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# Vertical Integration as Organizational Ownership: The Fisher Body–General Motors Relationship Revisited

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I have always considered my work with Armen Alchian and Robert Crawford (1978) on vertical integration to represent an extension of Coase's classic article on "The Nature of the Firm." By focusing on the "hold-up" potential that is created when firm-specific investments are made by transactors, or what we called the appropriation of quasi-rents, I believed we had elucidated one aspect of the Coasian concept of transaction costs associated with market exchange. We hypothesized that an increase in firm-specific investments, by increasing the market transaction costs associated with a hold-up, increased the likelihood of vertical integration. This relationship between firm-specific investments, market transaction costs, and vertical integration was illustrated by examining the contractual difficulties that existed when General Motors purchased automobile bodies from Fisher Body and the corresponding benefits that were created when the parties vertically integrated.

It is clear from Coase's lectures that he considers our analysis not to represent an extension of his earlier work, but rather to be an alternative, incorrect explanation for vertical integration (1988: lecture 3). Coase recognizes that an increase in the quasi-rents yielded by firm-specific investments creates a hold-up potential. However, he argues that there is no reason to believe that this situation is more likely to lead to vertical integration than to a long-term contract. Although long-term contracts are imperfect, oppor-

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tunistic behavior is usually effectively handled in the marketplace, according to Coase, by a firm's need to take account of the effect of its actions on future business. Coase claims that before writing his classic paper he explicitly considered opportunistic behavior as a motive for vertical integration, in particular as it applied to the General Motors–Fisher Body case, and explicitly rejected it.

Unfortunately, Coase's rejection of the opportunism analysis is based upon too simplified a view of the market contracting process and too narrow a view of the transaction costs associated with that process. A more complete analysis of how vertical integration solved the opportunistic behavior problem in the Fisher Body–General Motors case provides insight into the nature of the transaction costs that are associated with the market contracting process and how vertical integration reduces these costs. The primary transaction costs saved by vertical integration are not the "ink costs" associated with the number of contracts written and executed but, rather, are the costs associated with contractually induced hold-ups. The analysis indicates that hold-up potentials are created not solely from the existence of firm-specific investments, but also from the existence of the rigidly set long-term contract terms that are used in the presence of specific investments. Vertical integration, by shifting ownership of the firm's organizational asset, creates a degree of flexibility and avoids this contractually created hold-up potential, thereby resulting in significant transaction cost savings.

## 1. LONG-TERM CONTRACTS AS SOLUTIONS TO AND CAUSES OF HOLD-UP PROBLEMS

Coase is correct in believing that in many cases contractual arrangements, rather than vertical integration, can be and are used to solve hold-up problems. For example, consider the case of building a house on a piece of land. It is obvious that you would not build the house on land you had only rented for a short term. After the land lease expired the landowner could hold you up for the quasi-rents on your house investment. However, this does not mean that you need necessarily own the land, that is, vertically integrate, to solve this problem. The hold-up problem potentially could be solved by the use of a long-term rental contract on the land negotiated before the house was constructed. Since land is the type of input where anticipated quality variations are very small or nonexistent, a long-term rental contract is certainly a feasible way to minimize the hold-up potential without vertical integration.

The long-term exclusive dealing contract adopted by Fisher Body and General Motors in 1919 can be explained as an analogous contractual means to avoid a hold-up potential without vertical integration.<sup>1</sup> Since Fisher Body

1. The contractual agreement between Fisher Body and General Motors can be found in the minutes of the Board of Directors of Fisher Body Corporation for November 7, 1919. Analysis of this case is taken in part from Klein, Crawford, and Alchian (308–10).

had to make an investment highly specific to General Motors in the stamping machines and dies necessary to produce the automobile bodies demanded by General Motors, a significant hold-up potential was created. After Fisher made the investment, General Motors could have attempted to appropriate the quasi-rents from the investment by threatening to reduce their demand for Fisher-produced bodies, or even to terminate Fisher completely, if price were not adjusted downward. The exclusive dealing clause, which required General Motors over a ten-year period to buy all their closed metal bodies from Fisher Body, limited the ability of General Motors to opportunistically threaten Fisher Body in this manner. The contractual arrangement thereby reduced Fisher Body's reliance on General Motors' reputation and encouraged Fisher Body to make the specific investment.

