Breach remedies inducing hybrid investments

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ABSTRACT

We show that parties in bilateral trade can rely on the default common law breach remedy of 'expectation damages' to simultaneously induce first-best relationship-specific investments of both the selfish and the cooperative kind. This can be achieved by writing a contract that specifies a sufficiently high quality level. In contrast, the result by Che and Chung (1999) that 'reliance damages' induce the first best in a setting of purely cooperative investments, does not generalize to the hybrid case.

We also show that if the quality specified in the contract is too low, 'expectation damages' do not necessarily induce the ex-post efficient trade decision in the presence of cooperative investments.

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1. Introduction

A risk-neutral buyer and seller contract for the future delivery of a good. Before delivery can take place, the seller makes an investment that has no value to the outside market but that decreases the seller's cost of production *and* increases the future value of the good to the buyer. That is, the investment is *hybrid*, combining cooperative investments in the sense of Che and Chung (1999) with selfish investments as traditionally analyzed in the literature (see, e.g. Aghion, Dewatripont, & Rey, 1994; Chung, 1991; Edlin & Reichelstein, 1996; Rogerson, 1984; Shavell, 1980, 1984).

Hybrid investments are highly relevant in the real world. For example, suppliers frequently obtain new machines not only to decrease their cost of production but also customize parts for their buyers, even when "specific investments. . .have to be incurred to implement such customization"(Asanuma, 1989, p. 14). Moreover, Nishiguchi (1989, p. 138) describes how suppliers send engineers to work with their buyers (automakers) in design and production who "play innovative roles [. . .] in gathering information about [the automakers'] long-term product strategies" (see also Che and Hausch, 1999, p. 127).[1]

We develop a model where the parties write a contract governed by standard *legal breach remedies*. Under *expectation damages* the parties write a contract specifying a *price* for future trade and the *quality* of the good to be traded. If breach occurs, where either the seller fails to deliver or the buyer fails to accept the good, or the seller delivers a good of inadequate quality, the breached-against party can ask for expectation damages at trial.[2] Under this commonly-applied legal remedy, the victim of breach receives a payment that makes

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[1] Other examples include the famous General Motors – Fisher Body case, which deals with Fisher Body's decision to build a plant adjacent to General Motors. Such an arrangement offered benefits to both parties by lowering shipping costs *and* improving supply reliability (see Che & Hausch, 1999). Also consider the example of Marks & Spencer, which routinely organizes joint trips to trade shows with its suppliers. The trips enhance mutual understanding and help both parties to identify new products that they could develop cooperatively. By facilitating bilateral communication, Marks & Spencer adds valuable items to its product line while lowering the risk of costly reengineering of products for the suppliers (see Kumar, 1996).

[2] In the absence of contractual protection, the parties negotiate the terms of trade after investments are sunk and after the quality of the product is revealed. Unless the investing party has all the bargaining power, that party can only internalize a fraction of the investment benefit in such negotiations. Recognizing this potential for hold-up, the seller invests less than is socially desirable (Grossman & Hart, 1986; Grout, 1984; Hart & Moore, 1988; Williamson, 1979, 1985).

him as well off as performance would have. We show that, under this legal regime, the contract induces first-best investment incentives and the efficient ex-post breach decision when the parties set the quality required under the contract sufficiently high. This result holds independent of whether parties can renegotiate. However, if the quality specification is set at an intermediate level, investment incentives are inefficient and the standard result (see, e.g. Craswell, 1988; Kornhauser, 1986; Posner, 1977; Shavell, 1980) that expectation damages induce the ex-post efficient breach may no longer hold. The result generalizes Edlin (1996) and Stremitzer (2012) who had analyzed the expectation damages regime in a setting of purely selfish and purely cooperative investments, respectively.

What makes this result interesting is that another well known efficiency result for this setting, due to Che and Chung (1999), cannot be generalized to the hybrid case. Che and Chung (1999) assume that parties can write a contract in which they stipulate the *price* of the good to be traded and an *up-front payment*. If breach occurs, under which the buyer refuses to accept the good, the seller can ask for *reliance damages*, i.e. he is reimbursed his non-recoverable investment expenses. Che and Chung (1999) show that there exists a price for which the contract induces the first best if renegotiation is possible. Yet, the logic of the argument cannot be extended to the hybrid setting. Indeed, it is always possible to construct examples where reliance damages induce overinvestment regardless of price. Although the precise argument is more complicated, this negative result is driven by the well known insight that reliance damages induce overinvestment if investments are purely selfish (Rogerson, 1984; Shavell, 1980). For this reason, it is not surprising that overinvestment occurs when investment is sufficiently selfish.[3] Finally, we consider 'liquidated damages' under which the parties stipulate fixed monetary damages that have to be paid if the contract is breached. In contrast to Che and Chung's (1999) setting, where the seller underinvests, we demonstrate that the parties can attain the first best if investment is sufficiently selfish. This result bridges the gap between Che and Chung (1999) and the selfish investment literature (Chung, 1991; Cooter, 1985; Spier & Whinston, 1995) in which an optimal liquidated damages contract achieves the efficient outcome.

