

A Safety Valve Model of Equity as Anti-Opportunism *

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Abstract

In this paper, we argue that the notion of equity as a safety valve on the law can be seen as part of the law's response to the problem of opportunism. We define equity as the use of a more flexible, morally judgmental, and subjective mode of legal decision making that roughly corresponds with historical equity. We distinguish opportunists as agents who have unusual willingness and ability to take advantage of necessary imperfections in the law. We present a simple contracting model that captures the role of equity as a safety valve, and show how it can solve problems posed by opportunists. In our model, a simple but imperfect formal legal regime is able to achieve first best in the absence of opportunists. But when opportunists are added, a more flexible regime (equity)—specifically, one that denies damages to parties who exploit contractual gaps—can be preferred. However, equity is also vulnerable to being used opportunistically by the parties it intends to protect. For this reason, we show that it is often preferable to limit equity, reserving it for use only against those who appear sufficiently likely to be opportunists. Our model generates intuitive comparative statics that describe the optimal expansiveness or restrictiveness of equity.

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1 Introduction

That law is necessarily incomplete is an old truth whose implications have become clearer in the light of economic analysis. Putting pressure on the gaps in the law is the phenomenon of opportunism explored in depth by Oliver Williamson. In this paper, we resurrect another old notion related to the law's incompleteness – equity as a safety valve on the law – and show how it can be seen as part of the law's response to the problem of opportunism.

Both within law and economics and more generally, responses to opportunism tend to paint with a broad brush. Formalists emphasize the need to be clearer about what constitutes bad behavior and to give effect to parties' directions to courts, while contextualists see the need for flexibility to respond to clever strategies for taking advantage of other actors. This debate is particularly stark in contract theory, where the question is whether parties are always in a better position than courts to anticipate and deal with the problem of opportunism, either through more detailed contractual provisions, through asset ownership, or through hierarchical organization.

These strands of the literature do not consider that it may be sensible to employ both formal and contextual approaches simultaneously, and to deploy these approaches selectively depending on the circumstances. Decision modes that go under the headings “law” and “equity” – especially prior to the fusion of the separate courts of law and equity – provide an example of this approach. Equity, in the sense of equitable principles and remedies, provide a very general and venerable mechanism that is deployed selectively – as a “safety valve” – to deter opportunism. (Smith 2011, Smith ms.) We do not claim that discouraging opportunism is the exclusive justification for a contextual mode of decision making or was the only function of equity. Nor do we argue that the law's efforts at countering opportunism were ever the exclusive province of equity. Instead, we model the safety valve function that was a major theme of equity and remains a major justification for departures from formalism.

Key to understanding the functional role that equity can (and often did) play is the need to discourage the types of opportunism emphasized in the work of Oliver Williamson. Williamson (1985, 47) defines opportunism as “self-interest seeking with guile.” Equity traditionally focused on deception, often deceit that fell short of provable fraud. As earlier commentators realized, the problem with opportunism is that it is wealth-destroying, but is hard to foresee in its particulars, making it difficult to specify *ex ante*. On the other hand, reserving a large amount of discretion to define it *ex post* tends to chill behavior by innocent actors and to destabilize expectations that the law is supposed to foster. Essential to the distinction between opportunists and non-opportunists is an information asymmetry. In particular, the opportunist knows so much about the legal structure he faces that he can take unintended and

hard-to-foresee advantage of it.¹

In this paper we present a simple contracting model that captures the role of equity as a safety valve to discourage opportunism. From a contract theory perspective, a novel aspect of our model is distinguishing opportunistic from non-opportunistic actors when all parties are self-interested. In our model, non-opportunistic buyers of a good (whom we call "garden variety" buyers) have imperfect information about their rights under a contract after the good is delivered. Garden variety actors observe the overall quality of the delivered good, and thus have a credible threat to sue when overall quality is below contracted quality. But these actors must incur an investigation cost to match the precise characteristics of the delivered good to their entitlements under the contract. These investigation costs might arise *ex post* because garden variety actors are "satisficing" actors who do not expect to litigate, and hence do not invest in understanding and remembering the precise details of their contracts. If this investigation cost is high enough, technical breaches by sellers can go uncompensated. In our model, when technical breaches are not compensated, this can create beneficial welfare effects. They give sellers a greater incentive to make efficient, non-contractible substitutions in states of the world where technical compliance with the contract is inefficiently costly.

We show, however, that a "substantive compliance" equilibrium between sellers and garden variety buyers can be undermined by the presence of opportunist buyers. We see opportunists as distinct from garden variety actors in the degree to which they are prone to take advantage of the incompleteness of the law. In our model opportunists are agents who are fully aware of their legal entitlements, and are willing to exploit them to their full advantage *ex post*. Thus, even if a seller substantively complies with a contract by providing the agreed-upon quality, opportunists will sue on any technical breaches that occur. The damages paid by sellers to opportunist buyers introduce a transfer from garden variety buyers to opportunist buyers in equilibrium, with two potential welfare costs. First, it may cause garden variety types to contract for inefficiently lower quality to avoid subsidizing opportunists. Second, it might result in inefficient overconsumption by opportunists, even if garden variety types continue to contract for high quality.

¹More detailed contracts or legal rules are unlikely to be effective against such opportunism: As noted by Masten (1988, 182-183) "While opportunism and moral hazard are similar in that both assume that actors look first to their own self interest, opportunism is more ingenious, active, and likely to provoke strategic responses by other parties than the type of noncooperative behavior assumed in agency models. Transactors are characterized by their cleverness, to the point of deviousness, in circumventing rules, discovering loopholes, or otherwise exploiting strategic advantages. Using contracts to try to induce cooperative behavior from an uncooperative actor is like trying to pick up mercury; every provision stipulated or contingency appended just creates another source of contention open to various interpretations and is thus subject to manipulation in court." The flexibility and dynamism of opportunists requires a flexible response of the sort embodied in equity.

In this framework, an equitable intervention that allows sellers to avoid penalties by demonstrating substantive compliance can improve welfare. But the availability of this anti-opportunism device creates scope for a different type of opportunism by the sellers it seeks to protect. In particular, opportunist sellers might provide low quality, and seek to avoid damages by invoking equity. We show that the costs of this kind of opportunism can be mitigated by using equity only as a “safety valve”: equity should be applied by judges to protect sellers only when the judge is sufficiently certain that the buyer is an opportunist. We suggest some intuitive comparative statics regarding the optimal expansiveness or restrictiveness of equity.

Our paper will proceed as follows. Section 2 situates our work in relation to the extant literature. In Section 3, we begin with a simple, stylized contracting model between a buyer and seller that illustrates the problem of opportunism. We show that equitable intervention may be useful, but only when applied as a “safety valve” against those buyers that appear to be acting opportunistically. In Section 4, we enrich the stylized model to generate some intuitive comparative statics about the optimal degree of expansiveness of equity. Section 5 analyzes patents and fraudulent transfers as potential applications of the model. Section 6 connects our work with insights from transaction cost economics. Section 7 concludes.

2 Related Literature

Our model differs from the standard picture of *ex ante* contracting to bind parties and thereby make possible mutually beneficial sets of actions. Some elements of our safety valve model resonate with strains of the contracting literature emphasizing vague standards, the role of opportunism, and fault in contract law.

Vague standards have received attention from a well-developed literature comparing the desirability of formal rules to flexible standards applied to general legal questions. Works such as Ehrlich and Posner (1974) and Kaplow (1992) have generally focused on the efficiency trade off between rules, which are easy to administer but inflexible, and standards, which require skill and judgment to administer but can efficiently respond to factors that were not contemplated *ex ante*. Vague standards can raise parties’ costs and chill legitimate behavior. Scott and Triantis (2006) argues that contractual parties make a similar trade-off when they incorporate vague terms in contracts, although Choi and Triantis (2008, 2010) show that the costs of using standards can serve to commit the parties and send effective signals by making *ex post* verification more costly. Friedman and Wickelgren (2012) looks at how loose standards as opposed to formal rules may allow decision makers to respond to private information known only to the parties.

In the next sections we will develop a model of the equitable safety valve based on

asymmetric information. We assume people are rational actors with varying amounts of information. Hence for us, the problem in opportunism has much to do with levels and types of foreseeability. Opportunism of the sort we are interested manifests in “loophole seeking” and the exploitation of “snags.” We expand upon our notion of opportunism further in section 6.1; in our mind the opportunist is distinguished by using the letter of the law to achieve objectives that are inconsistent with the law’s purpose, and in doing so creating net social costs. (Smith ms.) In our model, some people (opportunists) have high levels of information about whether contractual performance (or by extension other relevant assets and activities) conform to the letter of the law even if they fully serve the law’s purpose. The opportunists have an informational advantage over others (garden variety) who holistically know that the purpose of the contract (or other law) has been served but find it too costly to find out whether the letter of the contract or law has been followed to a “t”, or find it too costly to sue for the technical divergence. Because of the opportunist’s superior information it will be difficult and sometimes not cost-effective for contractual parties or policy makers *ex ante* to devise specific solutions aimed specific forms of opportunism.

Our focus in this paper is on the optimal contours of equity: why it should be applied against opportunistic actors in particular, why it should be applied only sparingly, and when it should be more or less expansive. As such, we do not offer a new formal explanation for why equity should be mandatory. Mandatory rules have been justified on grounds such as eliminating socially wasteful signaling (Aghion and Hermalin 1990) and bounded rationality. Those who distrust these explanations can read our analysis more conservatively as providing the contours of optimal default rules, from which sophisticated parties may be allowed to opt out. In Section 6, we return to the issue of deception and foreseeability in opportunistic behavior and argue that the problem is more dire and the solutions need to be more stringent and more likely mandatory if the opportunism is radically unforeseeable, in that the form it takes is a matter of (unquantifiable) uncertainty rather than (quantifiable) risk.