Although the ten-year exclusive dealing contractual arrangement protected Fisher against a General Motors hold-up, it created a potential for Fisher to hold up General Motors. Fisher could take advantage of the requirement that General Motors could not purchase elsewhere by increasing price or decreasing quality. The contract attempted to protect General Motors against this reverse hold-up potential by specifying a formula by which price would be set over the ten-year period at a competitive level. In addition, in a further attempt to minimize the potential Fisher hold-up of General Motors, the contract also included most-favored nation provisions so that the price could not be greater than what Fisher Body charged other automobile manufacturers for "similar" bodies. Such a "price protection" clause prevents a hold-up because a price increase or decrease to any buyer is guaranteed to be given to all buyers. Hence, established buyers that are "locked-in" by a specific investment or a contractual commitment are protected by the seller's desire to make profitable new sales.

In spite of the existence of a long-term contractual arrangement with explicitly set price and price protection clauses, there is still some probability that a hold-up may occur. This is because not all elements of future performance are specified in the contract. Due to uncertainty and the difficulty of specifying all elements of performance in a contractually enforceable way, contracts will necessarily be incomplete to one degree or another. This creates the possibility for transactors to take advantage of the contract to hold-up their transacting partner. For example, the long-term land rental contract in the house construction example may permit the landowner to hold-up the house owner by opportunistically controlling the water supply to the house, or by failing to build a wall to prevent erosion of the land under the house, or by closing a road on the land for claimed repairs and thereby threatening to restrict access to the house.

Even though contracts are incomplete, the reputations of the transacting parties limit the economic feasibility of hold-up threats. It is the magnitude of these reputations and the corresponding costs that can be imposed on a transactor that attempts a hold-up that define what can be called the "self-

enforcing range" of the contractual relationship. Transacting parties enter contractual arrangements by making specific investments and setting contract terms in such a way so that they are likely to be within this self-enforcing range where a hold-up will not occur. However, there is some probability that market conditions may change (for example, the value of the quasi-rents accruing to one of the parties unexpectedly increases) so that it pays for one transactor to hold-up the other in spite of the loss of reputation.<sup>2</sup>

For example, in the General Motors-Fisher Body case demand for the closed metal bodies manufactured by Fisher increased dramatically. When the contract was entered into in 1919 the dominant production process for automobiles consisted of individually constructed, largely wooden, open bodies; closed metal bodies were essentially a novelty. Demand for closed metal bodies grew extremely rapidly and by 1924 accounted for more than 65 percent of General Motors' automobile production.<sup>3</sup> This shift in demand moved the contractual arrangement outside of the self-enforcing range and made it profitable for Fisher to hold up General Motors.

Although Fisher could have taken advantage of many imperfectly specified terms of the contractual arrangement, such as delivery times or quality characteristics, Fisher effectively held up General Motors by adopting a relatively inefficient, highly labor-intensive technology and by refusing to locate the body-producing plants adjacent to General Motors assembly plant.<sup>4</sup> This hold-up mechanism had the advantage, from Fisher's viewpoint, of increasing profitability since the contractually specified price formula set price equal to Fisher's "variable cost" plus 17.6 percent, placing a 17.6 percent profit upcharge on Fisher's labor and transportation costs. The profit upcharge presumably was designed to cover Fisher's anticipated capital costs, which may have been difficult to isolate and measure for General Motors shipments and, therefore, were unreimbursable under the contract formula. The contract may appear to be imperfect, but it was only deficient *ex post*. If demand had not grown so rapidly, Fisher's reputation (that is, loss of future business with General Motors and possibly other automobile manufacturers) combined with the most favored nation clause may have been an effective constraint on Fisher Body behavior. However, the large increase in demand placed Fisher's short-run hold-up potential of General Motors, even with Fisher being forced to give up new and future sales, outside the self-enforcing range.