This article is organized as follows: In the next subsection, we relate our work to the preexisting literature. Section 2 describes our model and Section 3 derives the socially optimal level of investment. We then show in Section 4, that the argument by Che and Chung (1999) on the efficiency of reliance damages cannot be extended to the hybrid case. In Section 5, we consider liquidated damages and demonstrate that the efficient outcome can be attained if investment is sufficiently selfish. Section 6 contains our main result that first-best investment levels can be achieved under expectation damages if the quality required under the contract is set sufficiently high. If not, investment incentives will be inefficient and expectation damages may even fail to induce the efficient ex-post trade decision. Section 7 concludes.

2. Related literature

In their seminal article Che and Hausch (1999), allow for hybrid investments and prove for a special informational setting where no signal of investment is verifiable that, if investments are sufficiently cooperative, contracting becomes irrelevant, that is, there exists no contract which achieves a better outcome than writing no contract at all. In contrast, Che and Chung (1999), who deal with legal breach remedies, consider a different informational set-up and only allow for *purely* cooperative investments. Cooperative investments were first studied in an incomplete contract setting by MacLeod and Malcomson (1993) and are also referred to as "cross investments"(e.g. Guriev, 2003) or "investments with externalities"(e.g. (Nöldeke & Schmidt, 1995)). Other articles that consider cooperative investments include, e.g. Bernheim and Whinston (1998), Maskin and Moore (1999), De Fraja (1999), Rosenkranz and Schmitz (1999), Segal and Whinston (2002), and Roider (2004).

There has been an ongoing debate about the efficiency properties of expectation damages, the default breach remedy in common law. Che and Chung (1999) argue that 'expectation damages' perform very badly inducing *zero* cooperative investments. Yet, as Stremitzer (2012) has shown, this follows from their implicit assumption that the contract stays silent in terms of *required quality*, which will rarely be the case. Indeed, even if the parties do not stipulate anything explicit as to quality in their contract (express warranty), the court will do it for them by default, e.g. by requiring the good to serve its ordinary purpose (implied warranty of merchantability, see Uniform Commercial Code Section 2-314). Taking this feature of real world contracting into account, Stremitzer (2012) shows that 'expectation damages' will always induce *positive* levels of cooperative investments. The remedy even achieves the first best if parties write a 'Cadillac contract', i.e. choose a very high quality specification. Edlin (1996) also analyses 'Cadillac contracts' in the context of expectation damages but makes a different point: He considers a setting where the seller makes *selfish* investments. In the absence of a contract, there will be underinvestment due to the hold-up problem. If, however, the contract stipulates the highest possible quality/quantity, and it is the buyer who breaches the contract, the seller will overinvest. This is because he is fully insured and fails to take into account the states of the world where it is inefficient to trade (This is a version of the 'overreliance' result by Shavell (1984) who implicitly assumes Cadillac contracts by modelling the trade decision as binary). To solve this problem, Edlin (1996) proposes to set the price so low, that it will always be the investing seller who breaches the contract. That makes him the residual claimant and provides him with efficient investment incentives. Yet, in order to make the seller accept a contract with such a low price, the buyer has to pay the seller a lump sum up front. By contrast, in our model, we are concerned with *hybrid* investments and need not rely on any up-front payments. Göller (2012) extends the results of Edlin (1996) and Stremitzer (2012) to bilateral cooperative investments. He demonstrates that it is optimal to write a so-called "augmented Cadillac contract"that stipulates a cost- *and* a quality threshold. Because setting the quality threshold at Cadillac level ensures that the seller is a residual claimant regardless of how the cost threshold is set, the latter can be used to balance the incentives of the buyer. Schweizer (2006) shows that a regime of "bilateral expectation damages"also achieves first-best cooperative investment. His optimality result stems from the fact that the contract also specifies investment and that the non-investing party thus can claim damages if the counter-party underinvested relative to the level stipulated in the contract. To the best of our knowledge, our paper is the first article comparing the efficiency of expectation damages as opposed to other standard breach remedies if the seller's investments are hybrid.

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[3] That is, if the effect of seller's investment on the cost of production is sufficiently large relative to the effect on the good's quality.