption, Marotta-Wurgler has found that the overall effect of contract terms on price is most likely small. Marotta-Wurgler, *supra* note 64, at 338.

tation among consumers. This reputation may be positive or negative, but if firms with extremely poor reputations tend to be driven out of the market, then we would expect larger and older firms to have better reputations and, therefore, better product ratings.

Alternatively, firm size and age may operate indirectly by affecting contract bias, which may in turn affect customer ratings. Marotta-Wurgler has found that larger and younger firms tend to have more pro-seller EULAs, which she attributes to the fact that larger firms employ in-house counsel to help shield the firm from potential liability, and that greater exposure to liability (in absolute terms) may cause the larger firms to desire more legal protection.<sup>121</sup> As to age, an older firm's more homogeneous customer base may be more conducive to insurance. Additionally, younger firms may be more sophisticated about recent licensing issues than industry pioneers whose terms have not changed since their EULAs were first drafted.<sup>122</sup>

### c. Product Type

Finally, there may be some relationship between product type, contract bias, and product ratings.<sup>123</sup> For example, the buyers of certain types of software—such as business-oriented products—may tend to be more sophisticated and therefore more likely to consider contract bias when rating products.<sup>124</sup> To examine any effect that product type might have on the relationship between rating and bias, I have included a fixed-effect array of dummy variables, each of which corresponds to a distinct Amazon software product category.<sup>125</sup> The complete list of product categories can be found in Table 2 of the Appendix.

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<sup>121</sup> Marotta-Wurgler, *supra* note 2, at 708.

<sup>122</sup> *Id.* at 709.

<sup>123</sup> See Marotta-Wurgler, *supra* note 64, at 338–39 (describing possible differences in treatment of business-oriented and consumer-oriented products).

<sup>124</sup> *Id.*

<sup>125</sup> Fixed-effect models avoid omitted variable bias by examining the relationship between variables within groupings of observations. PAUL D. ALLISON, *FIXED EFFECTS REGRESSION METHODS FOR LONGITUDINAL DATA USING SAS 4* (2005) (“Fixed effects methods completely ignore the between-person variation and focus only on the within-person variation.”). The fixed-effect model in this Note controls for potential differences between the consumers of different types of software by running regressions on the rating and bias observations within each product type.

### III DATA AND ANALYSIS

#### A. Results

Figures 1, 2, and 3 in the Appendix show the distributions of cumulative EULA bias, Epinions product ratings, and Amazon product ratings, respectively. These figures reflect the normality<sup>126</sup> of the data. The cumulative bias and Amazon distributions roughly conform to a bell curve, whereas the Epinions data appears to be left-skewed. Table 3 displays the number of products within each product rating value on Epinions and Amazon to give the reader a sense of the numerical distribution of the products in my sample. Table 3 also provides the mean EULA bias within each product rating group to give the reader an initial sense of the EULA bias trend across product ratings.

#### 1. Regression of Product Rating on Cumulative EULA Bias

Tables 4 and 5 in the Appendix present regressions<sup>127</sup> examining the relationship between contract bias—along with the explanatory variables described above—and consumer product ratings from Epinions and Amazon, respectively. Model 1 in each table shows the regression of product rating on contract bias alone. Model 2 adds a log-transformed version of product price.<sup>128</sup> Model 3 adds both the log of product price and the log of firm revenue. Model 4 adds the log of price, the log of revenue, and the log of firm age. Model 5 features all of these explanatory variables along with dummy variables representing each of the Amazon software market categories to control for unobservable effects across software types. The regression coefficients in each model represent the strength of the linear association between the dependent variable (product rating) and the given explanatory variable, holding all the other explanatory variables constant. Positive coefficients reflect positive associations and negative coefficients reflect negative associations.<sup>129</sup>

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<sup>126</sup> A normal distribution is one in which 95% of the distribution lies within two standard deviations of the mean. Rubinfeld, *supra* note 18, at 224.

<sup>127</sup> The regressions are based on the following specification:  $Rating_i = a_0 + a_m + b'X_i + c'Z_i + u_i$ . In this equation, the dependent variable is *Rating*, or the product rating value assigned by ex post consumers. In addition to looking at contract bias, the independent variables are  $X$ , or the natural log (ln) of the product price;  $Z$ , or firm characteristics including the natural log of revenue and the natural log of age since incorporation; and dummy variables for Amazon software market categories.

<sup>128</sup> The natural log is useful when a variable is highly skewed. Cf. Mann & Seibeneicher, *supra* note 74, at 1009 (using log-transformed version of skewed variable in regression).

<sup>129</sup> For example, a positive coefficient for contract bias would mean that more pro-buyer contracts (i.e., contracts with more positive bias measurements) are associated with higher

With respect to the Epinions regressions featured in Table 4, the regression coefficients for cumulative EULA bias are all very small and negative—around -0.02 or less—and none are statistically significant. The other explanatory variables also have extremely low regression coefficients and are not statistically significant, making it difficult to draw conclusions in support of any relationship.<sup>130</sup>

By contrast, Amazon product ratings correlate negatively and statistically significantly with cumulative EULA bias at the 1% level. The first column of Table 5 shows that, absent any additional explanatory variables, product rating decreases by 0.136 stars for every point contract bias moves in the pro-buyer direction.<sup>131</sup> To put this result in context, a product with a contract bias of -3 would have an average star rating one whole star lower than a product with a contract bias of -11. This result is robust to the inclusion of price, revenue, age, and software-type fixed effects,<sup>132</sup> although the regression coefficient drops slightly to 0.134 with all explanatory variables included, as shown in the fifth column of Table 5. Overall, this outcome is surprising: We would expect consumers to rate products with more pro-consumer EULAs more highly—that is, we would expect a positive relationship between product ratings and contract terms. However, the opposite is true.