The Fisher Body-General Motors case illustrates that while long-term

2. This probabilistic equilibrium differs from the analysis in Klein, Crawford, and Alchian, where hold-ups were assumed not to be present in long-run equilibrium and existed solely because of transactor myopia or ignorance. Kenney and Klein presents a discussion of the "self-enforcing range" and this equilibrium, together with the implications of the analysis for contract law.

3. *Sixteenth Annual Report*, General Motors Corporation, year ended December 31, 1924.

4. See deposition testimony of Alfred P. Sloan, Jr. in *United States v. Dupont & Co.*, 366 U.S. 316 (1961), 186-90 (April 28, 1952) and 2908-14 (March 14, 1953).

contract terms and transactor reputations may prevent hold-ups and encourage specific investments by tying the hands of the transacting parties, long-term contract terms may also create hold-up problems. Therefore, it is misleading to assert, as Coase does, that "opportunistic behavior is usually effectively checked" in the market by long-term contracts and the existence of transactor reputations. Although the assertion is true, a more complete analysis must recognize that transactor reputations are limited and that contracts may actually create, rather than solve, hold-up problems. It was the long-term, fixed price formula, exclusive dealing contract adopted by the transactors in response to the potential General Motors hold-up of Fisher that created the enormous Fisher hold-up potential of General Motors. The magnitude of this contractually caused hold-up was likely much greater than the quasi-rents on the General Motors-specific investments made by Fisher which the contract was attempting to protect in the first place. Although writing down binding contract terms may economize on limited brand name capital and reduce the probability of being outside the self-enforcing range, the rigidity of long-term contract terms may create a much larger hold-up potential if events actually place the parties outside the self-enforcing range. To avoid this rigidity transactors may intentionally leave their contracts incomplete and thereby give themselves "an out" if market conditions get "out of line."

It is this contractually induced hold-up potential and the costs associated with rigid ex-post incorrect contract terms, illustrated so forcefully in the Fisher-General Motors case, that represent the major transaction costs of using the market mechanism to solve the hold-up problem. These transaction costs include the real resources transactors dissipate in the contractual negotiation and renegotiation process in the attempt to create and execute a hold-up. Transactors will search for an informational advantage over their transacting partners and attempt to negotiate ex-ante contract terms that create hold-up potentials, that is, that are more likely to imply ex-post situations where contract terms are favorably incorrect. Once such a favorably incorrect situation arises, transactors will dissipate real resources during the renegotiation process in the attempt to convince their transacting partner that a hold-up potential does exist. In the Fisher-General Motors case these renegotiation transaction costs consisted of the costs associated with improper plant placement and low capital intensity of production before vertical integration occurred.<sup>5</sup>

5. In addition to the transaction costs associated with negotiating contractual arrangements and the transitional transaction costs associated with the renegotiating process when these arrangements do not work out in practice, there are the social costs associated with transactors not making specific investments and entering contractual arrangements to begin with. Transactors anticipate the rent-dissipating transaction costs associated with contractual negotiation and renegotiation because they recognize the limits to their reputation capital, the uncertainty of the world, and the necessary imperfections of contracts. Therefore, independent of any risk

These transaction costs associated with the use of a long-term contract represent the theoretical reason why the presence of firm-specific investments are more likely to lead to vertical integration. Specific investments create the necessity for long-term contractual terms which, in turn, imply the rent-dissipating transaction costs associated with the possibility of contractually created hold-ups. In the absence of specific investments, long-term contract terms are unnecessary and spot contracts can be used. Since the costs associated with vertical integration are generally incentive-type costs that are unrelated to the level of specific investments, vertical integration will be more likely the greater the level of specific investments. The greater the level of specific investments and hence the greater the potential costs of using the market (as more explicit and rigid contractual mechanisms must be devised to protect the specific investment), the greater the likelihood that vertical integration will be the solution.

