Exit options in incomplete contracts with asymmetric information [☆]

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Abstract

This paper analyzes bilateral contracting in an environment with contractual incompleteness and asymmetric information. One party (the seller) makes an unverifiable quality choice and the other party (the buyer) has private information about its valuation. A simple deterministic exit option contract, which allows the buyer to refuse trade, achieves the first-best in the benchmark cases where either quality is verifiable or the buyer's valuation is public information. But, when unverifiable and asymmetric information are combined, deterministic contracts are necessarily inefficient. The first-best can be achieved, however, through simple message games with stochastic terms of trade as off-equilibrium outcomes.
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1. Introduction

This paper analyzes bilateral contracting in environments with two potential contracting imperfections: one party has to take a decision which, though observable by the other party, is publicly not verifiable, and the other party receives decision relevant private information. The

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environment is thus characterized by contractual incompleteness *and* asymmetric information.[1] The parties' contracting problem is to provide incentives both for the informed party to reveal its private information and for the other party not to abuse its discretion that arises due to the lack of verifiability.

We consider a model with a seller who has to make a non-verifiable quality choice and a buyer whose valuation for quality is his private information. The efficient level of quality is a strictly increasing function of the buyer's type. Quality is observable by the buyer, but we assume that it is publicly not verifiable (neither ex ante nor ex post). Consequently, quality cannot be legally enforced and so the seller has only imperfect commitment.

The basic insight of our paper is that efficient contracting must provide some kind of exit option for the buyer, which enables him to refuse trade after observing low quality. In environments with contractual incompleteness and symmetric information, the key role of exit clauses is well-established.[2] Our analysis thus extends this central role of exit clauses to environments with asymmetric information. This extension is non-trivial, because exit options that are efficient with symmetric information may fail to be incentive compatible when the buyer's type is his private information. Contracts with option clauses are often observed in practice. For example, contracts for house re-modeling, book publishing, advertising pilot campaigns, real estate agency services, or procurement contracts for specialized equipment frequently specify only payments contingent on delivery.[3] Also, performance contingent termination clauses in loan contracts or non-promotion clauses in labor contracts, or certain financial contracts such as convertible bond securities can be interpreted as forms of exit options.[4]

The existing literature provides core insights on what contracting can achieve if only one of the two imperfections, either non-verifiability or asymmetric information, prevails. The literature on implementation under complete information (Maskin [21], Moore and Repullo [24]) has studied the extent to which contracting can overcome problems caused by non-verifiable information, while the Revelation Principle (Myerson [25]) represents the key tool to describe the set of implementable outcomes in the presence of asymmetric information. Yet little is known about how contracting is affected by the combination of unverifiable and asymmetric information. This paper presents a step in this direction.

To focus on the interaction between non-verifiability and asymmetric information, we consider an environment in which the buyer learns his information only after contracting has been completed. It is well-known that, therefore, first-best efficiency can be attained in either of the two benchmark cases in which merely one of the imperfections is present. Indeed, when quality is contractible but the buyer's type is his private information, then since private information arrives *ex post*, the first-best can be achieved by a familiar screening contract. In the other benchmark case, when quality is non-contractible but the buyer's type is public information, first-best efficiency can be attained by an exit option contract which gives the buyer the right, after having observed the seller's quality choice, to refuse or accept to trade at a pre-specified price.

When lack of verifiability and asymmetric information are combined, the simple exit option contract from the benchmark case will no longer achieve the first-best. To study implementability

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[1] To fix terminology, we refer to an action as non-contractible or non-verifiable, if it is observable by the contracting parties but not verifiable to outsiders, in particular the courts (see [17,18]). We do not consider moral hazard or hidden actions, which can be observed only by the party who controls them.

[2] See, e.g., [2,7,10,14,16,27,28].

[3] See [7,33].

[4] See [1,20,31].