Related to notions of opportunism is the question of fault in contract law. Indeed one method of dealing with opportunism is to define it as a wrong and to hold parties liable. Indeed, acting opportunistically can be regarded as an egregious example of fault (willfull rather than negligent). Or the response can be remedial, in which a pattern of behavior that one could label “willful” breach is used to get at undetectable bad behavior by “nasty” types, in a fashion reminiscent of theories of punitive damages based on the difficulty of detection. (Bar-Gill and Ben-Shahar 2009). These works have generally focused on an *ex ante* choice of which modality would be applied to a particular class of cases or issues, and do not suggest using different modalities for different litigants in similar situations, especially keyed to evasatory behavior itself. In contrast, our work is intended to serve as an explanation for why it might be desirable to make exceptions from formal rules in scenarios where they might

otherwise be efficient, based on the perception that a litigant is acting with guile, rather than ordinary self-interest.

3 Contracting Example

Imagine that buyers contract to purchase goods from a marketplace of competitive sellers. Buyers value quality (x), which the seller can provide through components a or b , so that $x = a + b$. We suppose that contracts are incomplete, in that they can describe a with precision but they cannot specify b or x . For the sake of concreteness, the seller might be a builder and the buyer a homeowner. The homeowner might be able to specify a characteristic of the house that she values (granite countertops from a particular manufacturer, which represents $a = 1$), but might not be able to describe all potential substitutes (this would represent $b = 1$) that would be equally desirable.

We assume that quality $x = 1$ is always efficient but that the efficient way of obtaining $x = 1$ depends on a non-contractible state of the world which is unobservable *ex ante*. With probability $1 - \pi$, the usual state obtains, and the cheapest way of achieving $x = 1$ is by setting $a = 1$. In this case, the cost of setting $a = 1$ is z_L . But with probability π , the unusual state obtains, and the cheapest way of obtaining $x = 1$ is with $b = 1$, again at a cost of z_L . We assume that neither the buyer nor the court can directly observe whether the usual or unusual state obtains. Because a can be specified in a contract but b cannot, the probability of the unusual state π is a measure of the degree of contractual incompleteness.

In both states, we assume that the cost of achieving high quality in the less efficient way is $z_H > z_L$. In the context of our homeowner/builder example, this captures the possibility that in some states of the world, full compliance with the explicit terms of a contract may be costly. Supplies of the particular granite may be temporarily unavailable to the builder, and the use of a close substitute countertop may be required. Since little is lost by doing so, we will simplify the model by assuming that $z_H = \infty$, implying that technical compliance with the letter of the contract in all states of the world is impossible.² Consider an example where values are given as below.

The state contingent costs are as given in table 2. Assume that the seller can always supply the good with $a = 0$ and $b = 0$ at a cost of 0. Our assumption that quality $x = 1$ is always efficient implies that $V_1 > z_L$.

²In an earlier version of the model we consider a finite z_H . This gives the garden variety seller an additional option when opportunists enter the market: they can choose to technically comply with the contract by providing $a = 1$ in the unusual state. Adding this option limits the costs of opportunism to the extent that z_H is not too large.

x	V
1	V_1
0	0

Table 1: Value to buyer

State	Probability	Cost for $a = 0$ & $b = 0$	Cost for $a = 1$	Cost for $b = 1$
Usual	$1 - \pi$	0	z_L	$z_H = \infty$
Unusual	π	0	$z_H = \infty$	z_L

Table 2: Costs of Investments

3.1 Garden Variety Buyers

We assume that garden variety buyers are limited in their ability to exploit their contractual rights in full. They might, for example, have cognitive limitations that prevent them from remembering the full details of the contract, or limitations that prevent them from discovering the precise characteristics of the good they receive from the seller. Hence, it is not always obvious to them whether there was a technical breach or not.

Concretely, we suppose that garden variety buyers observe the total quality x , so they know whether they are satisfied with the final outcome, but they must incur a cost of c to investigate the seller's means of compliance and observe a or b . If they are dissatisfied, they may infer that a breach is likely to have occurred, but they are not able to sue without paying a cost of c to uncover evidence of the breach.

For expositional purposes, we will say that the seller provides *substantive compliance* when high quality goods are provided in both states ($a = 1$ in the usual state and $b = 1$ in the unusual state), *partial compliance* when high quality is provided only in the usual state ($a = 1$ in the usual state and $x = 0$ in the unusual state), and *low quality* when $x = 0$ in both states.

Remark 1 *In this setting, a first-best allocation requires that the seller provide substantive compliance, and no investigation costs are incurred by buyers.*

In Lemma 1, we show that if c is not too low, the first-best can be sustained by contracting on only the verifiable component of quality (a):

Lemma 1 *If all buyers are garden variety and $c \geq \pi z_L$, an optimal contract requires that the seller provide $a = 1$. The buyer agrees to pay a price $P = z_L$, and can recover*

damages $D \in (\max(z_L, c), \frac{c}{\pi})$ if the seller breaches. This optimal contract implements the first-best allocation.

If $c < \pi z_L$, substantive compliance will not be provided by sellers in any equilibrium.

Proof. Since $D \geq c$ the buyer will find it incentive compatible to investigate if high quality is not provided, and since $c \geq \max(\pi z_L, \pi c)$, it is incentive compatible for the buyer to not sue when high quality is provided. The buyer will win any suit where high quality is not provided (since $a = 1$ was promised and not delivered). Since $D \geq z_L$, the seller prefers to provide high quality to breaching in both states. The price $P = z_L$ is sufficient to satisfy the seller's participation constraint and gives the buyer a surplus $V_1 - z_L > 0$.

If $c < \pi z_L$, then any $D \geq z_L$ that gives the seller incentive to provide $a = 1$ in the unusual state rather than breach also gives the buyer incentive to investigate, even if high quality is received. The buyer's suit would be successful in the unusual state, so the buyer would receive an expected payment of $\pi D \geq \pi z_L > c$. Given that providing $b = 1$ in the unusual state does not deter a suit, the seller has no incentive to provide it. ■

In effect, the buyer's ignorance can increase the efficiency of the contract. The buyer's lack of knowledge about the precise details of the contract gives the seller an incentive to make efficient but non-contractible substitutions when these substitutions deter lawsuits.

3.2 Opportunists

Now imagine that a proportion q of the buyers are opportunists. Opportunists in our model are actors who have full knowledge of the contract and the characteristics of the goods they receive. Concretely, we suppose they observe a and b at no cost. Hence, opportunists are fully aware of their legal entitlements and willing to exploit them. If they write a contract that promises $a = 1$, opportunists will sue whenever $a = 0$ if the damages justify the cost of suit, irrespective of whether the seller provides $b = 1$.

We assume that sellers cannot tell the difference between opportunist and garden variety buyers. The addition of unobservable opportunists changes the contracting game between garden variety buyers and sellers, making a substantive compliance equilibrium more difficult to sustain. In the unusual state, the seller expects to be sued by opportunists regardless of whether or not he provides $b = 1$. Because sellers now expect that substantive compliance avoids a lawsuit with only probability $1 - q$, sellers must be given a greater incentive to provide non-contractible quality by raising D . Specifically, sellers now provide $b = 1$ in the unusual state only if

$D \geq \frac{z_L}{1-q}$. Second, the sellers now expect higher costs, which they must pass on to buyers. Rather than expecting a cost of z_L , the seller expects to spend an extra $q\pi D$ to cover the expected cost of damages from lawsuits by opportunists in the unusual state. Thus, the minimum expected cost of purchasing the good for the garden variety buyer rises to $z_L + q\pi D$.

The next proposition shows that opportunists make a substantive compliance equilibrium harder to sustain. Further, any substantive compliance equilibrium involves a cross-subsidy from garden variety buyers to opportunists:

Proposition 2 *For any $q \geq \min\left\{\frac{c-\pi z_L}{c}, \frac{V_1-z_L+c}{V_1+c} \frac{V_1-z_L}{V_1-(1-\pi)z_L}\right\}$ substantive compliance will not be provided in any equilibrium. When there are a positive measure of opportunists ($q > 0$), any substantive compliance equilibrium requires a cross-subsidy from garden variety to opportunist buyers.*

Proof. The following are necessary conditions for substantive compliance to be provided in equilibrium:

(a) D must be set so that garden variety buyers do not sue if they receive high quality, otherwise sellers will not provide $b = 1$ in the unusual state. This requires $D \leq \frac{c}{\pi}$.

(b) Providing $b = 1$ in the unusual state is incentive-compatible for the seller. This requires $D \geq \frac{z_L}{1-q}$.

(c) The seller's participation constraint is satisfied. This requires that $P \geq z_L + q\pi D$.

(d) Garden variety buyers prefer a substantive compliance contract to a partial compliance contract. This requires $V_1 - P \geq (1 - \pi)V_1 + \pi(z_L - c) - z_L$.

(e) Garden variety buyers prefer a substantive compliance contract to a low-quality contract. This requires $V_1 - P \geq 0$.

For (a) and (b) to hold simultaneously, $q \geq \frac{c-\pi z_L}{c}$. For conditions (b),(c), and (d) to hold, $q \geq \frac{V_1-z_L+c}{V_1+c}$. And for (b),(c), and (e) to hold, $q \geq \frac{V_1-z_L}{\pi z_L+(V_1-z_L)}$.

To establish the second part of the Proposition, note that since the market for sellers is competitive, the seller's participation constraint always binds, so $P = z_L + q\pi D$ in a substantive compliance equilibrium. Thus, garden variety buyers pay more than the cost of the good (z_L) and receive no damages. Since opportunists receive expected damages πD , they pay an effective price $P' = P - \pi D = z_L - (1-q)\pi D < z_L$.

■

The presence of opportunists creates problems from a social welfare perspective. In particular, if there are too many opportunists, there will be no market equilibrium where sellers always provide the efficient level of quality. Garden variety types subsidize opportunists because they bear part of the expected cost of the damage payments through the price of the good. If this transfer becomes too large, garden

variety purchasers will eliminate the cross-subsidy to opportunists by contracting for lower quality.