## 2. PHYSICAL CAPITAL VS HUMAN CAPITAL

Vertical integration is the form in which the hold-up of General Motors by Fisher Body eventually took place, with General Motors acquiring the Fisher Body stock owned by Fisher at terms that were highly favorable to Fisher. Why did not General Motors merely make a lump sum cash payment to Fisher and renegotiate the contract, fixing ambiguous terms and hoping that another large unanticipated event would not occur in the future to shock the relationship out of the self-enforcing range? One reason is that the change in demand to closed metal bodies made Fisher a much more important specialized input supplier to General Motors, with the Fisher hold-up potential reaching essentially the entire General Motors industry-specific investment. In principle, with an ex-post incorrect contract, Fisher could potentially hold up General Motors for their entire automobile manufacturing and distribution organization. This enormous hold-up potential would imply extremely large rent-dissipating transaction costs during the contractual negotiation and renegotiation process as General Motors attempted to protect against and Fisher attempted to take advantage of the hold-up possibilities.

Vertical integration appears to avoid these transaction costs by eliminating the second transactor. This is obvious for cases of physical capital, such as the house construction-land ownership example, where a hold-up, by definition, becomes impossible with vertical integration. It is cases like these

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aversion, transactors will avoid entering contractual arrangements where there is a significant probability that the arrangement will not work out. The equilibrium contractual arrangements that transactors voluntarily adopt in the marketplace may appear, consistent with Coase's assertion, to handle opportunistic behavior—in the sense that we are unlikely to observe opportunism occurring very frequently. However, we do not see all the specific investments not made and the contractual arrangements not adopted when transactors anticipate a significant probability of being outside the self-enforcing range.

that lead to the obvious conclusion that vertical integration will more likely be used when the hold-up potential, that is, the quasi-rents from firm-specific investments, are large. As Joskow (1988) convincingly demonstrates, this insight regarding the economic motivation for ownership of firm-specific physical capital has significant empirical relevance.

However, many real-world examples involve human capital and not merely physical capital as the important firm-specific asset.<sup>6</sup> Since the specific human capital is embodied in individuals who by law cannot be owned and who have the potential to behave opportunistically under any alternative organizational arrangement, vertical integration does not eliminate the other transactor and the hold-up problem. In such cases it is unclear exactly what gains are entailed by vertical integration.

To understand the gains from vertical integration in the context of human capital, the economic question should be phrased not (as we have done in the house construction–land ownership case) as whether to own or rent an asset, but, as Coase essentially phrased it, as whether to make or buy an input. The former question applies only to physical capital while the latter question applies to human capital. When a firm buys an input in the marketplace, it generally does not own the physical capital associated with its production. A firm that produces an input itself also may not own the physical capital associated with its production (for example, the building where the firm has its offices). However, as we shall see, a firm that makes rather than buys an input generally has a particular relationship with the firm-specific human capital.

These issues can be focused by considering the Fisher Body–General Motors case again. If the hold-up problem were based solely on the General Motors–specific physical capital investments made by Fisher Body and had nothing to do with Fisher Body human capital, General Motors could have solved the problem by owning the physical capital. General Motors could have owned their own dies and stamping machines and let Fisher use this capital to make auto bodies for them, avoiding the hold-up problem while taking advantage of whatever cost advantage Fisher possessed in producing bodies.<sup>7</sup>

6. See, for example, the discussion in Klein, Crawford, and Alchian (313–19) and Williamson (240–45).

7. Coase discusses this as a particular contractual solution to the hold-up problem (1988: lecture 1). See also Monteverde and Teece. Fisher's cost advantage was unlikely due to economies of scale in the production process. Evidence for this is the fact that, after demand growth and integration, Fisher supplied bodies solely to General Motors. This is one difference between the Fisher Body case and the A. O. Smith case discussed by Coase (1988: lecture 3). There appears to be significantly greater economies of scale in producing automobile frames than producing automobile bodies, with Smith supplying frames then and now to multiple automobile manufacturers, thereby raising the cost of vertical integration as a solution to the hold-up problem (see Stigler). It is also important to note that the investment in automobile frame production is, apparently, less buyer-specific than the investment in automobile body production.