A final note:  $R^2$ , or the percentage of the change in the dependent variable explained by changes in the explanatory variables, is very low for the Epinions models in Table 4, and only slightly higher—between 8.3% and 19.9%—for the Amazon models in Table 5.<sup>133</sup> However, the low  $R^2$  does not diminish the import of the regression coefficients or suggest that the models are poorly constructed.<sup>134</sup> Rather, it simply reflects that a significant portion of the variation in

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ratings. Similarly, a negative coefficient for product price would mean that higher prices are associated with lower ratings.

<sup>130</sup> Note, however, that the absence of a statistically significant relationship does not guarantee that there is no relationship; it may result from insufficient data. Rubinfeld, *supra* note 18, at 185. Thus, these results do not prove the null hypothesis. They merely suggest that we must fail to reject the null.

<sup>131</sup> While the magnitude of this effect may seem rather small, it is not negligible given that the star rating values range only from 1 to 5.

<sup>132</sup> For Amazon, model 2 shows a coefficient of bias of -0.133 when controlling for price. In model 3, the coefficient is -0.134 when controlling for price and firm revenue. With controls for price, firm revenue and firm age in model 4, the coefficient is -0.129.

<sup>133</sup> A very low  $R^2$  value is one indication that the multiple regression model leaves an unacceptably large portion of the change in the dependent variable unexplained. Rubinfeld, *supra* note 18, at 188 n.24.

<sup>134</sup> *See id.* (“[A] low  $R^2$  does not necessarily imply a poor model (and vice versa).”). Generally,  $R^2$  and adjusted  $R^2$  (which adjusts for the number of explanatory terms in a model) are of secondary importance unless the regression equation is being used to predict future outcomes, which is not the purpose of this Note.

the data is explained by difficult-to-measure factors<sup>135</sup> (such as product functionality) that, for purposes of feasibility, have been excluded from the model.

## 2. *Regression of Product Ratings on EULA Sub-indices*

The cumulative contract bias index assumes that ex post buyers consider all EULA terms equally.<sup>136</sup> However, Korobkin has asserted that consumers are boundedly rational and focus on certain terms—like warranties—to the exclusion of other terms.<sup>137</sup> If Korobkin is correct, we would likely see statistically significant positive correlation coefficients for “salient” terms that consumers are likely to care about, but weak statistical significance and possibly negative coefficients for “non-salient” terms.<sup>138</sup> While Becher and Zarsky assert that such cognitive limitations are less likely to affect ex post consumers than ex ante consumers,<sup>139</sup> this remains an open empirical question. Accordingly, I examine the seven sub-indices<sup>140</sup> individually to determine how each of the subsets of contract terms correlates with product rating.

In the regressions presented in Tables 6 and 7 of the Appendix, I find little to confirm either theory. With respect to the Epinions dataset, some of the terms have positive coefficients, and other terms have negative coefficients, but none are statistically significant. Though the coefficients in the Amazon regression are all negative and substantial, almost none are statistically significant, which is surprising given the statistically significant coefficient for Amazon ratings and cumulative contract bias in Table 4. The one exception is the conflict resolution sub-index, which has a coefficient of -0.395 that is statistically significant at the 10% level. This negative coefficient is consistent with the L&E rationale that the Supreme Court accepted in upholding a forum selection clause in *Carnival Cruise Lines*: Pro-seller limitations on venue and governing law are traded off for other highly

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<sup>135</sup> *Id.* at 216 (“Typically, an  $R^2$  is low in cross-section studies in which differences in individual behavior are explained. It is likely that these individual differences are caused by many factors that cannot be measured.”).

<sup>136</sup> *See supra* Part II.D.1 (describing calculation of bias index).

<sup>137</sup> Korobkin, *supra* note 8, at 1206 (describing as “salient” terms that buyers care about and as “non-salient” those that buyers do not).

<sup>138</sup> *See id.* (discussing sellers’ incentives with respect to salient and non-salient attributes).

<sup>139</sup> *See supra* note 55 and accompanying text.

<sup>140</sup> The seven sub-indices include: acceptance of license, scope of license, transfer of license, warranties, limitation of liability, maintenance and support, and conflict resolution. *See supra* note 110 and accompanying text.

valued features.<sup>141</sup> However, any further inference would be unwarranted given the low statistical significance of the coefficient.

### B. *Implications*

My results suggest that, contrary to Becher and Zarsky's assumptions about the second chokepoint,<sup>142</sup> product ratings are not likely to serve as an effective conduit of information from ex post consumers regarding contract terms. The Epinions product rating dataset does not show any statistically significant relationship between rating and contract bias, and the Amazon product rating dataset counterintuitively shows a negative relationship between rating and contract bias. This negative relationship suggests that most ex post consumers do not take contract bias into account when they rate products. Of course, it is also possible that ex post consumers read the contract terms but do not weigh them heavily in their assessment of a product on balance with other features. Either way, these results appear to confirm the L&E tradeoff model, under which sellers offset pro-seller contract terms with other attributes that consumers desire. In addition, the low  $R^2$  value of the regressions suggests that ratings do not communicate much about contract terms. Rather, they most likely communicate other attributes, such as product quality.