This cross-subsidy can be eliminated in one of two ways. One way is for garden variety buyers to offer sellers a “partial compliance” contract that sets $D = \max(z_L, c)$, so that sellers will have incentive to provide high quality only in the usual state. In the unusual state, sellers will provide low quality, and all buyers will sue. The buyer will offer the seller a price $P = \pi z_L + (1 - \pi) \max(z_L, c)$, at which the seller expects to break even. Net of the price, the value of the partial compliance contract to the garden variety buyer will be

$$\begin{aligned} (1 - \pi)V_1 + \pi(D - c) - P &= \\ (1 - \pi)V_1 + \pi(\max(z_L, c) - c) - ((1 - \pi)z_L + \pi \max(z_L, c)) &= \\ (1 - \pi)(V_1 - z_L) - \pi c & \end{aligned}$$

Alternatively, the buyer can contract for a low quality good, which costs 0 and has a value of 0 to the buyer. The garden variety buyer prefers the partial compliance contract to the low quality contract if and only if the expected surplus in the usual state outweighs the deadweight investigation costs in the unusual state: $(1 - \pi)(V_1 - z_L) > \pi c$.

In this simple setup, the transfer from garden variety buyers to opportunists has welfare costs only if it causes the garden variety buyers to contract for lower quality. In the subsection on comparative statics, we explore a richer model with an additional cost: if there is any elasticity in the purchasing decision of either the garden variety or opportunist buyers, this transfer will cause them to inefficiently distort their purchasing decisions. Because the garden variety buyers are subsidizing the opportunists, they might not purchase in a competitive market, even when the value they place on the good is greater than the cost of producing it. Likewise, opportunist buyers receive this transfer when they purchase the good, and might decide to purchase when the production cost is greater than the value of the good to them.

3.3 Equity

If courts could perfectly observe quality, they could easily solve the problem of opportunist buyers by applying equity and refusing to enforce damages for breach whenever it observes substantive compliance by the seller. This would ensure that sellers always had an incentive to provide quality and there would be no room for opportunists to game the contract.

In this section, we consider a cost to equitable intervention: when applied imperfectly by courts, equitable intervention that deters opportunism on one side of the transaction can increase the scope for opportunism on the other side. We show that,

in response, it may be optimal for equity to be used only as a safety valve. In other words, it may be optimal to apply the equitable defense only when the court has sufficient confidence that the buyer is acting opportunistically.

To see this, we introduce the presence of opportunist sellers and imperfect courts. We imagine that courts can observe a potentially manipulable signal of substantive performance, denoted y . Specifically, we will assume that $y = x + f$, where f is a confounding signal that can be produced by opportunist sellers. We assume that y is not contractible, because quality cannot be precisely defined beforehand, and all acceptable methods of substitution can not be anticipated. The court forms an opinion about the quality of the seller’s performance at the time of lawsuit. We argue that basing the legal outcome on y requires equitable powers, because it requires the court to base its decision on factors that are not specified in the contract.

Definition 1 *A court applies equity when it refuses to award damages for breach upon observing $y = 1$.*

Opportunist sellers can provide only “fake” substantive compliance by choosing an action $f = 1$ at a cost $z_O < z_L$. We assume that the other “honest” sellers are unable to produce $f = 1$. One can think of these opportunist sellers as parties who are experts at appearing sympathetic to the court, or alternatively as parties that are simply favored by the court *ex ante*³. To gain some intuition, we start by assuming an infinitely elastic supply of opportunist sellers. Opportunists will enter the market whenever it is profitable to do so, and they exist in a supply that is large relative to honest sellers.

3.3.1 Expansive use of equity and market breakdown

Because the court observes y but not b or x or f , an opportunistic seller can convince a judge who is applying equity that there was substantive compliance. Suppose, first, that the equity defense were available whenever the court observes substantive compliance, irrespective of the buyer’s perceived type. The advantage of a broad application of equity is that it provides more protection to honest sellers. All opportunistic lawsuits by buyers will be deterred (opportunist buyers who appear to be garden variety buyers can never collect damages), so honest sellers can break even by charging their marginal cost z_L . But courts cannot distinguish substantive from fake

³To keep things simple, we assume here that courts are completely unable to distinguish opportunist from honest sellers. To the extent that separation is possible, it will always be efficient to deny the equitable remedy to opportunist sellers. Doing so would deter the entry of opportunist sellers without creating the undesirable transfer from garden variety buyers to opportunistic buyers. One can think of this as the idea that those who seek equity must come with “clean hands”.

compliance. The next lemma shows that an overly expansive use of equity, just like the absence of equity, can cause a substantive compliance equilibrium to break down:

Lemma 3 *Suppose that courts always apply the equity defense whenever they observe substantive compliance by sellers. Then the only equilibrium is a low quality equilibrium.*

Proof. Suppose there is an equilibrium where honest sellers provide high quality goods. In any such equilibrium, a contract must provide that when $a = 1$ is provided, buyers will pay some price P equal to at least the honest seller's cost z_L . Damages D must also be at least z_L to prevent the honest seller from breaching. The equitable defense allows sellers to also receive P and pay no damages whenever the contract calls for $a = 1$ and the seller provides substantive compliance ($b = 1$ for the honest seller). Hence, honest sellers will provide $b = 1$ in the unusual state for any contract that induces high quality ($a = 1$) in the usual state.

But if an honest seller charges $P \geq z_L$, then the best response of opportunist sellers is to enter the market, offer the same contractual terms (P, D) that honest sellers offer, and provide $f = 1$ in both states. These sellers will earn a profit of $P - z_O \geq z_L - z_O > 0$. But since the supply of opportunist sellers is presumed to be large relative to honest sellers, and $f = 1$ is worthless to buyers, no buyer will pay a positive price for this contract: they will receive a good with no value and have no ability to collect damages. ■

In this, more simplified setup, opportunist sellers cause the market to break down entirely when they enter. This follows from our strong assumption that there is a large, elastic supply of opportunist sellers, an assumption we relax in the comparative statics section. More generally, though, the lemma illustrates that applying equity too broadly can create too much incentive for opportunist sellers to enter the market, and this causes garden variety buyers to shy away from contracting for quality.

3.3.2 Equity as a safety valve

One potential response to this problem is for the courts to only use equity against those whom the courts have a reason to believe are acting opportunistically. Here, we suppose that the courts receive an imperfect signal $S \in \{g, o\}$ about whether the plaintiff buyer is a garden variety buyer or an opportunist. When the plaintiff is an opportunist, the court receives the correct signal (o) with probability $s > .5$. When the plaintiff is garden variety, the court receives the correct signal g with probability s .

Suppose, now, that equitable relief for the seller is only available if the court receives the signal that the buyer is an opportunist. If an honest seller anticipates

providing substantive compliance in the unusual state, she must now charge a price $P \geq z_L + D\pi q(1-s)$ to break even. The premium $D\pi q(1-s)$ is required to cover the costs of damages paid to opportunist buyers when substantive compliance is provided, but the court fails to recognize the buyer as an opportunist.

Now consider the entry decision of opportunist sellers. To break even, these sellers must charge at least $z_O + D((1-q)s + q(1-s))$. All buyers sue opportunist sellers, and damages are paid in the event that the buyer appears garden variety to the court. For these sellers to be deterred from entry, it must be the case that their costs, inclusive of damages, exceed the price charged by honest sellers. This requires

$$z_O + D((1-q)s + q(1-s)) \geq z_L + D\pi q(1-s),$$

or

$$D \geq \frac{z_L - z_O}{(1-q)s + (1-\pi)q(1-s)}. \quad (1)$$

The opportunist seller pays damages in two circumstances that the honest seller does not. First, opportunist sellers pay damages whenever they supply a garden variety buyer who is properly identified by the court: this happens with probability $(1-q)s$. Garden variety buyers do not sue honest sellers who provide substantive compliance. Second, opportunist sellers pay damages in the usual state when the opportunist buyer is misidentified as garden variety.⁴ This occurs with probability $(1-\pi)q(1-s)$. Honest sellers provide actual compliance in the usual state, so opportunist buyers do not sue in that event. The ability to impose greater expected damages on opportunist than honest sellers can keep opportunists out of the market as long as D is set high enough. Recall, though, that the cross-subsidy from garden variety buyers to opportunist buyers rises in D ; hence, D can not be so large that the garden variety buyers opt out and contract for low quality instead. We formalize this in the next proposition:

Proposition 4 *Suppose courts allow an equitable defense only as a "safety valve": it is applied in favor of sellers if and only if the buyer appears to be an opportunist (if $S = o$). If $\frac{z_L - z_O}{(1-q)s + (1-\pi)q(1-s)} < \frac{V_1 - z_L}{\pi q(1-s)}$, there is a substantive compliance equilibrium in which opportunist sellers do not enter the market.*

Proof. For the garden variety buyer to prefer the substantive compliance equilibrium to a low quality equilibrium requires that $V_1 - z_L - D\pi q(1-s) \geq 0$. Combining this inequality with the condition that deters entry by opportunists, (1), produces the inequality in the Proposition. ■

⁴With these assumptions it is possible that even if $s < .5$, it might be possible to deter these sellers, although welfare is increasing in s

4 Comparative statics

The section above considers two possibilities for using the opportunism signal S : the court either ignores it, or relies on it entirely to determine whether the equitable defense to damages is available to the seller. In general, neither approach is an optimal use of the signal. If entry by opportunistic sellers is not much of a threat, it may be optimal to use equity more expansively, by applying it with positive probability against seemingly garden variety buyers. Because courts make errors, more aggressive use of equity can sweep in more opportunist buyers without encouraging opportunist sellers to enter, and this is welfare enhancing. Conversely, if too many opportunistic sellers prefer to enter the market when the equity defense is valid only against seemingly opportunist buyers, the opportunist sellers might be further discouraged by a more restrictive use of equity. The equity defense could be applied with probability less than one when the judge perceives the buyer to be an opportunist.

