

Remarks for the Concluding Panel

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Contracts: Determinants, Properties, and Implications

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Academic economists vary in their methods for learning about economic institutions. Michael Jensen mentioned that he found that being at the Harvard Business School was a good way to find out how the business world works. My method is a little different. I have a sideline consulting practice working with lawyers on behalf of businesses who are involved in contract disputes. As a result, I have seen hundreds of actual business-to-business contracts. I have had some of the advantages that the profession as a whole could enjoy if Ronald Coase is able to assemble a data base of contracts for use in academic research.

I would like to spend most of my time on this panel discussing a topic that I thought received too little attention in this

Symposium--the relationship between contracts and growth. I see an intimate relationship between the two. Contracts are particularly important for the new firm, and new firms have a special role in growth. New firms are much more dependent on contracts than are established firms for a couple of reasons. One is that established firms tend to be self-financing, which means that they don't have to craft a relationship between an equity-starved entrepreneur and an investor.

The second reason is that new firms tend to be much less vertically integrated than are mature firms. The startup firm has contractual relations with suppliers and marketing organizations. The mature firm tends to become an island in the economy by integrating back into supply markets and forward into sales and marketing activities. At least in the United States, the contrast is extreme. Many startups today are essentially a single entrepreneur with many contracts. Michael Jensen has referred to the "network economy" to describe this interesting phenomenon.

The first tough issue for a new firm is the finance contract. I think some of the great descriptive power of contract theory is shown most clearly in the relation between entrepreneur and financier. In a startup, the financier is often a venture capitalist. There are two central factors that drive the relationship. One is that entrepreneurs typically have little per-

sonal wealth. Their contribution to the new firm is their good ideas; they lack nearly enough wealth to start a firm of any reasonable size. The other factor is that the venture capitalists have much less information about the startup than do entrepreneurs. The information asymmetry is especially strong in highly technical fields.

The financing contract needs to provide a strong incentive to the entrepreneur without creating a situation that attracts entrepreneurs whose projects have negative expected return. The typical entrepreneur offers the following plan to the venture capitalist: Pay my salary for the next three years and if things go well give me half the equity in the new company. If things go badly then we will stop and I will have my three years of salary. The question is how to avoid a positive expected return in that relationship if the entrepreneur's idea is not commercially practical?

One of the main tools that is used to discourage the negative expected return proposal is to require the entrepreneur to commit almost all of his own assets as equity. The typical Silicon Valley entrepreneur has to take a second mortgage on his own house to please the venture capitalists. A second tool is to make the return to the venture capitalist highly nonlinear. The financier receives all of the return from the new firm below a

certain threshold, except for the salary paid to the entrepreneur. The standard arrangement is the issuance of convertible shares to the venture capitalist. These shares have a liquidation preference. The result is that the venture capitalist captures all of the value of the firm if it is not very successful, and splits the value with the entrepreneur if there is a good outcome. The startup financing contract comes very close to the predictions of contract theory.

The standard venture capital contract is still highly inefficient relative to the ideal that would be found with a better-informed venture capitalist or a wealthier entrepreneur. As a result, startups go through a very delicate period where even the slightest misfortune may doom it. All too frequently, a promising new firm dies because there is no way to alter the financing relationship in such a way that it satisfies all of the constraints that bear on the relationship.

The implication of limited entrepreneurial wealth and asymmetric information is that a large number of promising ideas never see the light of day as new firms and many startups fail in midstream even though the ideas have positive commercial value. If you think that is a bad situation, think how much worse it is in other economies where the whole concept of a venture capitalist or other source of finance for a startup does not exist. Venture capitalism thrives in those economies where property

rights and contract enforcement are well established.

Another type of contract essential for growth is between an independent inventor and a large firm. This type of contract is another vehicle for commercializing new ideas and superior technology. Again, asymmetric information and limited entrepreneurial wealth are important constraints. The relationship between inventor and licensee usually has two phases. First is a preliminary contract under which the inventor discloses information about the technology to the potential licensee. Although aspects of an invention covered by patents are public knowledge, the inventor usually has additional trade secret knowledge about the application of the invention. Enforcement of the preliminary non-disclosure contract is essential. Absent such a contract with reliable enforcement, the inventor could not take the risk of disclosing his non-public knowledge, and the information asymmetry would be even more severe.

The second phase is a development-commercialization contract. Under this contract, the licensee invests in further development and then has an option to commercialize. The option helps deal with the licensee's lack of information about the value of the invention. The ideas that have been developed in the theory of contracts with limited and asymmetric information are upheld by these contracts. That body of contract theory has emphasized the value of options exercised by parties when they

gain private information. The protection provided by the contract is essential to both parties. The inventor forgoes the opportunity to get another firm to commercialize his invention; the firm risks its development investment.

One interesting feature of the inventor-licensee relationship is that a royalty agreement is made long before either side knows the actual commercial value of the invention. The rate set in the contract may considerably under or overstate the ultimate value. But it is much better to set an inaccurate but positive rate than not to have a contract at all. The interests of both sides are advanced by a clear contract.

An alternative, certainly viable in some societies, is the Japanese model, where, as I understand it, there are few independent entrepreneurs or inventors and most of this type of activity takes place within large firms. But in the United States, contractual relations among independent parties are thriving and becoming more and more important.