My findings also bear on the existence of the third chokepoint described by Becher and Zarsky. Specifically, my findings suggest that ex ante consumers are unlikely to be able to parse out the extent to which a high product rating is based on pro-seller terms, so it is unlikely that they will choose not to purchase the product in spite of other qualities that warranted a high rating. Thus, to the extent that ex ante consumers rely on product ratings to inform their purchasing decisions, product ratings are unlikely to deter ex ante consumers from purchasing products with especially pro-seller contract terms.

Of additional interest is the divergence in results with respect to the product ratings on Epinions and Amazon. The difference in results between the Epinions and Amazon datasets likely grows out of the comparative robustness of the rating systems. The rating for a given product on both websites represents the average of all reviews of that particular product. Amazon tends to attract far more reviewers

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<sup>141</sup> 499 U.S. 585, 593–94 (1991); see *supra* notes 37–40 and accompanying text (explaining L&E approach to SFCs accepted in *Carnival Cruise Lines*).

<sup>142</sup> See *supra* notes 51–61 and accompanying text (discussing Becher and Zarsky's chokepoints).

than Epinions.<sup>143</sup> Because product ratings on Epinions represent averages generated by fewer reviews per product, individual reviews are more likely to affect the ratings listed on Epinions. That is, if a product on Epinions has only one review, that review determines the product's average star rating, whereas on Amazon forty or fifty reviews will combine to produce an average star rating that may reconcile a diversity of viewpoints regarding the product. This difference in robustness likely contributes to the difference in distributions of product ratings, as reflected in Figures 2 and 3 in the Appendix.

Alternatively, the divergence in results might suggest that Epinions and Amazon attract different user demographics. As an a priori matter, one would expect users visiting Epinions to be more tech-savvy than those visiting Amazon. Amazon is widely used as an online retailer by a broad cross-section of the population, and anyone who browses the website can rate a product. By contrast, a consumer must independently know about Epinions or discover it via a search engine or another website because it is not a retail site on which reading or writing a review bears a direct nexus to purchasing a product.<sup>144</sup> Assuming that tech-savvy users are more likely to rate products based on contract terms, we would expect to see a stronger correlation between product ratings and contract bias on Epinions. However, the opposite is true—only the Amazon product ratings bear a statistically significant correlation with contract bias. This result holds a few implications. On the one hand, we might reject the assumption that Epinions users are in fact more technically knowledgeable. On the other hand, we could reject the assumption that tech-savvy consumers rate products based on contract terms. Otherwise, we might maintain these two assumptions (i.e., that Epinions users are sophisticated and that they rate products in part based on contract bias), but conclude under the L&E tradeoff model that Epinions users are indifferent to products that strike different but equally efficient balances between contract bias and other offsetting product attributes.

In a broader sense, my data sheds considerable light on Becher and Zarsky's "information flow" theory.<sup>145</sup> Online product rating

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<sup>143</sup> In my sample, the number of reviews per product on Epinions ranges from 1 to 28, with a mean of 3.63 and a median of 1, whereas the number of reviews per product on Amazon ranges from 1 to 258, with a mean of 34.82 and a median of 12.

<sup>144</sup> See Becher & Zarsky, *supra* note 12, at 326 ("A possible impediment to the success of these data flows is that . . . they rely on the ex ante consumers' knowledge of these existing hubs of information."). Becher and Zarsky argue, however, that search engine results will present ex ante consumers with fora criticizing sellers and products. *Id.*

<sup>145</sup> See *supra* notes 51–61 and accompanying text.

websites do little to guide consumers regarding the contract terms that accompany the products they purchase. Thus, to the extent that online information flows may discipline sellers, online product ratings are unlikely to serve this role in shaping EULA terms. Absent other sources of market pressure to discipline sellers, online product ratings do not alone support the argument that it is unnecessary for courts and legislatures to intervene to protect consumers. The rest of this Part outlines other prospects for related research and policy initiatives.

### *C. Suggestions for Future Research and Policy Recommendations*

#### *1. Coding for Written Reviews*

My study focuses exclusively on numerical ratings. Becher and Zarsky acknowledge that aggregated factors such as average product ratings suffer from certain shortcomings. In particular, interested parties may manipulate the ratings, and reviews based on contractual provisions may get lost among reviews focused on other product attributes.<sup>146</sup> They suggest that additional information in the form of written comments could mitigate these problems.<sup>147</sup> Accordingly, future research could focus on codifying written comments in a systematic fashion to examine what percentage of reviews contain useful information regarding contract terms.<sup>148</sup>

#### *2. Other Chokepoints*

This Note has focused on the second chokepoint described by Becher and Zarsky: information conveyed online by ex post consumers regarding contract terms. While my findings bear implications for the first and third chokepoints, my data does not directly address these chokepoints.

Future research might examine, perhaps through survey data, the first chokepoint—whether ex post consumers that rate products actually read the contract terms of the products they have already purchased and used. Evidence that ex post consumers do read contract terms would lend support to initiatives geared toward encouraging consumers to provide feedback on contract terms. This might come in the form of additional instructions by Amazon and Epinions on their product rating websites requesting reviewers to consider the contract

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<sup>146</sup> Becher & Zarsky, *supra* note 12, at 351.