One problem with this solution is that the extent of the General Motors-specific physical capital investments is likely to be much greater than merely the dies and stamping equipment. There are, for example, complementary physical capital investments that must be made by Fisher in plant, with the associated questions of plant location and the assurance to Fisher of continued General Motors demand for the facility. These questions presumably would have to be handled by contract. To avoid contractual rigidity and the induced hold-up problems associated with ex-post incorrect contract terms General Motors could own all the physical capital and merely contract with Fisher to run the operation. While such an arrangement would create marginal distortions regarding the use of the General Motors capital equipment by Fisher, it would appear to solve the hold-up problem if the problem were based solely on specific physical capital investments.

However, much of the specific investment necessary to produce automobile bodies consists of Fisher human capital investments that, by definition, cannot be owned by General Motors. General Motors can finance Fisher's human capital investments but would require some long-term fixed price contractual commitment to prevent Fisher from threatening to terminate the relationship if General Motors did not make a lump sum payment to them equal to the quasi-rents from the human capital investment. Vertical integration, in the sense of making Fisher an employee, rather than an independent contractor, does not eliminate the potential hold-up. As opposed to physical capital, the specialized human capital would presumably still be owned by Fisher even after General Motors' vertical integration. Rather than ownership, a long-term contractual arrangement, with its associated rigidities and potential hold-up problems, must be used by the transactors.<sup>8</sup>

Since, by definition, one cannot own human capital, how did the vertical integration of General Motors with Fisher reduce the hold-up problem? As opposed to the case of physical capital, vertical integration did not eliminate the Fisher brothers. After vertical integration General Motors no longer bought bodies from Fisher Body Corporation. After vertical integration General Motors "made" bodies with the assistance of Fisher. However, did making the Fisher brothers employees compared to being independent contractors change things in any essential way? Although General Motors would now own the plants and presumably be able to tell the Fisher brothers where to locate them, the Fisher brothers became employee managers with the ability to hold up General Motors for their human capital-specific investments by threatening modification on some other dimension.

8. For example, one contract term that is used in employment arrangements in the entertainment industry, where the employer may make a substantial transactor-specific investment, is a right of first refusal clause. This clause reduces the credibility of hold-up threats since it requires the employee attempting to increase his wage by the amount of the quasi-rents from the employer's investment to threaten to quit working completely, rather than merely to threaten to quit the firm and work elsewhere.

### 3. VERTICAL INTEGRATION AS ORGANIZATIONAL OWNERSHIP

Although the use of an employee rather than an independent contractor arrangement may imply important legal differences and hence different constraints on the contracting process, such as the ease of termination by the employer and the required loyalty of the employee, I agree with Coase that the employer-employee contract does not represent the essence of a firm.<sup>9</sup> The transition of the Fisher brothers from independent contractors to employees does not explain what General Motors gained through vertical integration.

Vertical integration not only made the Fisher brothers employees of General Motors, but also converted all the employees of Fisher Body Corporation into employees of General Motors. General Motors moved from "buying" automobile bodies to "making" automobile bodies by obtaining ownership of the Fisher Body organization, including all the labor contracts of the cooperating workers in that organization and all the knowledge of how to make automobiles contained in that organization. It is in this sense of owning a firm's set of interdependent labor contracts and the firm-specific knowledge embodied in the organization's team of employees that an owner of a firm can own the firm's human capital.<sup>10</sup>

Vertical integration may solve a hold-up potential even when it hinges on human capital and, hence, the number of transactors are not reduced by the integration because it involves transferring ownership of a productive team. For example, if we consider the Fisher Body-General Motors case it is unlikely that it was the Fisher brothers themselves who possessed all the relevant firm-specific human capital information. It was much more likely that this information was possessed by the entire group of Fisher employees and was embedded in the Fisher organizational structure. Vertical integration did not merely transfer the Fisher brothers from independent contractor to employee status, but also transferred ownership of the Fisher organization and the set of interdependent labor contracts to General Motors.

