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Investments as signals of outside options

Susanne Goldlücke a,*, Patrick W. Schmitz b,c

^a University of Mannheim, L7, 3-5, 68161 Mannheim, Germany
 ^b University of Cologne, Albertus Magnus Platz, 50923 Cologne, Germany
 ^c CEPR, London, UK

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Abstract

Consider a seller who can make an observable but non-contractible investment to improve an intermediate good that is specialized to a particular buyer's needs. The buyer then makes a take-it-or-leave-it offer to the seller. The seller has private information about the fraction of the ex post surplus that he can realize on his own. Compared to a situation with complete information, additional investment incentives are generated by the seller's desire to pretend a strong outside option. On the other hand, ex post efficiency is not attained since asymmetric information at the bargaining stage sometimes leads to inefficient separations. © 2014 Elsevier Inc. All rights reserved.

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1. Introduction

This paper offers a new perspective on the hold-up problem, which is a central ingredient of the modern property rights approach to the theory of the firm based on incomplete contracting. In the seminal contributions of Grossman and Hart [4] and Hart and Moore [6], an agent can make an observable but non-contractible investment that increases the surplus that can be generated within a given relationship more than it increases the agent's default payoff

E-mail addresses: goldluecke@uni-mannheim.de (S. Goldlücke), patrick.schmitz@uni-koeln.de (P.W. Schmitz).

^{*} Corresponding author.

(i.e., the payoff that he can realize outside of the relationship). When the investing party does not have all the bargaining power ex post, it does not get the full returns of its investment, so that in general there is an underinvestment problem. The fact that investments are partly (but not fully) relationship-specific is crucial in this literature, because all that governance structures (e.g., ownership arrangements) affect is what a party can get outside of the relationship. It is a standard assumption that there is symmetric information between the parties, so that they always agree on the ex post efficient decision to collaborate, but ex ante investment incentives depend on the payoffs that the parties could achieve outside of the relationship, so that institutions matter.

More recently, several authors have argued that the incomplete contracting literature may have overemphasized the relevance of encouraging ex ante investments while it has almost completely neglected the possibility of ex post inefficiencies. In particular, Williamson [26, p. 605] emphasizes that this is the "most consequential difference" between transaction cost economics and the property rights theory. In this paper, we take up this line of criticism, by assuming that a party may have better information than its trading partner about the fraction of the surplus that the party can realize on its own. Under this plausible assumption, underinvestment problems are ameliorated and ex post inefficiencies become relevant; i.e., the incomplete contracting approach moves closer to transaction cost economics in the sense of Williamson [24,25].

Specifically, consider a seller who can invest in order to increase the value of an intermediate good. The good is specialized to the needs of a particular buyer. The parties cannot write a contract ex ante. If the parties do not reach an agreement ex post, the seller can realize only a fraction $\theta \le 1$ of the ex post surplus on his own. Hence, it is always ex post efficient for the two parties to trade the intermediate good. For simplicity, we assume that the buyer can make a take-it-or-leave-it offer ex post, so that the hold-up problem is most severe. Under complete information, ex post efficiency would always be achieved, but the seller would underinvest, since the buyer would hold up the seller; i.e., she would offer only a fraction θ of the gains from trade.

Our key innovation is to assume that from the outset the seller has private information about the fraction θ of the ex post surplus that he can realize on his own.⁴ It turns out that the seller's private information may stimulate larger investment levels compared to the case of complete information, because there is a signaling motive in the seller's investment choice. The buyer will try to deduce the seller's outside option from the chosen level of investment. If the seller chooses a small investment level, it seems likely that he has a weak outside option, so that the buyer will

¹ For a recent survey of the literature, see Segal and Whinston [20], who point out that "hold-up models, whose use for examining the optimal allocation of property rights began with the seminal contribution of Grossman and Hart [4], have been a workhorse of much of organizational economics over the last 20 years" (p. 103). See also [7] for a comprehensive exposition.

² Williamson [27, p. 188] argues it is "deeply problematic" that the incomplete contracting models assume ex post efficient bargaining under symmetric information. Holmström and Roberts [10] and Whinston [23] also point out that the standard property rights models might be too narrowly focused on the underinvestment problem.

³ Our contribution is thus in line with Holmström [9], who points out that the assumption in the incomplete contracting literature according to which both parties observe the default payoffs deserves more scrutiny. Similarly, Malcomson [15] has argued that an employer may not know an employee's outside option and he remarks that little is known about hold-up under such circumstances. That asymmetric information plays a role for welfare in a hold-up model is also recognized by Gul [5], Lau [12], and Sloof [21], who also provides experimental evidence.

⁴ For instance, the seller may be privately informed about the probability of finding an alternative trading partner, or about the difficulty to adapt the intermediate good to another buyer's needs, or about his ability to use the intermediate good himself to produce a final good. See also [19] for a related model in which the seller learns the fraction of the surplus that he can realize on his own *after* the investment is sunk, so that no signaling can occur.

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