New firms enter into a great multiplicity of upstream and downstream contracts with suppliers of raw materials, services, and with marketing individuals or organizations. As firms mature, they typically replace many of these outsiders with insiders, through vertical integration. A startup firm may consist of nothing but contracts. An acquaintance of mine has developed a kind of tomato sauce. He has one contract with a

food manufacturer to produce and bottle the sauce. He contracted with a product designer to create the label. He has a contract with a firm that finds shelf space in grocery stores. He runs this network of contracts out of the office in his house. Firms of this kind are becoming more and more common in the United States.

Commodity supply agreements fit the predictions of contract theory very nicely. The main purpose of these contracts is to protect the transaction-specific capital of the buyer and the seller. Insurance against the risk of price changes does not seem to be an important motive of actual contracting, nor would contract theory suggest that publicly held firms would try to shift risk through commodity contracts. Suppression of opportunistic behavior ex post, as stressed by Oliver Williamson, is a central motive for commodity supply contracts.

Many commodity supply contracts are requirements contracts. The buyer agrees to purchase all of his input of a certain commodity from the seller, but the buyer has the right, subsequently, to determine the quantity. The price the buyer pays is determined by a formula in the contract and depends either on data on the seller's costs or on a market price index for the commodity. Contracts of precisely this form are predicted by contract theory as the natural outcome of the situation created when the buyer has private information about the value of the

commodity. Shifts in demand for the product produced by the buyer are the principal source of that private information. The requirements contract gives an efficient outcome without the seller needing to verify the buyer's information about value. Also as predicted by contract theory, there seems to be a close relation between the duration of contracts and the amount of transaction-specific capital.

I recently looked at supply agreements in the glass bottle industry--these vary tremendously in duration and complexity. Mayonnaise producers use a totally standard glass bottle which is essentially bought as a commodity with a very short-term contract. At the other extreme among bottle users is Budweiser beer, which buys huge numbers of custom-made bottles with the Budweiser crest molded in. Budweiser contracts for the output of complete production facilities under multi-year contracts. Other bottle users take intermediate stances.

As Dennis Carlton has stressed, there is a good deal of direct allocation under bilateral supply relationships. That is, the seller takes an active role in determining quantity and does not leave it just to the buyer. Some supply contracts are strictly arms length and interpreted strictly within their "four corners." But very frequently, where the parties have a long-term relation with many repeated contracts, the interpretation is much more flexible. Often one side will accommodate a change in



price or quantity suggested by the other side, without direct compensation. The parties expect these adjustments to come out in the wash over time. As a general matter, there is remarkably little litigation in the United States over commodity supply contracts, even though supply relationships are taken seriously.

Contracts are extremely important, especially for new firms, in marketing and selling. The use of independent advertising agencies under contract is routine even for mature firms. Many new firms have no sales staff at all. They make use of established independent manufacturers' representatives or independent sales organizations.

Contracts with independent salesmen take the form discussed by Benjamin Klein and Kevin Murphy. A simple contract specifies compensation, usually in percentage form, and provides the firm with the right to terminate upon relatively brief notice. As Klein and Murphy note, the firm tends to allow the buildup of hostage capital in the contract, by setting the compensation above the market-clearing level. Consequently, termination amounts to the extinction of the hostage capital and is a sharp blow to the salesman. The credible threat to terminate gives the firm powerful leverage over the salesman. Interestingly, in the United States, there is growing opposition to allowing firms to exercise contractual termination rights. More and more terminations are challenged in the courts as breaches of an implied

covenant of good faith and fair dealing. The result has been a move toward vertical integration in selling activities. This change is differentially harmful to the new firm.

Contracts reach to the heart of the modern firm. Manufacturing the actual product of a firm under contract is the rule and not the exception in a number of industries in the United States. Many of these manufacturing contracts are international. It speaks favorably of the enforceability of international contracts that some much internationalization has occurred. There is a remarkable strip of Mexico just south of the U.S. border which has reached an advanced stage of development thanks almost entirely to contract manufacturing relationships with U.S. firms. In the semiconductor industry, the startup thinks automatically of avoiding investment in manufacturing facilities by contracting out production. Foundry capacity for chips is so widely available in the U.S. and Asia that a small firm finds it almost always advantageous to manufacture under contract.

Startups and innovation thrive in those economies where contracts are supported by strong enforcement. The U.S. and Britain are leaders in supporting elaborate and durable contracts. It's axiomatic that contract enforcement is a key to successful eastern European liberalization.

In spite of everything I have said, it is noteworthy that the most rapid growth in the world in the last decade has been

achieved in Asian countries where contractual relations are less highly developed and enforcement less reliable. In these countries, it appears that large firms and affiliations of firms perform the functions that government performs in the United States. But it is a fascinating topic for additional research to figure out why Asian countries have been so successful.

In the U.S. economy, an interesting equilibrium has developed. Large firms are barred from any activity than can be organized by small organizations through contracts. On the other hand, most GNP arises within large corporations. The large corporation is still the dominant feature of the U.S. economic landscape. Large corporations seem to have a comparative advantage in exploiting more mature products.

A standard pattern of development has long existed in the U.S. economy. New products and new technologies are developed in small firms relying heavily on contracts. Large corporations acquire startups after their products have been proven. Being acquired at a high price by a well-financed large corporation after a few years is the dream of most entrepreneurs.

The United States economy still generates the highest level of output per capita of any large industrial nation. I think that the fluid, dynamic economy made possible by contracts and strong contract enforcement is an important explanation of the success of the U.S. economy. Contracts contribute to growth in

many significant ways.