To make this concrete, let $\tau_o, \tau_g \in [0, 1]$ represent the probabilities with which equitable intervention is used, conditional on the opportunist and garden variety signals being received, respectively. An optimal use of the signals will require that equitable relief for sellers be focused on opportunist buyers to the maximum extent possible: hence $\tau_o = 1$ whenever $\tau_g > 0$, and $\tau_g = 0$ whenever $\tau_o < 1$. (In the subsection above, we assumed that $\tau_o = 1$ and $\tau_g = 0$.) This leads to a natural question: when should equity be more restrictive or expansive?

We start by setting up the conditions for a substantive compliance equilibrium. We will then simulate equilibria to see how the optimal expansiveness of equity varies with the parameters of the model. We define a substantive compliance market equilibrium in this environment to occur when the goods market clears, and: (IC) An honest seller provides high quality in both states; (ZP) Honest sellers make zero profit; and the proportion of (OS) opportunist sellers, (GV) garden variety buyers, and (OB) opportunist buyers are all consistent with beliefs in equilibrium.⁵

4.1 Demand

In order to make a meaningful comparative statics analysis, it is necessary to relax some of the simplifying assumptions we have made in earlier sections. In particular, to capture the negative welfare effects of the transfer from garden variety buyers

⁵The precise mathematical conditions are:

$$\begin{aligned}
 (IC) : & \quad D(1 - \pi q^* \psi_o) \geq z_L \\
 (ZP) : & \quad P = z_L + \pi q^* \psi_o D \\
 (OS) : & \quad \Omega = \frac{\theta}{z_L - z_O} \frac{z_{max} - z_O}{\phi(q(\bar{u} - u_{min}^o) + (1-q)(\bar{u} - u_{min}^g))} \\
 (GV) : & \quad u_{min}^g = P - V_1 + \Omega(V_1 - (D\psi_g - c)) \\
 (OB) : & \quad u_{min}^o = P - V_1 - \pi D\psi_o + \Omega(V_1 - (1 - \pi)D\psi_o)
 \end{aligned}$$

to opportunist buyers in a more continuous fashion, we assume that there is some elasticity in the market demand of both garden variety and opportunist buyers.

Specifically, we assume that potential buyers (indexed by k) gets value $u_k + V$ from purchasing the good, where u_k is the individual-specific value of a low-quality good and $V \in \{0, V_1\}$ is the value of quality described in table 1, which is assumed to be constant across buyers. We assume that u_k is distributed with a constant density ϕ with a maximum value \bar{u} ⁶, so that demand for the good will be linear in price, with slope ϕ . We also assume that the relative proportion of opportunist and garden variety buyers (q and $1 - q$, respectively) is constant for all u_k .

In equilibrium, there will be some cutoff buyer types u_{min}^g and u_{min}^o that are indifferent between buying and not buying, so that all garden variety buyers with $u_k \geq u_{min}^g$, and all opportunist buyers with $u_k \geq u_{min}^o$ purchase the good. The buyer's overall value of buying the good depends on the expected quality of the good, and the expected damages from lawsuits. Define ψ_i to represent the likelihood that the court allows a plaintiff buyer to collect damages (i.e. the court denies the equitable defense for sellers) when the buyer is of type $i \in \{g, o\}$ and the court observes $y = 1$. This implies that $\psi_o = s(1 - \tau_o) + (1 - s)(1 - \tau_g)$ and $\psi_g = s(1 - \tau_g) + (1 - s)(1 - \tau_o)$. Optimal use of the signals requires that $\tau_o \geq \tau_g$, and $s > .5$, so it is straightforward to see that $\psi_g \geq \psi_o$.

If the buyer believes the likelihood a seller is opportunist is Ω , then we can solve for the cutoff values for buyers of the respective types:

$$\begin{aligned} u_{min}^g + (1 - \Omega)V_1 + \Omega\psi_g(D - c) &= P \\ u_{min}^o + (1 - \Omega)V_1 + (\Omega + (1 - \Omega)\pi)\psi_o D &= P \end{aligned}$$

With these assumptions in hand, total demand will be given by:

$$\phi((1 - q)(\bar{u} - u_{min}^g) + q(\bar{u} - u_{min}^o)) \quad (2)$$

We note that garden variety (or opportunist) buyers whose value is u_{min}^g (or u_{min}^o) get no surplus from purchasing the good, whereas garden variety (opportunist) buyers with the maximum value \bar{u} receive surplus of $\bar{u} - u_{min}^g$ ($\bar{u} - u_{min}^o$). Given the uniform distribution of buyer types, the average welfare from a garden variety (opportunist) buyer is $\frac{\bar{u} - u_{min}^g}{2}$ ($\frac{\bar{u} - u_{min}^o}{2}$). Thus total welfare for garden variety (opportunist) buyers is given by $\frac{1}{2}\phi(\bar{u} - u_{min}^g)^2$ ($\frac{1}{2}\phi(\bar{u} - u_{min}^o)^2$). In this case we use q^* to represent the actual equilibrium proportion of opportunists among all buyers. It is given by

$$q^* = \frac{q(\bar{u} - u_{min}^o)}{(1 - q)(\bar{u} - u_{min}^g) + q(\bar{u} - u_{min}^o)}$$

⁶Specifically, we assume that the maximum value for u_k is \bar{u} and buyers are evenly distributed so that the mass of buyers with u_k in the interval (u, \bar{u}) is $\phi(\bar{u} - u)$ for any $u < \bar{u}$.

4.2 Supply

We assume that there are an infinite supply of honest sellers with cost z_L as before, but here we add some elasticity in the decision to enter by opportunist sellers. Thus it may no longer be optimal (or practical) to keep all opportunist sellers out of the market, but it is still desirable to minimize their presence. Specifically, we assume there are a continuum of mass θ of opportunist sellers with cost z_j , where z_j is uniformly distributed over the interval $[z_O, z_L]$. Thus, the quantity that enter will be linear in their expected revenue from entering. Since their total utility is $P - D((1 - q^*)\psi_g + q^*\psi_o) - z_j$, any opportunists with cost less than $z_{max} = P - D((1 - q^*)\psi_g + q^*\psi_o)$ will enter, so the mass of opportunist sellers who enter will be

$$\theta \frac{z_{max} - z_O}{z_L - z_O} = \frac{\theta(P - D((1 - q^*)\psi_g + q^*\psi_o) - z_O)}{z_L - z_O}. \quad (3)$$

4.3 Equilibrium and Total Welfare

In equilibrium, the number of sellers must equal the number of buyers. The total number of buyers is given above in (2), and the number of opportunist sellers is given by (3). Therefore, the proportion of opportunist sellers in equilibrium is given by

$$\Omega = \frac{\theta(z_{max} - z_O)}{(z_L - z_O)\phi((1 - q)(\bar{u} - u_{min}^g) + q(\bar{u} - u_{min}^o))}.$$

Note that the honest sellers are held to zero profit in equilibrium, so total welfare is the sum of the surplus of the garden variety buyers, the opportunist buyers, and the opportunist sellers. The average welfare for a garden variety purchaser or an opportunist purchaser is given by $\frac{\bar{u} - u_{min}^g}{2}$, or $\frac{\bar{u} - u_{min}^o}{2}$ respectively. Similarly, if z_{max} is the cost to the highest cost opportunist seller who enters, the average welfare for an opportunist seller is $\frac{z_{max} - z_O}{2}$. Honest sellers are held to zero profits, so total welfare is given by:

$$W = \frac{\phi}{2}((1 - q)(\bar{u} - u_{min}^g)^2 + q(\bar{u} - u_{min}^o)^2) + \frac{\theta}{2V_1}(P - D(1 - q^*(s\tau_o + (1 - s)\tau_g) - (1 - q^*)(s\tau_g + (1 - s)\tau_o)) - z_O)^2$$

4.4 Optimal Equity

Setting an optimal level of equity consists of finding a point where the marginal benefit of decreasing the transfer from garden variety to opportunist buyers is balanced by the marginal harm from decreasing the deterrence of opportunist sellers.

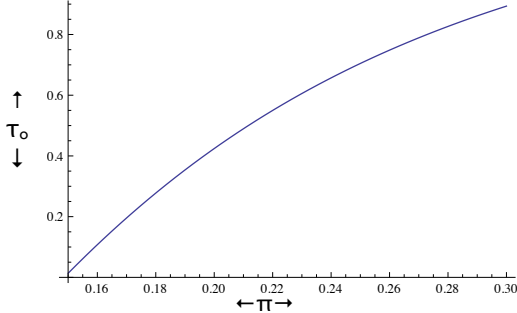


Figure 1: Optimal τ_o vs. π

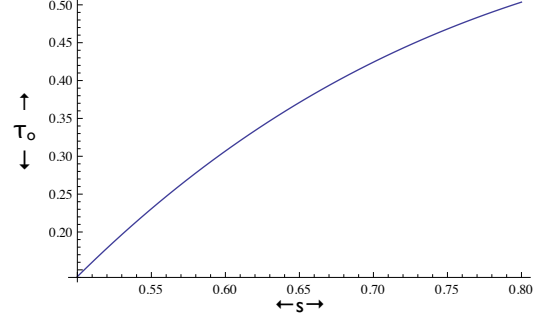


Figure 2: Optimal τ_o vs. s

Conjecture 5 *Our conjecture is that more use of equity against opportunists will be optimal, so τ_o will be higher, when:*

- a) *The probability of the unusual state, π , is higher;*
- b) *The accuracy of the court's signal of buyer opportunism, s , is higher;*
- c) *The proportion of opportunists among potential buyers, q , is higher;*
- d) *The number of opportunist sellers θ , is lower; or*
- e) *The elasticity of buyers ϕ , is higher.*

We have constructed simulations of market equilibria which are consistent with these conjectures. Figures 1 through 5 illustrate the results of these simulations. Each figure shows how the optimal expansiveness of equity (τ_o) varies as one parameter is varied, holding all other parameters constant.⁷

Figure 1 illustrates part a), showing that the optimal intensity of equity is greater when the degree of contractual incompleteness is greater (that is, when the unusual state is more likely). The intuition is that when π is higher, the need for equity is greater, because it is more likely that the parties will find themselves in a situation that they could not have efficiently contracted for *ex ante*. Because contracts are more incomplete, the scope for opportunistic lawsuits and the potential transfer to opportunists greater, and it is more important to guard against these transfers with the use of equity.