<sup>147</sup> *Id.* at 352.

<sup>148</sup> For a previous study summarizing the difficulties with such a data mining effort, see Dave, Lawrence & Pennock, *supra* note 77.

terms. Alternatively, such an initiative might otherwise be developed by watchdog groups or other websites.

Future research might also examine the third chokepoint—whether ex ante consumers rely upon product ratings.<sup>149</sup> This could come in the form of survey data or clickstream data<sup>150</sup> examining the amount of time spent browsing product reviews or the frequency with which ex ante consumers clicked through from a review page to the purchase page. Confirmation that consumers rely upon product ratings would strengthen arguments in favor of developing new online fora focused on contract terms.

### 3. *Online Fora Focused on Contract Terms*

This Note has examined extant product rating websites.<sup>151</sup> However, my finding that Amazon and Epinions do not convey useful information regarding contract terms does not mean that online fora can never serve as effective sources of market pressure. Rather, this finding suggests that Amazon and Epinions primarily convey information other than contract bias—perhaps product quality and functionality (though this cannot be stated with certainty given the infeasibility of controlling for these attributes). The failure of existing websites to convey information regarding contract terms may provide the necessary catalyst for watchdog groups or web companies akin to Epinions to develop new online fora dedicated to reviewing contract terms. Upon the development of such an online forum, future research could then focus on Becher and Zarsky’s third chokepoint—whether ex ante consumers use and rely on contract-based product ratings in making purchasing decisions.

### 4. *Other Sources of Competitive Pressure*

My data may also lead to a less sanguine view of the ability of online fora to convey information from ex post to ex ante consumers and thereby to discipline sellers. Given that ex post consumers do not appear to factor contract bias heavily into product ratings, and that

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<sup>149</sup> This chokepoint is important because, as Korobkin has noted, “[e]fficiency requires not only that buyers be aware of the content of form contracts, but also that they fully incorporate that information into their purchase decisions.” Korobkin, *supra* note 8, at 1217–18.

<sup>150</sup> For a recent study using clickstream data to refute the informed minority theory, see Bakos, Marotta-Wurgler & Trossen, *supra* note 50, which finds that only 0.02% of retail software consumers choose to access SFCs and those that do spend too little time to have carefully read them.

<sup>151</sup> This focus is driven by the fact that the fundamental question of L&E scholarship is whether “existing institutional arrangements” may exert market pressure on sellers. Rakoff, *supra* note 44, at 1243 (emphasis added).

any contract information contained in product ratings is unlikely to be useful to ex ante consumers, one might conclude that online fora simply do not serve as an effective source of competitive pressure. If so, future research might focus on other ways to discipline sellers. This may lead to a renewed focus on ways to improve buyers' ability to read contracts,<sup>152</sup> or a movement in favor of independent certification programs akin to those currently used for online privacy policies.<sup>153</sup>

### CONCLUSION

SFCs are an increasingly important and prevalent form of commercial contracting. While the tendency of ex ante consumers to disregard online SFCs creates the potential for market failure, Becher and Zarsky contend that information about contract terms may nonetheless flow from ex post consumers.<sup>154</sup> In this Note, I provide empirical evidence showing for the first time that, to the extent that online product ratings contain any information about contract terms, such information is unlikely to discipline sellers effectively.

The nature of this finding is qualitatively different from the proposal put forth by Becher and Zarsky. Whereas those authors envisioned an ex post buyer specifically rating products based on contract terms,<sup>155</sup> the negative relationship between contract bias and Amazon product ratings suggests that most ex post consumers do not rate products on the basis of contract bias, but on other attributes—perhaps product functionality—which in turn relate inversely to contract bias. As a result, ex ante consumers most likely will be unable to accurately parse out the quality of contract terms should they choose to rely on product ratings in making their purchasing decisions. The practical import of this finding is that extant online product ratings are

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<sup>152</sup> Cf. Hillman & Rachlinski, *supra* note 35, at 488–92 (asserting that courts can apply blanket assent where “e-consumers have some opportunity to read the standard terms before deciding whether to enter into the contract”). Hillman has since suggested that, akin to cigarette warning labels, mandatory website disclosure of standard terms may backfire in the short-term by “insulat[ing] businesses from claims of procedural unconscionability,” but that disclosure may also have salutary long-term effects in raising public awareness. Robert A. Hillman, *Online Boilerplate: Would Mandatory Website Disclosure of E-Standard Terms Backfire?*, 104 MICH. L. REV. 837, 840, 856 (2006).

<sup>153</sup> See, e.g., *FAQs on Privacy Practices, Seals & Programs*, TRUSTE, [http://www.truste.com/about\\_TRUSTE/faqs.html](http://www.truste.com/about_TRUSTE/faqs.html) (click on “Consumers FAQs” hyperlink) (last visited June 16, 2010) (“TRUSTE [provides] privacy seals to Web sites that give [consumers] proper notice of its [sic] privacy practices. . . . [O]ur privacy standards meet state and federal laws and exceed industry norms.”).

<sup>154</sup> See *supra* notes 51–61 and accompanying text (laying out Becher and Zarsky’s theory).

<sup>155</sup> See Becher & Zarsky, *supra* note 12, at 351 (discussing aggregated reviews as method of obtaining “concise information that encapsulates the entire [standard-form contract]”).

unlikely to serve as an effective way to discipline sellers into providing fairer, more efficient terms.