The primary reason a hold-up cannot occur after such a transfer of rights

9. See Coase (1988: lecture 3) where he identifies this as the main weakness of his 1937 article.

10. The concept of specific knowledge which affects a firm's production technology and which is vested in and transferable with the firm has been discussed by numerous authors. Rosen notes that such a firm-specific information asset may be created over time by the discovery of trade connections and the assembly of an efficient "production team" and presents a model where specific knowledge is acquired through (or as a by-product of) a firm's production experience. A similar concept is developed in Prescott and Visscher and is related to the evolutionary theory of the firm presented by Nelson and Winter. The importance of information accumulation within the firm as a kind of progress function was originally discussed by Alchian (1959) and Arrow. This concept may explain why bankruptcy law provisions, which are designed to prevent the production team from disbanding, make economic sense. While physical assets generally may be salvageable, bankruptcy, accompanied by the discontinuance of a firm's operations, may destroy the organizational assets of the firm. The analysis also provides an economic justification for the "failing firm" defense in merger law.

is because collusion is difficult with a large number of entities. If there were only one employee or a few key employees, they could threaten to leave and (subject to legal constraints on trade secret or goodwill theft) take the organization with them. However, with many key individuals involved, the organization will generally be secure. A threat that all the individuals will simultaneously shirk or leave if their wages were not increased to reflect the quasi-rents on the organizational capital generally will not be credible. After vertical integration the Fisher brothers will not be able to hold up General Motors by telling all the employees to leave General Motors and show up on Monday morning at a new address. This is, in general, not economically feasible or, more important, legally possible. It is in this sense of large team organizations that vertical integration can imply ownership of human capital assets in a manner quite similar to ownership of physical capital assets.

Our analysis implies that the General Motors integration with Fisher Body is analytically quite similar to the land-house example. By integrating with Fisher, General Motors acquired the Fisher Body organizational capital. This organization is embedded in the human capital of the employees at Fisher but is in some sense greater than the sum of its parts. The employees come and go but the organization maintains the memory of past trials and the knowledge of how to best do something (that is, how to make automobile bodies). This organizational asset can be thought of as a big machine called the Fisher Corporation. When this machine was owned by the Fisher brothers, it was necessary to write an explicit automobile body supply contract which *ex post* turned out to create significant hold-up problems. With vertical integration General Motors avoided these contractual difficulties by buying the machine (the Fisher Corporation) and, in the sense of eliminating the need for an automobile body supply contract, eliminating the second transactor (the Fisher brothers).<sup>11</sup>

#### 4. ORGANIZATIONAL OWNERSHIP VS INPUT COORDINATION

Coase would likely agree that it is useful to consider the firm as an organization. He recognizes that it is the existence of cooperating labor inputs, and not merely a single employee, that represents a firm relationship. "The em-

11. In contrast, the Grossman and Hart model of vertical integration consists of single person firms where, by definition, ownership of organizational assets cannot be transferred or consolidated. Grossman and Hart concentrate solely on physical assets and the question of which particular physical assets firms own. However, the essential question of vertical integration is not asset ownership but the make-or-buy decisions of firms. General Motors may own all the physical capital in the Fisher plant yet buy the bodies from an independent Fisher Body Corporation. The Grossman and Hart answer to the question of the distribution of physical asset ownership, which relies on employee incentive effects, cannot explain the incidence of vertical integration. Although vertical integration of Fisher and General Motors may lead to increased monitoring of the Fisher brothers because they no longer bear the full value consequences of their behavior, most of the managers at Fisher Body, both before and after integration with General Motors, are employees and not owners of Fisher physical capital.

ployer-employee contract approaches the firm relationship but . . . the full firm relationship will not come about unless several such contracts are made with people and for things that cooperate with one another" (1988: lecture 3). However, Coase emphasizes the role of the firm not as an owner of organizational assets, but as a coordinator and controller of cooperating inputs. One must consider the firm, Coase says, as "running a business." And the economic question regarding institutional form involves a "comparison of the costs of coordinating the activities of factors of production within the firm with the costs of bringing about the same result by market transactions or by means of operations undertaken within some other firm" (1988: lecture 3). It is this concept of coordination of a team of inputs that Coase attributes as the essence of a firm.