Figure 2 illustrates part b), showing the optimal intensity of equity increasing when the accuracy of the court's signal improves. When the court is able to accurately identify opportunist buyers, it can be more confident its use of equity is decreasing buyer opportunism without unduly encouraging opportunist sellers to enter. Put differently, it is less likely that its use of equity is frustrating a plaintiff with a legitimate complaint in its effort to protect honest sellers.

⁷In each of these graphs, the values of the parameters that are not being varied are held to the default values given by $\{\phi = 1, \theta = .25, s = .7, z_L = 20, V_1 = 50, \pi = .15, q = .2, z_O = -30, \bar{v} = 0\}$.

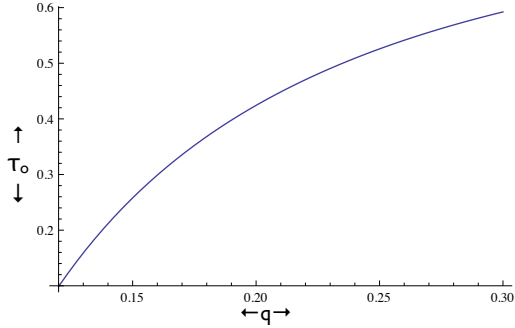


Figure 3: Optimal τ_o vs. q

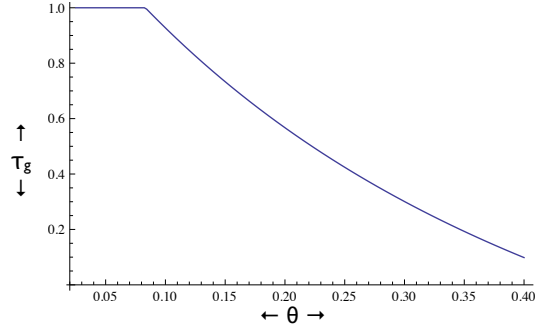


Figure 4: Optimal τ_o vs. θ

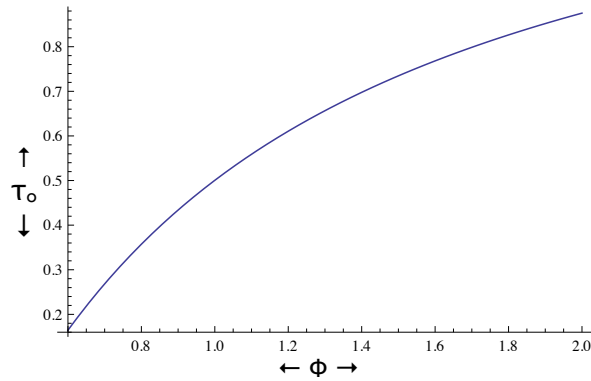


Figure 5: Optimal τ_o vs. Φ

Figure 3 illustrates that increasing the proportion of opportunist buyers increases the optimal use of equity, as suggested in part c). When there are more opportunist buyers, the transfers enabled by not using equity are greater. Furthermore, the transfers to opportunist buyers are spread over fewer garden variety buyers, so they create more harmful distortion in the form of under-consumption of the good by garden variety buyers.

Figure 4 illustrates part d) of the conjecture, and shows the intensity of equity decreasing as the number of potential opportunist sellers increases. This occurs because it is more costly to use equity when there are more opportunist sellers who will attempt to use it inappropriately. The flat portion at the left side of the graph occurs where $\tau_o = 1$ and there is a discrete reduction in the benefit of using equity when $\tau_o = 1$ so any increase on the use of equity must occur when the court has received a signal that the plaintiff is garden variety.

Finally, part e) is illustrated in figure 5. When the demand of buyers is very elastic, the consequences of the distortion created by the transfer from garden variety types to opportunists is more severe, so it is more important to prevent it.

Profit from A	Profit from B	Profit from C
Y_H	Y_L	$Y_L - \eta$

Table 3: Typical Entrant’s Profits

5 Further Applications

We have focused on the role of equity as a safety valve preventing opportunistic use of the law in contractual situations. However, our results would apply similarly to the use of equity in other legal situations. Below we discuss how our model might be applied to intellectual property and the problem of fraudulent transfer in bankruptcy.

5.1 Patents

Here we present an example to consider how equity can be useful to prevent opportunistic patent use. Imagine that instead of a buyer and a seller, we have an entrant and an incumbent. The incumbent has a patent, and society wants to reward the incumbent patent holder by preventing any copying of the invention that diminishes the value of the invention to the patent holder by competing with the patent.

Imagine that with probability $1 - \pi$ there is a typical entrant, who has three possible strategies. The entrant can A) intentionally copy the product, B) attempt to develop a ‘me-too’ product that is inspired by the incumbent’s product and competes with it, but does not violate the incumbent’s intellectual property rights, or C) attempt to develop a non-competitive product that does not affect the incumbent’s profits. We assume that if the entrant chooses A, the patent is always infringed. If the entrant chooses B or C the patent is infringed with likelihood λ . We assume that the typical entrant’s profits are as given in table 3:

We assume that with probability π there is an atypical entrant. This type of entrant cannot chose B or C , he can only engage in A at a profit of $Y_A \gg \text{Max}(Y_H, V_H)$. Note that this implies that when the incumbent observes copying (because the entrant has chosen either A or B), the likelihood of infringement is at least $\pi + (1 - \pi)\lambda$. We note that in order to dissuade entrants from intentionally copying, damages, D , must be set at least $Y_H - (Y_L - \eta)$.

A generally accepted goal of the patent system is encouraging innovation. Thus, we assume then that there is social value to protecting the incumbent’s profits from its patented products, as given in table 4. Note that with a typical entrant, are assumptions imply it is socially efficient for the entrant to take action C and develop a new product. However the infringement is so profitable for the atypical entrant that it is actually socially efficient to copy (action C). It is never socially efficient for any

Entrant's action	V
A	0
B	0
C	V_H

Table 4: Social Value of Incumbent's Profits

entrant to develop the 'me-too' product.

Again we define one type of incumbent as 'garden variety.' These incumbents can observe whether or not the entrant's product is a competitive product or a non-competitive product, but they would need to pay a cost c to observe whether the product actually infringes on the patent. If no typical entrants intentionally copy, as long as $D < \frac{c}{\lambda}$, a garden variety incumbent will not wish to investigate when the product does not compete. If $D > \frac{c}{\pi+(1-\pi)\lambda}$, a garden variety entrant will investigate and sue when the product competes. When the incumbent sues if and only if the new product competes, then as long as $D > \frac{\eta}{\lambda}$, the entrant would prefer to market the new product which does not compete to the me-too product which does compete. So if $c > \eta$ and D is set so $\frac{c}{p_0+(1-p_0)\lambda} < D < \frac{c}{\lambda}$, we will have an equilibrium where the incumbent will only sue if there is a product that competes. Because avoiding the me-too product is likely to prevent a lawsuit, even though it does not affect the likelihood of technical infringement, the entrant has incentive to avoid me-too products.

Now imagine a substantial fraction (q) of incumbents are opportunists (or patent trolls) and can observe any technical infringement, regardless of whether the new product competes with the incumbents.⁸ Because avoiding the me-too product does not discourage lawsuits by opportunists, the presence of opportunists diminishes the incentive to avoid the me-too product. The difference in legal costs that the entrant faces when choosing between strategy B and C is now $(1-q)\lambda D$ and the damages must be increased to at least $\frac{\eta}{\lambda(1-q)}$ for C to be preferable. Note that the legal costs from C are $q\lambda D$, so if $q\lambda D > \pi_L - \eta$, the entrant will not wish to produce anything. As the proportion of opportunists increases, damages increase further, and the good equilibrium might be destroyed. Either $c < \frac{\eta}{1-q}$, so garden variety types will always sue and innovators have no incentive to avoid the me-too product, or $q\frac{\eta}{\lambda(1-q)} > \pi_L - \eta$, so that the costs of lawsuits based on technical infringements are so large that the entrant does not bother innovating.

The intuition behind this example is very similar to the contracting example. In

⁸An alternative assumption that would lead to the same results, but might be a better fit for technology industries is that garden variety types suffer a cost c when they sue an entrant with a non-competitive product, because they might invite a patent suit in retribution, but that opportunists (trolls) do not suffer these costs because they do not directly participate in the market.

both cases garden variety actors' best indication of when they have a strong case is when they observe the antisocial behavior the law is trying to discourage. Consequently the other parties have an incentive to avoid antisocial behavior even when it does not correspond exactly with the law. On the other hand, because of the opportunists' superior knowledge of the law, a party faced with an opportunist will know that avoiding the antisocial behavior may not help them at all, and they will thus be more tempted by the antisocial behavior.

5.2 Fraudulent Transfer

Fraudulent transfer is another example that illustrates some of the trade-offs behind our model. Fraudulent transfer statutes target transfers between a financially distressed debtor and a third party that have the effect of diverting value from creditors. Insolvent corporate debtors can act opportunistically to evade creditor claims in a variety of ways. In a business context, a corporation might pay a large dividend to shareholders in the wake of default. Within a corporate group, an insolvent subsidiary might sell assets at a below-market rate to a healthy one. A parent might borrow money and use a subsidiary to provide a guarantee. Once identified as a fraudulent transfer, the bankruptcy trustee can avoid the transaction and recover the lost value for the benefit of creditors.