It is important to note that my empirical tests do not address whether ratings indicate the bias of the contract terms in an absolute sense. Rather, my tests are designed to explore whether contracts accompanying products that are rated highly are more or less biased relative to those accompanying products that receive low ratings. The results of my exploration of online information flows through this relativistic model should help guide future research and policy responses. Because the most prominent product ratings sites do not, as currently constituted, appear to contain much useful information on contract terms, watchdogs and web companies should aim to develop new fora for conveying this information. Future research should examine the extent to which ex post consumers read contracts and ex ante consumers use online fora, as the proven efficacy of these chokepoints would likely catalyze initiatives by governmental or independent watchdog groups to develop more useful information flows.

APPENDIX

TABLE 1  
TERMS AND BIAS METHODOLOGY

<i>Term (Sub-indices italicized)</i>	<i>Bias Measurement</i>	<i>Mean (S.D.)</i>
<i>Acceptance of License</i>		
Does license alert consumer that product can be returned if she declines terms?	1=yes 0=no	.62 (.49)
<i>Scope of License</i>		
Does definition of “licensed software” include regular updates such as enhancements, versions, releases, etc.?	1=yes 0=no mention	.32 (.47)
Are there license grant restrictions?	0=no or no mention -1=yes (e.g., restrictions on commercial use or “internal purposes only” language)	-.39 (.48)
Can licensee alter or modify the program?	0=yes or no mention -1=no	-.81 (.38)
Can licensee create derivative works?	0=largely unrestricted or no mention -1=strict prohibition, derivative works owned by licensors, or need permission of licensor	-.52 (.50)
<i>Transfer of License</i>		
Are there limitations on transfer?	0=no or no mention -1=some or full restrictions (licensee cannot assign, transfer, lease, sublicense, distribute, etc.; or, needs written consent of licensor)	-.96 (.18)
Can licensee transfer the software to an end user who accepts the license terms without licensor’s prior permission?	0=yes or no mention -1=no	-.13 (.34)
<i>Warranties and Disclaimers of Warranties</i>		
Are there express warranties?	1=yes 0=no	.07 (.26)
Is there a limited warranty stating that the software is free from defects in materials and workmanship or that the software will work according to manual specifications in force for a limited period?	1=yes 0=no	.47 (.50)
Is there a limited warranty stating that the media of software distribution and documentation are free from defects in force for a limited period?	1=yes 0=no	.58 (.49)
Is the disclaimer in caps, bold, or otherwise conspicuously presented?	0=yes or no disclaimers appear -1=no	-.12 (.33)
Disclaims Implied Warranty of Merchantability and Implied Warranty of Fitness for a Particular Purpose or contains “AS IS” language?	0=no -1=yes	-.98 (.13)

TABLE 1 CONTINUED  
TERMS AND BIAS METHODOLOGY

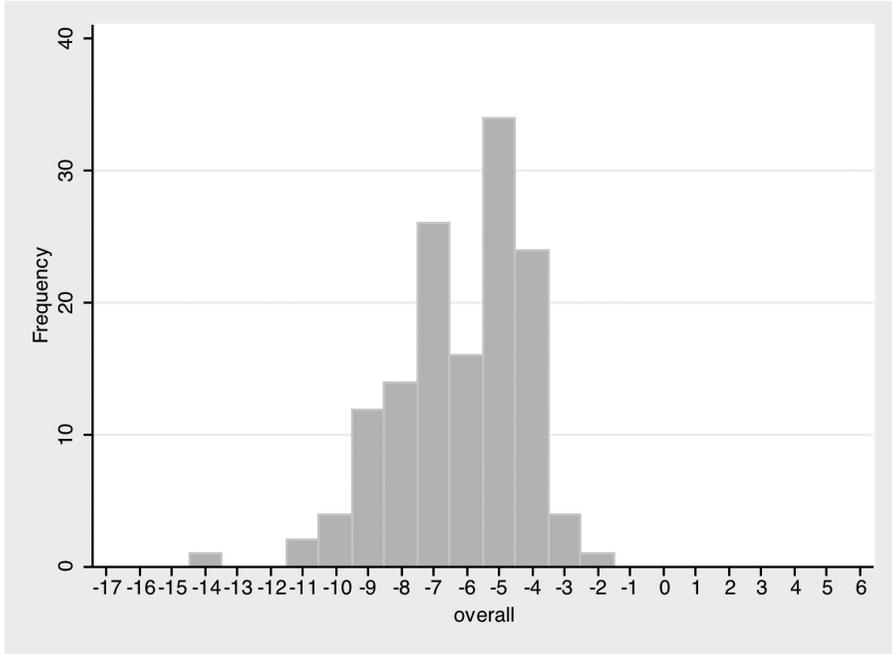
<i>Term (Sub-indices italicized)</i>	<i>Bias Measurement</i>	<i>Mean (S.D.)</i>
<i>Disclaims warranty that software will not infringe on third parties' intellectual property rights?</i>	0=no -1=yes	-.72 (.45)
<i>Limitations on Liability</i>		
Who bears the risk of loss?	0=licensor (for causes under licensor's control) or no mention -1=licensee	-.29 (.45)
Who bears the performance risk?	0=licensor (for causes under licensor's control), no mention, or licensee (for uses expressly forbidden by licensor) -1=licensee (language "licensee assumes responsibility of choice of product and functions," etc.)	-.28 (.45)
Disclaims consequential, incidental, special, or foreseeable damages?	0=no or no mention -1=yes	-.98 (.13)
Disclaims damages under all theories of liability (contract, tort, and strict liability)?	0=no or no mention -1=yes	-.43 (.49)
What is the limitation on damages?	0=no mention or cap on damages greater than purchase price -1=cap on damages less than or equal to purchase price	-.92 (.27)
Is there an indemnification clause?	0=no, no mention, or two-way indemnification -1=indemnification by licensee	-.33 (.47)
<i>Maintenance and Support</i>		
Does base price include M&S for 31 days or more?	1=yes 0=no or no mention	.07 (.25)
<i>Conflict Resolution</i>		
Forum specified?	0=court choice of licensee or no mention -1=specific court or mandatory arbitration	-.41 (.49)
Governing law specified?	0=same as forum or no mention -1=yes and different from forum	-.01 (.08)
Who pays licensor's attorney fees?	0=paid by losing party or no mention -1=paid by licensee	-.01 (.08)
<i>Overall Bias Index</i>	(sum of all terms above)	-6.18 (1.99)
<p>NOTE: Descriptions of terms recorded for the EULAs in the sample and how each term is scored for purposes of measuring the overall buyer (licensee) vs. seller (licensor) bias of the contract. Negative scores capture pro-seller terms and positive scores capture pro-buyer terms. Zero scores capture neutral terms or, in case the term is not discussed in the particular contract, terms that would correspond to the default rule specified in UCC Articles 1 and 2. <i>Mean</i> indicates the frequency with which the term appears in the sample of EULAs, and <i>S.D.</i> indicates the standard deviation from the mean. This table provides a sense of the consistency and replicability of the contract bias methodology.</p>		