The concept of a central contracting agent that serves as a hub of a group of interdependent contracts and by coordination eliminates the necessity of contracts between those individuals assumed to be at the end of each of the spokes may appear to provide some insight into the nature of the firm. It is in the sense of coordinating control of a team that the number of market relationships is reduced and substituted for administrative decisions. This concept corresponds to Coase's notion of a reduction in the number of market transactions when vertical integration occurs (1988: lecture 3). However, every transactor in the marketplace purchasing inputs that are assembled into a final product can be considered as a hub of a series of contractual arrangements. The suppliers of the separate inputs need not have any contractual arrangement with one another. Although vertical integration may appear to eliminate the necessity for contractual arrangements between cooperating inputs, it does not.

Unfortunately, in considering whether transactors will adopt a firm or market arrangement, Coase in 1937 and again now has incorrectly identified the costs of using the market mechanism with the narrow transaction costs of discovering prices and executing contracts (1937: 390-391; 1988: lecture 3). However, vertical integration implies small, if any, savings in terms of these shopping and contract execution costs. Ownership of an organization essentially reduces the number of contracts that must be executed by, at most, one. General Motors must still have separate contracts with all the employees of Fisher Body. If the Fisher brothers remain, two new employee contracts must now be written to replace the old independent contractor body supply contract. If the Fisher brothers leave, there will be one less contract.

Rather than a decrease in the number of contracts, what vertical integration alters is the nature of the contractual arrangement. The one contract that is eliminated creates a new relationship between the transacting parties. It is no longer necessary for General Motors to prespecify production conditions (such as body plant locations, capital intensity, delivery times, and so forth) or prices. Although General Motors may actually write many of

these conditions down in their internal interdivisional communications and, therefore, not save any "ink costs," these documents no longer have the force of contract law.

The absence of a legal constraint creates increased flexibility and a decreased possibility of a contractual hold-up. General Motors and Fisher no longer need to expend real resources in the attempt to determine all of the many events that might occur during the life of the production relationship and write a prespecified response to each event. Most of these events are highly unlikely and, by integrating, General Motors can wait until future conditions emerge before determining what should be done. As discussed above, not only do General Motors and Fisher save the allocatively wasteful transaction costs involved in searching for informational advantages in negotiating prespecified contractual responses, but they also avoid the real resource costs during the renegotiation process once ex-post market conditions turn out to be substantially different from the prespecified contract terms. Instead of contractual rigidity and the associated hold-up potential, the relationship becomes flexible to unanticipated market conditions.

While some commentators, including Coase, may identify this increased flexibility associated with vertical integration with the ability to coordinate or "direct" inputs, I do not believe that it is useful to focus on this ability as the central characteristic of a firm. Direction of inputs is neither a necessary nor a sufficient condition for defining a firm. For example, a conglomerate firm may merely own another firm (the organizational asset of another firm) without directing the firm's team of inputs. Alternatively, I may direct my gardener every weekend regarding what I want him to do for me, but I do not own a gardening firm. If the gardener has a group of workers that he uses to carry out my instructions, it is he who owns a gardening firm in the sense of an organization. By my direction I am specifying the particular services I desire. However, I am merely buying the particular services in the marketplace; it is the gardener who is "making" the particular services.

Direction of inputs can be accomplished in the marketplace as long as there are no specific investments made by the transacting parties and, therefore, no need for long-term contracts. Spot contracts in a competitive market can provide, in principle, a mechanism for perfect coordination and direction of cooperating inputs. A miller of flour, for example, may be able to contract in the spot market for supplies of wheat and have complete flexibility to alter quantities and qualities as required by shifts in his demand. The miller may demand in the market (that is, "direct" producers to supply) increased quantities or different qualities of wheat without any fear of a hold-up.