The Bankruptcy Code⁹ (and state fraudulent transfer laws, which can be used by the trustee in bankruptcy) attempt to isolate those transactions that arise from debtor opportunism. In particular, one way for a trustee can avoid a transaction is to demonstrate intent by the debtor to “hinder, delay or defraud” a creditor.¹⁰ Typical “badges of fraud” used to demonstrate intent include concealed transactions, transfers to insiders, and absconding by the debtor after the transfer.¹¹ Alternatively, the trustee can avoid a transfer as substantively fraudulent by showing that the debtor did not receive “reasonably equivalent value” for the transfer, and the debtor was in a financially shaky position when the transfer was made.¹² Though an objective test, the two prong test for constructive fraud also targets opportunistic transactions, as it is unlikely to be in a debtor's interest to transfer assets and receive less than full value in return.

In addition to targeting the law to opportunistic transactions, remedies also vary depending on the perceived opportunism of the parties. The recipient of a fraudulent transfer who acts in good faith is generally restored to her position before the transaction took place, by receiving a lien against the debtor to the extent of the value

⁹11 U.S.C. §544(b), 11 U.S.C. §548

¹⁰11 U.S.C. §548(a)(1)(A); UFTA §4(a)(1)

¹¹UFTA §4(b)

¹²11 U.S.C §548(2); UFTA §4(a)(2)

given. A third party recipient who acts in bad faith is not entitled to a lien.¹³

Our model highlights the difficult trade-offs in applying fraudulent transfer law. Arguably, there are so many possible ways to divert value from creditors that it may be impossible to prohibit all possible fraudulent transfers contractually. Some of these transactions, moreover, may be justifiable on efficiency grounds, making ex ante identification and prevention by the firm's affected creditors more difficult. These facts may justify ex post intervention to limit the costs of opportunism. But, as our model shows, expansive use of equitable remedies can give rise to opportunism by the parties it intends to protect. In this context, creditors (through bankruptcy trustees) have too much of an incentive to challenge non-opportunistic transactions as fraudulent. And the potential for judicial error in separating opportunistic from non-opportunistic transactions is high.

This criticism of fraudulent conveyance doctrine has been made most forcefully in the context of leveraged buyouts. In a typical leveraged buyout, the acquired firm takes on new secured debt to finance the purchase of the company's stock from its existing owners. The additional senior debt increases the default risk of the firm generally, and decreases the value of the unsecured debt in place at the time of the transaction.

Because these transactions are challenged when a firm arrives in bankruptcy court, scholars such as Simkovic and Kamietzky (2011) have noted the potential for hindsight bias in assessing the financial shakiness of the debtor at the time of the transaction. Other scholars such as Baird and Jackson (1985) also have noted that limits on future incurrence of secured debt can be, and often are, a common feature of contractual covenants in unsecured debt. Our comparative statics suggest that when there is high potential for judicial error, large scope for opportunism on the part of the parties it intends to protect, and greater ability for parties to protect themselves against opportunism contractually, it may be sensible for equity to play a more limited role. This suggests that fraudulent transfer doctrine should play a more limited role in leveraged buyouts than it does under current law.

6 Discussion

Because formal legal rules generally cannot perfectly specify desirable conduct, they typically have areas of under-inclusion (loopholes), over-inclusion (snags), or both. The contracting examples and the patent example show that if one agent does not focus on the snags and loopholes, but evaluates conduct according to whether it is desirable, the other party may have a sufficient incentive to act desirably even in the

¹³11 U.S.C. §548(c)

shadow of the loopholes and snags.¹⁴

We view the key feature of opportunism to be taking advantage of incompleteness of the law to an unusual or unexpected degree. In our model, garden variety buyers lack the requisite knowledge to allow them to profitably exploit the incompleteness of the law, but there are other reasons why agents may not take full advantage of their formal legal rights. For one, many agents may internalize the broad intent of the law as fairness, or conversely, the law's intent may reflect what agents consider fair. These agents may have a distaste for misusing the law to achieve an unfair outcome. Similarly, many agents are engaged in repeated interactions, or are contracting in a context where they are affected by reputational concerns. These agents might suffer a cost to their reputation when they sue a supplier who provided a high quality good. In fact, one might expect that these different features of garden variety actors (concern for reputation, concern for fairness, and lack of knowledge of technicalities) are mutually reinforcing. If we defined garden variety agents as agents who incur a psychic or reputational cost of c from suing when they receive a high quality good, as opposed to opportunists, who are not constrained by concern for fairness or reputation, our results would be substantially identical.¹⁵

As long as there is enough correlation between the law and the desirable action, there can be an equilibrium where garden variety, but self-interested, parties act as if they correspond exactly. Because acting desirably decreases the likelihood that the law is used, the law need not conform precisely with desirable behavior. However the snags and loopholes become important when encountered by an opportunist, who is able to make strategic use of them. Because it is much easier to identify a particular use of a law as under- or over-inclusive ex post, this creates a rationale for equity, a flexible approach to the law. However, the use of equity creates costs, particularly when there are doubts about the ability of the court to perfectly identify snags and loopholes. In fact the attempt to discourage opportunism by one party can be used opportunistically by another party, and thus might be limited to cases where there is evidence of opportunism.

Our model captures important advantages of hybrid decision making. These potential benefits can be found in many areas of the law. The equitable safety valve

¹⁴This might suggest that the shadow of the law was actually doing some work among the ranchers described in Ellickson (1991). In that work, ranchers were able to cooperate despite the fact that the neighbors did not know what the law was, and despite the fact that when they were informed, they found aspects of the law inefficient or unjust. This paper suggests that a belief that the law was approximately just, along with a lack of information about the details of the law, may have made it easier for them to sustain the cooperative equilibrium.

¹⁵The only difference would be that these garden variety types do not incur any cost from suing when the good is low quality, this would make the partial quality equilibrium more attractive relative to the low quality equilibrium.

is not the only way to mix types of legal decision making modes or even the only reason the law might combine rules and standards. The safety valve model does capture important aspects of the law, some of which have long resisted explanation or justification in economic terms. We now draw out some further implications.

6.1 Equity in Contracts

Equity has always been controversial and nowhere more so than in the area of contracts. Formalism and contextualism and *ex ante* versus *ex post* have always been central issues in contracts. With the advent of law and economics, the tendency of judges to hold parties' agreements up to standards ostensibly sounding in fairness and reasonableness have come in for heavy criticism. Why would judges be able to solve problems better than parties themselves? Once *ex ante* incentives are taken into account, aren't the *ex post* interventions of judges likely to make incentives worse rather than better? Law and economics has brought the *ex ante* perspective back into the picture, making bright line rules tend to look better than they did at the height of Realist inspired contextualism. (See, e.g., Bernstein 1996, Schwartz & Scott 2003) The contribution of law and economics has even led some to dub law and economics inspired contract theory the "new formalism."

At the same time, there is a strand of contract theorizing that emphasizes the possibility of opportunism by contractual parties. (See, e.g., Cohen 1992; Kostritsky 2007, and Muris 1981.) Opportunism is hard to define, but it is a cousin of fraud. The common theme in the opportunism literature is the ability of parties to misuse the contract and to commit deception that comes close to qualifying as fraud or is fraud that is too hard to prove under normal evidentiary presumptions. (Cf. Epstein 1975) This is actually a view that was prevalent in the nineteenth century, and is close to the notion we employ in our analysis.¹⁶ The opportunism literature is also open to the controversial notion of fault in contract law, and is more oriented towards enforcement and sanctions than is mainstream law and economics. (Cohen 2009) Not coincidentally, outside of law and economics, there is a deontological tradition in contract theory that likewise casts contractual behavior in terms of wrongs like promise-breaking and characterizes certain breaches as misappropriation requiring sanctions rather than prices. (Compare Friedmann 1989, 12; Shiffrin 2007 with Kaplow & Shavell 2002, 172-213; Shavell 2009.) Emblematic – but only emblematic – of some of these fissures in contract theory is the old debate over efficient breach. Although not all law and economics analysis points in the direction of efficient breach

¹⁶On the nineteenth-century view that unconscionability referred to fraud that could not readily be proved, see, e.g., *Seymour v. Delancey*, 3 Cow. 445, 521-22, 15 Am.Dec. 270 (N.Y. Sup. 1824) ("Inadequacy of price, unless it amount to conclusive evidence of fraud, is not itself a sufficient ground for refusing a specific performance of an agreement") (citing cases); Gordley 1981, 1587.

theory, the use of the language of fault and the characterization of breach as a wrong that should not be priced is outside the mainstream of law and economics.

Our safety valve model of equity carries the potential to reconcile these strands of contract theory. Let us return to the definition of opportunism. The problem with some definitions of opportunism is that they are so broad that intervention would potentially be routine. For example, if we define opportunism as acting against the other party's expectations but within the letter of the contract (Muris 1981, 521), we still need to know how the expectation arose. Or if opportunism is defined as acting "contrary to the parties' agreement, contractual norms, or conventional morality" (Cohen 2009, 1454), then it suffers from the breadth and indeterminacy of the open-ended appeal to moral intuition that irked the common law lawyers in their critique of equity. The opportunism literature has come under criticism for not paying attention to the parties' ability to choose methods of dealing with opportunism. (See, e.g., Craswell 2009; Scott 2009) Particularly problematic are definitions that leave little scope for contracting parties to combat opportunism on their own. Thus, identifying opportunism with unfairness writ large or defining it as taking any advantage of the vulnerability of the other party, or as acting contrary to the other party's expectations, all point to a very wide notion of opportunism. Unfairness, vulnerability, and unilateral expectations allow courts to intervene in the ways that the new formalists find objectionable.