TABLE 2  
SOFTWARE PRODUCT SUMMARY STATISTICS

<i>Market</i>	<i>N EULAs</i>	<i>Mean Price (\$)</i>
Business & Office	29	199.86
Children's Software	6	17.97
Education & Reference	2	314.47
Graphics	17	310.98
Home & Hobbies	3	30.63
Language & Travel	4	434.96
Networking	3	1088.83
Operating Systems	1	29
Personal Finance	2	49.97
Programming	2	699
Tax Preparation	2	29.95
Utilities	30	77
Video & Music	24	268.48
Web Development	13	284.98
All Markets	138	224.37

NOTE: Number of EULAs in each product-type category and average software prices within each category. Product types are based on Amazon's software categories. Price is defined as the price of the product on the company website. These categories are used to control for unobservable differences across product categories by examining the correlation between contract bias and product rating within each category.

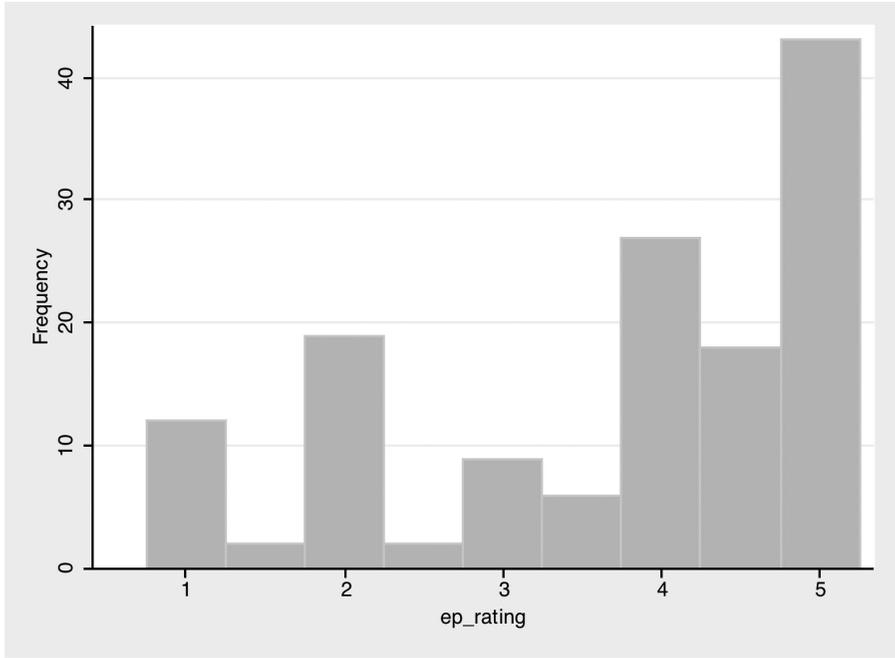
FIGURE 1  
CUMULATIVE EULA BIAS DISTRIBUTION



NOTE: Discrete frequencies of EULAs corresponding to each overall bias index score, based on sample of 138 total EULAs. As constructed, the maximum possible overall bias index score is 6, which would reflect a “pro-buyer” EULA relative to the UCC default rules. The minimum possible score is -17, which would reflect a “pro-seller” contract disclaiming all remedies and heavily restricting the buyer’s use of the software. The minimum score for the sample is -14 and the maximum is -2, indicating that all of the EULAs in the sample are pro-seller relative to the UCC default rules. Additionally, the  $p$  values for the Shapiro-Wilk and Shapiro-Francia normality tests<sup>156</sup> are  $p = 0.0042$  and  $p = 0.0049$ , respectively. This table demonstrates that the normality assumption cannot be rejected at the 1% level.