However, most market relationships entail transaction-specific investments and, therefore, the possibility of a hold-up. A magazine publisher, for example, may want to shift production of an issue (say, delay and increase the quantity of a press run to take account of a late-breaking story). Because of transaction-specific investments magazine printing services cannot be pur-

chased in a perfectly competitive spot market. If the publisher purchased printing services from an independent printing firm, the printer may refuse to be "directed" in this manner without some side payment. Because of this hold-up potential, long-term contractual arrangements specifying particular contingencies and payment arrangements will be used. But these contract terms are necessarily imperfect and, as we have seen in the General Motors-Fisher Body case, may lead to the possibility of an even greater hold-up potential.

Transaction-specific investments are pervasive and exist in cases where there are no obvious specific physical capital investments. Even with regard to, say, wheat it may be costly to switch suppliers. It takes time to find new suppliers and to check product qualities and services (delivery times, reliability, and the like). Similarly, wheat suppliers must learn about particular millers' payment practices, delivery requirements, working schedules, and so on. It is because transactors make these specific investments in particular suppliers that real-world demand curves are never perfectly elastic. However, it is important to recognize that if transactor-specific investments were unimportant, spot contracts could be used and transactors would have the full ability to "direct" cooperating inputs in the marketplace. From an analytical point of view, vertical integration is not necessary in order to coordinate or "direct" cooperating inputs in the production process.

## 5. CONCLUSION

Given the presence of specific investments in an exchange relationship, transactors will have to decide whether to use a long-term contract or vertical integration to solve the hold-up problem. Vertical integration entails the widely recognized possibility of increased costs associated with somewhat reduced incentives and increased bureaucracy. I have discussed here the other side of the equation—the transaction costs associated with long-term contracts. The important element of these transaction costs are not the "ink costs" of writing contract terms emphasized by Coase, but the significant rent-dissipating costs borne during the negotiation and renegotiation contracting process as transactors attempt to create, avoid, and execute the hold-ups implied by necessarily imperfect long-term contractual arrangements.

While vertical integration may imply an increased ability to direct cooperating inputs compared to a long-term contractual arrangement, one must not confuse what an integrated firm may do with the basic economic motivation for the integration. Vertical integration, by shifting ownership of an organizational asset, permits transactors to avoid the transaction costs associated with a hold-up potential in the presence of specific investments. Whether transactors adopt vertical integration as a solution to a particular hold-up potential depends upon the magnitude of these specific investments, combined with the ability to write long-term contracts that flexibly track

market conditions without creating an alternative hold-up potential. Since the ability to write and use long-term contracts depends, in part, upon the underlying market uncertainty and on the level of transactor reputations, these factors will also influence the likelihood of vertical integration.

This analysis of the motivation for vertical integration is consistent with the fundamental point recognized by Coase fifty years ago—that a transaction within the firm is something that is inherently different from a transaction in the marketplace. The view of the firm as merely a “nexus of contracts” that has developed in reaction to Coase’s fundamental distinction between the firm and the market<sup>12</sup> is incomplete and misleading. I now agree with Coase that there is a useful analytical and not merely legal distinction to make between interfirm and intrafirm transactions. Firms are more than particular groups of explicit and implicit contracts. They consist of valuable team assets and developed mechanisms of handling information and control. By consolidating ownership of these organizational assets in the hands of one firm, vertical integration eliminates the need for one fundamental contract and creates an increased ability to flexibly direct production. As a consequence, a significant hold-up potential is reduced, along with an important range of transaction costs.

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12. See, for example, Alchian and Demsetz, and Klein (1983).

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<sup>1</sup> **Vertical Integration, Appropriable Rents, and the Competitive Contracting Process**

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<sup>7</sup> **Appropriable Rents and Quasi-Vertical Integration**

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<sup>7</sup> **The Division of Labor is Limited by the Extent of the Market**

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<sup>9</sup> **The Nature of the Firm: Origin**

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<sup>10</sup> **The Economic Implications of Learning by Doing**

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<sup>12</sup> **Production, Information Costs, and Economic Organization**

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<sup>12</sup> **Contracting Costs and Residual Claims: The Separation of Ownership and Control**

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