To return to Williamson's definition of self-interest seeking with guile (Williamson 1985, 47; 1993, 97), we need a definition of guile. Is all strategic behavior bad? Sometimes the law anticipates that people will shade the truth, and it reflects a judgment that it is common knowledge that one should not rely on certain representations literally. Thus, commercial "puffery," as where a car dealer says that no one is ever dissatisfied with a certain model, is not actionable fraud even if it is not true.¹⁷ Likewise, the law often protects private information. Thus, if someone does research and believes an asset is worth more than its market price, that person can buy the asset without revealing the information. (See, e.g., Kronman 1988, 9-18.) (The law has been ambivalent about people buying old masters at garage sales or oil-rich land from unsuspecting farmers. Protecting people from themselves and making them more willing to transact has to be balanced off against their potential carelessness and the need for potential buyers to be able to appropriate the returns of developing information.) Perhaps the reason why Williamsonian guile and traditional notions

¹⁷It appears that the law does not categorically give priority to preventing opportunism over internalizing the effects negligence (as argued by Cohen 1990); no does it generally put the onus on the victim of deception not to be too vulnerable (Goldberg 1989, 71). Indeed, equity protects "ninnies" (Rose 1988, 588; Smith 2011) and "fools" (Pound, quoted by Cohen 1990), but as many have noticed in connection with doctrines like unconscionability the focus is on the conduct of the scoundrel or opportunist. Cohen 1992, 971; Epstein 1975; Rose 1988; Smith 2011.

of near-fraud suggest deception is that opportunism brings together two elements involved in classic deception: unexpectedness (on some level) and advantage taking.

More promising is to define opportunism in the contractual setting as a special case of opportunism that gets past other devices for dealing with it. Opportunism in general appears to contain an element of deceit because the opportunist takes unanticipated or unintended advantage of the law to the detriment of others (and likely also social welfare); because the opportunism cannot be cost-effectively defined or prevented beforehand. (Smith ms.) In the contractual context, its unanticipated or unintended nature takes the behavior out of the shared contemplation of the parties, but perhaps not out of the plans of the opportunist (if the opportunism is *ex ante*). In our model, the opportunist takes advantage of unusual knowledge about gaps in the contract or in the law. So opportunism is using the law (or contract) in a way that it is not intended, and can at most be anticipated in a general (and behavior-distorting) sense. The understanding that counterparties will sometimes use the imprecision to their advantage reduces the seller's incentive to act efficiently.

We return to the problems of opportunism and bounded rationality that form the heart of Williamson's approach to transaction cost economics. Williamson argued that the presence of opportunism implied the need for mostly *ex ante* devices in order to deter opportunism. That is, the *ex ante* mechanism would deter self-interest seeking with guile.

Transaction cost economics recognizes a relationship between uncertainty (and bounded rationality) on the one hand and opportunism on the other. Uncertainty (also known as ambiguity) differs from risk in that the future event in question is not associated with a quantifiable probability, and radical uncertainty involves events that cannot be described at all. (See, e.g., Knight 1921; Williamson 1985, 3-4, 56-59.) (Or, in other words, risk involves known knowns and known unknowns, but uncertainty is further along the spectrum toward unknown unknowns.) Our model above did not assume Knightian uncertainty (ambiguity), but we note here that a Williamsonian emphasis on behavioral uncertainty strengthens the case of equitable intervention. (It is also worth noting that a multiplicity of interacting possibilities of *ex post* actions and states of the world leads to complexity and *ex ante* intractability, which has much the same effect on behavior as uncertainty. MacLeod 2002.) In Williamson's framework, increased uncertainty leads to more opportunism, because the opportunist's performance cannot easily be measured. An opportunist can disguise the bad nature of his performance because it cannot be untangled from the other stochastic events, and this is particularly a problem *ex ante* when it is difficult to even describe such an event.

So one way to reduce opportunism is to reduce uncertainty. Hence the focus in transaction cost economics on *ex ante* devices, whether formal contracts or organizations: performance can be more easily measured and so less shirking and deceit will

occur. By leaving less scope for opportunism, ex ante devices make the contracting environment more certain. More generally, transaction cost economics sees opportunism as a problem of costly information: if information that could turn ambiguity into certainty, or at least into more measurable risk, then there would be less loss from opportunism. The solutions proposed by transaction cost economics are designed to make information less costly and more available, and the major question is a comparative one: which information-cost-lowering device is the most cost-effective? Nevertheless, nothing in principle rules out an ex post response to the problem of opportunism. Indeed Williamson (1991, 273) hints at this when he mentions how excuse doctrine can be seen as a sparing response to injustice backed by “lawful” opportunism, while expressing the hope that it act “ideally without adverse impact on incentives.”

Our safety valve model of equity shows that the transaction cost approach needs to be generalized. Sometimes the most cost-effective device to deal with opportunism may involve ex post intervention, and it may require making information *more* costly to the opportunist. The problem as between an opportunist and a contracting partner, or between an opportunist and a court or other enforcer, is that the opportunist can exploit his information advantage. The opportunist has more information and can use it more effectively to wring unintended benefits out of the contract (or other law). But if the problem is relative information, then another possible avenue is to negate the opportunist’s informational advantage, to keep him in the dark as to where he stands (up to a point). This is how equity fights fire with fire, as it were.

In a Williamsonian sense, equity is concerned with uncertainty that can be converted into risk (or certainty) by the opportunist. Uncertainty (ambiguity) gives rise to opportunism, because the opportunist can, for example, foresee how literalistic performance can have a very different value from what was foreseen. Even without the notion of uncertainty, opportunists have a lower cost of figuring out how to take unintended advantage of a contract (or other law) ex post. So on one reading of *Jacob & Youngs v. Kent*, 129 N.E. 889 (N.Y. 1921), the overriding danger is that the landowner is using a literal reading of the contract (insisting on Reading pipe rather than Reading-quality Cohoes pipe) in order to extort the builder. Garden-variety contracting parties have less ability to describe and to deal with unexpected events, and so face genuine uncertainty. When an opportunist and a garden-variety person contract, the opportunist is effectively contracting over a different domain, to the detriment of the garden-variety person. The opportunist is playing on unforeseen or unintended dimensions. Thus, contractual incompleteness is pernicious because the contract is only one-sidedly incomplete. Knowing of this possibility in general, the garden-variety persons will be less willing to contract.

To counteract this possibility of differential bounded rationality in the face of uncertainty leading to opportunism, the Williamsonian transaction cost framework

counsels the selection of a variety of ex ante institutions that lower the cost of information. In the area of contracts, default rules can sometimes deal with ex post opportunism. According to one view, the law uses ex ante information forcing default rules to present potential opportunists with a choice. (See Ayres & Gertner 1989.) Some parties with superior information might conceal it in order to contract in such a way that they get a larger payoff that is a larger piece of an overall smaller contractual pie. This is a form of opportunism. By setting the default against an informationally-advantaged party, that party can either accept the default she doesn't want, or contract around it thereby revealing the information (and protecting the other party against the opportunism).

One particularly interesting ex ante device is to make the contract nominally complete, using a global information-forcing default rule. If we could be sure that one party is consistently better informed than the other on all issues, actual and potential, it can make sense to interpret the contract against that party. Any ambiguities would be resolved against the interest of that party. This makes the contract nominally complete, in that the ultimate default takes care of any remaining situations. And contract law does take this approach in limited circumstances. Thus, in insurance contracts the *contra proferentem* rule is applied against the insurer-drafter. (See, e.g., Abraham 1996.) A weaker version of this rule is applied against drafting parties (Restatement (Second) of Contracts §206 (1981); Ayres & Gertner 1989, 105 n.80), who have the opportunity to place hidden traps and are in a better position to control the language of a contract.

Information-forcing default rules are ex ante, like the other devices of traditional transaction cost economics, and they partake of the limitations of the ex ante approach. First of all, it is rare that one party is the potential opportunist across the board. Indeed, our model shows the dangers of either party exploiting the uncertainty of a contract. Once we have to distinguish potential opportunism issue by issue or situation by situation, then rule makers are vulnerable to getting it wrong and opening the door to opportunists.¹⁸

Our model suggests an extension of Williamson's scheme, to allow for ex post intervention that involves making information more costly – to the potential opportunist. The combination of opportunism and bounded rationality points to the possibility that the least-cost solution to the problem of opportunism will be ex post equitable intervention. Because of bounded rationality, contracting parties and lawmakers will find it impossible to keep up with all the potential dimensions of opportunism. In-

¹⁸A possible example is the decision in *Campbell Soup Co. v. Wentz*, 172 F.2d 80 (3d Cir. 1948). In that case the court refused to grant specific performance to Campbell on the ground of unconscionability, but Goldberg (2006, 207-18) argues that there was evidence that the Wentzes were acting opportunistically and that the insistence on specific performance was necessary for Campbell to prevent such opportunism by growers such as the Wentzes.

deed, Williamson (1985, 58) notes that uncertainty of a strategic kind, which he terms behavioral uncertainty, has an inherent boundlessness, because “[t]he capacity for novelty in the human mind is rich beyond imagination.” Deceit especially has this open-ended uncertainty, as the equity commentators realized. As Story put it, “[f]raud is infinite” given the “fertility of man’s invention.”¹⁹ Williamson’s approach resonates with the traditional concerns of equity, in which:

The ingenuity of man in devising new forms of wrong cannot outstrip equity in its development. In all situations and under all circumstances, whether new or old, the principles of equity will point the way to justice where legal remedies are infirm. Precedents will be a constant guide, but never a bar. Where a new condition exists, and legal remedies afforded are inadequate or none are afforded at all, the never failing capacity of equity to adapt itself to all situations will be found equal to the case, extending old principles, if necessary, not adopting new ones, for that purpose.²⁰

Or, as Chancellor Ellesmere put the point: “The Cause why there is a Chancery is, for that Mens Actions are so divers and infinite, That it is impossible to make any general Law which may aptly meet with every particular Act, and not fail in some Circumstances.” *The Earl of Oxford’s Case*, 21 Eng. Rep. 485, 486 (Ch. 1615). On this view, combating opportunism has to be at least in part judicial because of the open-endedness of opportunism. The ability of a better informed party to engage in opportunism is hard to bound: opportunism might occur on as yet unknown and undefined margins. It is not enough to say that contract law will supply defaults for incomplete contracts or that problems can be left to renegotiation. The problem is that widening the contractual domain (the state space it covers) might lead to the opposite from what one of the parties expected.