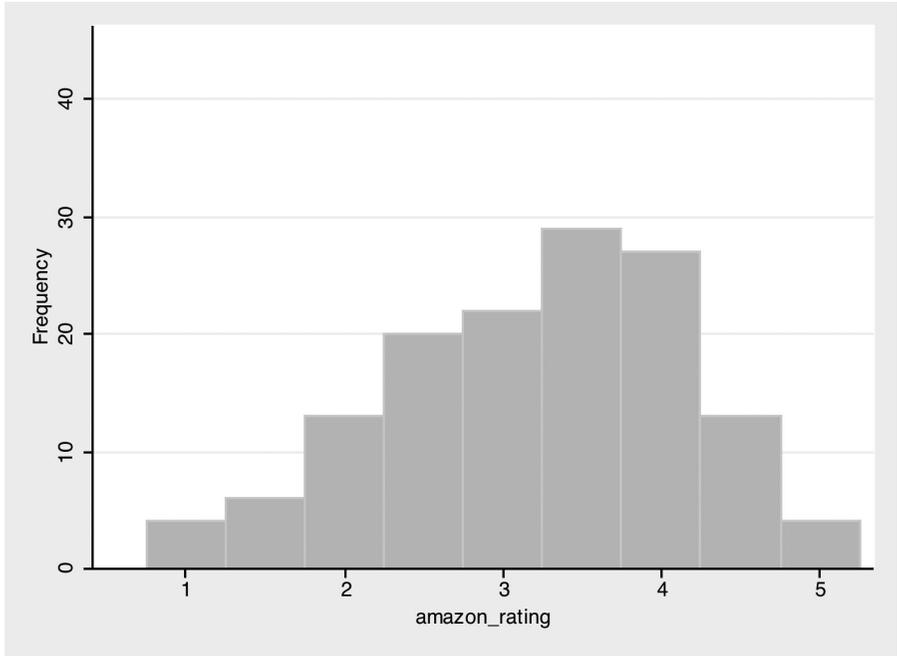
<sup>156</sup> The Shapiro-Wilk and Shapiro-Francia tests are ways of testing the null hypothesis that a sample came from a normally distributed population. See S.S. Shapiro & M.B. Wilk, *An Analysis of Variance Test for Normality (Complete Samples)*, 52 *BIOMETRIKA* 591 (1985) (introducing statistical procedure for testing complete sample for normality); S.S. Shapiro & R.S. Francia, *An Approximate Analysis of Variance Test for Normality*, 67 *J. AM. STAT. ASS’N* 215 (1972) (presenting modified ANOVA test for normality applicable to large samples).

FIGURE 2  
EPINIONS.COM PRODUCT RATING DISTRIBUTION



NOTE: Discrete frequencies of products corresponding to each average star-rating value on Epinions, based on sample of 138 total EULAs. Possible average star ratings range from 1 to 5 in increments of 0.5. The mean rating is 3.7, with a standard deviation of 1.34.

FIGURE 3  
AMAZON.COM PRODUCT RATING DISTRIBUTION



NOTE: Number of products corresponding to each average star rating value on Amazon.com, based on sample of 138 total EULAs. Possible average star-ratings range from 1 to 5 in increments of 0.5. The mean rating is 3.2, with a standard deviation of 0.94.

TABLE 3  
EULA BIAS DISTRIBUTION BY PRODUCT RATING VALUE

Star Rating	(A) <i>Epinions.com</i>		(B) <i>Amazon.com</i>	
	N EULAs	Mean Bias (SD)	N EULAs	Mean Bias (SD)
1	12	-6.33 (2.27)	4	-5 (1.15)
1.5	2	-5.5 (2.12)	6	-5.67 (1.51)
2	19	-6 (1.76)	13	-5.38 (1.80)
2.5	2	-6 (1.41)	20	-6.1 (2.12)
3	9	-6.67 (1.87)	22	-5 (1.60)
3.5	6	-5.67 (1.37)	29	-6.52 (1.70)
4	27	-5.86 (2.40)	27	-7.29 (1.79)
4.5	18	-6.72 (1.77)	13	-6.15 (1.82)
5	43	-6.25 (2.01)	4	-8 (4.08)

NOTE: Distribution of EULAs and mean bias of EULAs within product rating groups. Panel (A) presents data corresponding to *Epinions.com* ratings. Panel (B) presents data corresponding to *Amazon.com* ratings.

TABLE 4  
EPINIONS.COM: REGRESSION OF PRODUCT RATING ON CUMULATIVE  
EULA BIAS, PRODUCT CHARACTERISTICS,  
AND FIRM CHARACTERISTICS

	(1)	(2)	(3)	(4)	(5)
	<i>Rating</i>	<i>Rating</i>	<i>Rating</i>	<i>Rating</i>	<i>Rating</i>
Overall Bias	-0.0200 (0.0571)	-0.0176 (0.0573)	-0.0250 (0.0585)	-0.0240 (0.0615)	-0.0166 (0.0674)
Ln Price		0.0527 (0.0724)	0.0309 (0.0699)	0.0321 (0.0727)	0.0556 (0.0804)
Ln Revenue			0.0478 (0.0303)	0.0491 (0.0333)	0.0351 (0.0372)
Ln Age				-0.0266 (0.358)	-0.0802 (0.386)
Fixed Effects	.	.	.	.	Market
N	138	138	138	138	138
R <sup>2</sup>	0.001	0.004	0.019	0.019	0.090
adj. R <sup>2</sup>	-0.006	-0.011	-0.003	-0.011	-0.039