Although our model provides a reason to think that equity should be a strong default, these considerations of uncertainty point to how the model might be extended to provide a rationale for mandatory equity in some circumstances. For one thing, when asymmetric information is characterized as containing an element of uncertainty, we cannot expect contracting parties to anticipate it *ex ante* in any but the most general and unhelpful terms. To deal with the large discontinuities from exploited contractual uncertainty, contract law can benefit from some architectural ground rules and mileposts, including equity’s anti-opportunism and the proxies on which it relies. Just as we don’t allow parties to change the rules of contract formation and the rules of interpretation – although we allow them to specify within these ground rules the

¹⁹Story 1866, vol. 1, 184 n.1 (quoting a Letter from Lord Hardwicke to Lord Kaims (June 30, 1759)).

²⁰*Harrigan v. Gilchrist*, 99 N.W. 909, 936 (Wis. 1904), quoted in Joseph Story, 1 *Commentary on Equity Jurisprudence as Administered in England and America* 4 (W. H. Lyon ed., 14th ed. 1918).

mode of acceptance and allow them to be their own lexicographer – there would be little to gain and much confusion to risk if we allowed people to contract out of equity altogether. And it is true that courts take a dim view of efforts to contract out of broad duties identified with anti-opportunism like the duty of good faith. Specificity in a contract serves as evidence of the contract’s domain and the contemplation of a particular problem, and under these circumstances the contract will displace equity.²¹ Nevertheless, the safety valve is there in the legal infrastructure necessary to support exchange. Equity thus has a role even in an area of law as centered on party autonomy and intent as contracts.

An approach that incorporates equity stands in contrast to a strain of contract theory that eschews equity. In a series of articles, neo-formalist contract theorists have argued that equity is merely an unconstrained and misguided invocation of ex post fairness. Consider Schwartz and Scott’s (2003, 615-16; 2008, 1614-15, 1625-29) take on *Jacob and Youngs v. Kent*, 129 N.E. 889 (N.Y. 1921). They see Judge Cardozo’s opinion as sounding only in ex post waste and myopically getting in the way of what the contracting parties actually contracted for. Although the actual facts are a little obscure and have been endlessly discussed, the opinion is susceptible to an interpretation in which it is concerned with opportunism.²² More specifically, the opinion’s discussion of how idiosyncratic wishes have to be expressed is consistent with the idea that opportunists are operating outside of the domain of what was actually contracted about.²³ English law takes a similar approach, in which provisions that lead to strange and harsh results have to be expressed more clearly (even if this requires a “red hand” pointing to them).²⁴

The problem here returns us to the issue of lack of intention, uncertainty, and intractability. Schwartz and Scott (2010, 948-51) are correct that strategic behavior is unlikely to be a large problem if formalist courts get the right answer under the contract more often than not. The problem arises where the opportunist can anticipate errors and can manipulate the opportunist’s behavior so that the court’s errors are not unbiased and the court can be expected (by the opportunist) to get it wrong more often than not.²⁵

²¹A specific statutory provision likewise displaces equity. See, e.g., *Indigo Realty Co. Charleston*, 314 S.E.2d 601 (S.C. 1984); see also *Young & Spitz*, 178-79.

²²Cohen 1992, 999-1000.

²³Smith 2012, 909-91.

²⁴*J. Spurling Ltd. V. Bradshaw*, [1956] W.L.R. 461, 2 All E.R. 121 (Ct. App. 1956) (Denning, L.J.).

²⁵A very similar issue arises in the choice between property rules and liability rules. A major argument for liability rules is that if courts get damages right on average, then actors have the correct internalizing incentives in expectation. (See Kaplow & Shavell 1996). The court employs its best, unbiased estimate of situations taken from a fixed distribution. (See *id.*, 725-26, 776; see also Ayres & Goldbart 2001, 20-21, 23.) But if a class of actors, whom we can call opportunists,

More generally, Kraus and Scott (2009) explicitly argue against traditional equity on the ground that it failed to distinguish contractual ends and contractual means, and that equity wrongly assumed that parties' contracting over the former should be respected but not over the latter. They point out that the parties might, for their own value-maximizing reasons, care about and provide for the contractual means and not just the contractual ends. If so, ex post equitable intervention gets in the way of the parties' own deal, and therefore reduces welfare. This argument holds, but only over the domain over which the parties contract, or, more accurately over the domain over which the parties can be expected to contract cost-effectively. Again, the difference between the garden-variety actor and an opportunist is that the latter is in effect playing on a larger field. Or to take another analogy, the opportunist is playing three-dimensional chess against a two-dimensional player.

Our safety valve model of equity also suggests an interpretation of the role of notice. To begin with, the concept of notice is crucial in many equitable doctrines. The basic reason is that someone is more likely to be an opportunist if he has notice of incompleteness of public or private law. The notion of bad faith in contract is also equitable and has an element of notice that can be seen as referring to the informational advantage that an opportunist is seeking to exploit. On the other hand, a party who has notice of a relevant fact is less likely to be the victim of opportunism. That party can more effectively protect herself. In particular, if someone has notice of a relevant fact ex ante, it is not uncertain. The contracting "domain" can be presumed to cover that fact.

6.2 Remedial Equity

The law faces a pervasive question whether the determination of liability should be a forgiving one or not and whether leniency should depend on the putative good faith of the actor. To take another example, under the doctrine of accession (Roman law specification), someone who mistakenly (in good faith) mixes labor with raw materials owned by another can keep the improved thing – say barrel hoops from raw timber or wine from grapes – if the improved thing is sufficiently transformed and/or more valuable than the raw material. But bad faith actors must simply return the improved good.

Equity as a safety valve against opportunism carries implications for remedies. As we have shown, the remedy against opportunists must be more severe than against garden variety actors. One method of conforming to this requirement is to employ injunctions against suspected opportunists, and also to withhold injunctive relief from

knows enough about the proxies and actuarial classes a court will use, the opportunists can cherry pick assets underpriced by liability rules; we cannot assume stable actuarial classes in the presence of opportunism. Smith (2004, 1774-85).

opportunists. Those acting with unclean hands are not to be able to obtain an injunction, and leniency towards defendants – for example by requiring a payment of damages but not subjecting them to injunctions – would not extend to those acting in bad faith. The traditional standard also employed factors like “balancing of the equities,” which means that equity might withhold an injunction where there is “disproportionate” or “undue” hardship. “Balancing of the equities” thus means not hardships in equipoise, or cost-benefit analysis, but rather picks out situations in which an injunction would cause far greater harm to a (good-faith) defendant than it would bring benefit to the plaintiff, and this is a situation rife with dangers of opportunism by the plaintiff. General concerns about unconscionability and anti-forfeiture principles important to the current mortgage crisis can be understood as a core example of the equitable safety valve aimed at opportunistic parties, rather than necessarily being an unconstrained undoing of deals based solely on ex post fairness concerns. As we have seen, current concerns over “patent trolls” are likewise a classic example of the value of the safety valve. Indeed, concerns about trolls have led the U.S. Supreme Court and the federal judiciary into a strange and inadequate four-part test for injunctions (*eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006); Gergen et al. 2012), whereas the traditional safety valve approach can target the true opportunistic patent holders for special treatment.

However, as the controversies over patents trolls illustrates, equity as a safety valve is becoming harder to understand. After the fusion of law and equity, the avowed boundaries of the equitable function – as a safety valve – are harder to discern. Phrases like “balance of the equities” are taken to mean true balancing of a quite unconstrained sort. The caricature of equity as unconstrained judicial discretion across the board threatens to come to life. Commentators have either embraced this problematic vision, or have reacted against it with an extreme formalism. In the judicial realm, the polarization of positions on equity was on prominent display in *Grupo Mexicano de Desarrollo, S.A. v. Alliance Bond Fund, Inc.*, 527 U.S. 308 (1999), in which Justice Scalia read equity narrowly based on its scope in 1789 to hold that a federal court may not issue preliminary injunctions to freeze unrelated assets of a suspected opportunist in a suit in which only money damages were being sought. In dissent Justice Ginsburg celebrated the flexibility and generativity of the equity power, with a mere nod to its limits. Much of this debate between contextualists and formalists occurs in the arena where equity has and should operate as a safety valve on the law, as a hybrid decision making mode suitable to deal with a mixed population of garden variety actors and opportunists.

7 Conclusion

Transaction cost economics counsels a comparative evaluation of devices to deal with opportunism in the face of bounded rationality. As developed by Oliver Williamson, this analysis involves mostly ex ante devices, flowing from contracts, organizations, or legal rules directly. The idea is to reduce the scope for opportunism by providing better information and thereby lowering uncertainty. In this paper, we have modeled how a decision-making mode with more than a passing resemblance to traditional equity can serve as a safety valve on the ex ante structures provided by the law when they can be manipulated in unintended ways. Strikingly, equity involves ex post intervention against such opportunism using proxies based on basic morality. Thus, what looks like myopic unconstrained judicial meddling may instead be an effort to separate out the opportunists for harsher treatment. As long as the proxies used to identify the opportunists are good enough, some role for ex post equity can improve the efficiency of contracting. Even where contracting parties have the opportunity to address opportunism, equity polices the boundaries of their deal through doctrines based on notice.

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