NOTE: OLS Regression. The dependent variable is *Rating*, or the average star rating from *Epinions*. The independent variables are *X*, a vector of product characteristics that includes the natural log of the product's price, and *Z*, a vector of firm characteristics that includes the natural log of revenue and the natural log of age since incorporation. The model also includes dummies based on *Amazon.com* software market categories. Standard errors are in parentheses and \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 5  
 AMAZON.COM: REGRESSION OF PRODUCT RATING ON CUMULATIVE  
 EULA BIAS, PRODUCT CHARACTERISTICS,  
 AND FIRM CHARACTERISTICS

	(1)	(2)	(3)	(4)	(5)
	<i>Rating</i>	<i>Rating</i>	<i>Rating</i>	<i>Rating</i>	<i>Rating</i>
Overall Bias	-0.136***	-0.133***	-0.134***	-0.129***	-0.134***
	(0.0342)	(0.0336)	(0.0344)	(0.0354)	(0.0382)
Ln Price		0.0702	0.0664	0.0720	0.117
		(0.0561)	(0.0590)	(0.0615)	(0.0732)
Ln Revenue			0.00821	0.0138	0.0227
			(0.0234)	(0.0262)	(0.0287)
Ln Age				-0.118	-0.197
				(0.249)	(0.282)
Fixed Effects	.	.	.	.	Market
<i>N</i>	138	138	138	138	138
<i>R</i> <sup>2</sup>	0.083	0.095	0.096	0.097	0.199
adj. <i>R</i> <sup>2</sup>	0.076	0.082	0.076	0.070	0.085

NOTE: OLS Regression. The dependent variable is *Rating*, or the average star rating from Amazon. The independent variables are *X*, a vector of product characteristics that includes the natural log of the product's price, and *Z*, a vector of firm characteristics that includes the natural log of revenue and the natural log of age since incorporation. The model also includes dummies based on Amazon.com software market categories. Standard errors are in parentheses and \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 6  
EPINIONS.COM

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Rating</i>							
Accept	0.138	0.170						
	(0.274)	(0.267)						
Scope	-0.196		-0.174					
	(0.133)		(0.128)					
Transfer	-0.0912			-0.166				
	(0.324)			(0.309)				
Warranty	-0.0376				-0.0121			
	(0.161)				(0.157)			
Liability	-0.00024					0.00698		
	(0.107)					(0.103)		
Maint.	0.175						0.0852	
	(0.528)						(0.482)	
Conflict	0.199							0.137
	(0.224)							(0.218)
Ln Price	0.0718	0.0405	0.0645	0.0272	0.0346	0.0368	0.0366	0.0430
	(0.0816)	(0.0716)	(0.0696)	(0.0733)	(0.0762)	(0.0723)	(0.0713)	(0.0721)
Ln Rev.	0.0352	0.0436	0.0456	0.0515	0.0494	0.0499	0.0493	0.0460
	(0.0381)	(0.0348)	(0.0339)	(0.0333)	(0.0332)	(0.0338)	(0.0336)	(0.0343)
Ln Age	-0.0236	-0.116	-0.0296	-0.0737	-0.0531	-0.0648	-0.0527	-0.0541
	(0.387)	(0.345)	(0.346)	(0.342)	(0.349)	(0.344)	(0.345)	(0.340)
<i>N</i>	138	138	138	138	138	138	138	138
<i>R</i> <sup>2</sup>	0.042	0.021	0.032	0.020	0.017	0.017	0.018	0.020
adj. <i>R</i> <sup>2</sup>	-0.033	-0.009	0.003	-0.010	-0.012	-0.012	-0.012	-0.009

TABLE 7  
AMAZON.COM

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Rating</i>							
Accept	-0.273	-0.225						
	(0.182)	(0.187)						
Scope	-0.0579		-0.0859					
	(0.0819)		(0.0833)					
Transfer	-0.281			-0.330				
	(0.202)			(0.184)				
Warranty	-0.0378				-0.1000			
	(0.123)				(0.116)			
Liability	-0.117					-0.120		
	(0.0740)					(0.0711)		
Maint.	-0.0325						-0.0903	
	(0.206)						(0.212)	
Conflict	-0.354*							-0.395*
	(0.160)							(0.160)
Ln Price	0.0502	0.0886	0.108	0.0761	0.0809	0.0854	0.0939	0.0746
	(0.0646)	(0.0619)	(0.0627)	(0.0624)	(0.0634)	(0.0609)	(0.0614)	(0.0586)
Ln Rev.	0.0301	0.0240	0.0142	0.0201	0.0146	0.00978	0.0164	0.0263
	(0.0269)	(0.0268)	(0.0258)	(0.0268)	(0.0269)	(0.0274)	(0.0264)	(0.0259)
Ln Age	-0.164	-0.232	-0.289	-0.329	-0.238	-0.243	-0.314	-0.325
	(0.275)	(0.258)	(0.245)	(0.243)	(0.263)	(0.255)	(0.252)	(0.233)
<i>N</i>	138	138	138	138	138	138	138	138
<i>R</i> <sup>2</sup>	0.127	0.038	0.034	0.046	0.033	0.048	0.028	0.074
adj. <i>R</i> <sup>2</sup>	0.058	0.009	0.005	0.018	0.004	0.019	-0.002	0.046