

The Fable of Fisher Body*

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Abstract

General Motors' (GM) acquisition of Fisher Body is the classic example of market failure in the literature on contracts and the theory of the firm. According to the standard account, GM merged vertically with Fisher Body in 1926, a maker of auto bodies, because of concerns over transaction-specific investment and contractual hold up. That account exhibits errors of historical fact and interpretation. GM acquired a 60 percent interest in Fisher Body in 1919. Moreover, the contractual arrangements and working relationship prior to the 1926 merger exhibited trust rather than opportunism. Fisher Body's production technology did not exhibit asset specificity. The merger reflected economic considerations specific to that time not some immutable market failure. We demonstrate that vertical integration was directed at improving coordination of production and inventories, assuring GM adequate supplies of auto bodies, and providing GM with access to the executive talents of the Fisher brothers.

The dismal science is enlivened occasionally by colorful fables that illustrate key points of economic theory.¹ The story of the acquisition of Fisher Body by General Motors (GM) is often used to point out the failure of market contracts as a result of asset specificity and opportunistic behavior. This story is influential because it plays a central role in both contract theory and the theory of the firm. Fisher Body provides a canonical example in Benjamin Klein, Robert Crawford and Armen Alchian's work on vertical integration,² Oliver Williamson's transaction-cost economics,³ and Oliver Hart's property-rights theory of the firm.⁴ We demonstrate that the historical descriptions and interpretations of the Fisher Body acquisition given in the economics literature are largely inaccurate, casting some doubt on conclusions about opportunism in contracts that rely on those historical descriptions. The merger does not represent some immutable market failure but rather reflects economic considerations specific to that time that are not present today as revealed by GM's current restructuring. We show that GM vertically integrated with Fisher Body to improve coordination between the two companies; particularly to assure GM adequate supplies of auto bodies, to synchronize their operations, and to provide them with access to the executive talents of the Fisher brothers.

The Fable of Fisher Body originates in only three paragraphs of Klein et al..⁵ GM signed a 10-year contract with Fisher Body to purchase closed-car auto bodies and acquired a 60 percent interest in Fisher in 1919. According to Klein et al., the contract provided price stipulations to protect the body company from being held-up by GM given that Fisher Body had to make large specific investments in the presses and dies used to stamp the bodies. They assert that in the early 1920s, as the demand for closed bodies increased dramatically, the price provisions were insufficient to prevent Fisher Body from exercising opportunism and taking advantage of GM's

contractual commitment. Klein et al. further state that the high prices charged for the bodies reduced GM's ability to compete and that the Fisher brothers refused to locate new body plants as requested by GM because they feared exposure to opportunistic behavior after the plants were built. By 1926, the story continues, the relationship became intolerable and GM bought out Fisher Body.

The facts are different. The historical record indicates close collaboration and trust between the companies thus contradicting supposed contract failures. Extensive participation of the Fisher brothers in GM management beginning in 1921 indicates an absence of the alleged opportunism by Fisher. The initial acquisition in 1919 was accompanied by substantial investment by GM in Fisher and a voting-trust arrangement in which executives from the two companies had equal control over the board of directors, contradicting the need for property rights to exercise control. Fisher Body did not price opportunistically under its manufacturing contract. Many Fisher Body plants already were located next to GM plants before 1926. The supposed transaction-specific investment in metal presses and dies is inconsistent with Fisher's manufacturing technology, which was wood-based and labor intensive and therefore flexible and not transaction specific. Talks regarding a full merger began as early as 1922. Thus, the 1926 acquisition of the remaining 40 percent of Fisher Body has little to do with asset specificity or contract failure.

Our analysis shows that the initial acquisition in 1919 and the completed merger in 1926 were driven primarily by a desire to enhance coordination between the two companies. The most important aspect of coordination for GM was assurance of supplies of auto bodies, in the sense of Alfred D. Chandler, Kenneth J. Arrow, and Dennis W. Carlton.⁶ The closed auto bodies made by

Fisher represented quality and comfort and were a source of competitive advantage for GM in its competition with Ford. GM's vertical integration with Fisher was part of GM's extensive program of vertical integration with many other companies. Vertically integrating into auto body manufacturing allowed GM to better coordinate management of inventories, production and purchasing given transportation, communications and data processing costs existing at that time. In light of Alfred P. Sloan's reforms aimed at interdivisional coordination, it is significant that Fisher Body is made a division of GM concurrent with the 1926 merger. Vertical integration also achieved personnel coordination that gave GM access to the executive talents of the Fisher brothers.⁷

Our study confirms Ronald Coase's emphasis on transaction costs as a motivation for vertical mergers.⁸ It also confirms his observation that asset specificity and opportunism in contracts fail in a fundamental way to explain vertical integration. Coase points out that in 1932, when writing his path-breaking article "The Nature of the Firm," he contemplated the asset specificity hypothesis as a potential rationale for vertical integration. After a visit to GM in that year during which he learned about the Fisher Body merger and about the amicable relationship that GM enjoyed with its supplier of frames, A.O. Smith, Coase concluded that asset specificity coupled with self-interest were not powerful enough reasons for vertical integration.⁹ Because it offers a Hobson's choice between contracts and vertical integration, the contracts literature identifies vertical integration between a company and its supplier as evidence of problems with market contracts. Coase rightly criticizes this approach, noting that "we are not surprised to see the man produce the rabbit out of the hat if we've just watched him put it in."¹⁰

Our finding that desire for improved coordination rather than mitigation of opportunism

was the principal motivating factor for the merger accords with Alfred D. Chandler and Stephen Salsbury and Thomas G. Marx and Laura B. Peterson. Marx and Peterson and Susan Helper, John Paul MacDuffie, and Charles Sabel also discover problems with the Fisher Body story of Klein *et al.*.¹¹ Patrick Bolton and David Scharfstein point out that Hart's theory is incomplete in that it does not take into account the agency costs arising from delegation in decision making and thus does not adequately interpret the GM-Fisher Body case.¹² Bengt Holmström and John Roberts point out that many observed ownership arrangements do not agree with the predictions of the property-rights theory of the firm, suggesting that the theory neglects reputation effects.¹³

Because analyses of the Fisher Body acquisition in the economics literature have their roots in Alfred P. Sloan's testimony in United States v. E.I. Du Pont, it is worth reviewing the government's contention that GM's purchase of Fisher Body was carried out as a means of extending GM's market power. We observe that there is little empirical support for the allegation that GM's acquisition of Fisher Body was aimed at foreclosure.

The article is organized as follows. Section I reviews the portrayal of the Fisher Body acquisition in the economics literature. Section II evaluates the historical accuracy of the portrayal and interpretation of the Fisher Body acquisition. Section III examines vertical coordination as an explanation for the acquisition. Section IV shows that GM did not seek market power by acquiring Fisher Body. Section V concludes.

I. THE GM-FISHER BODY ACQUISITION IN THE ECONOMICS LITERATURE

The Fisher Body acquisition story has been used to illustrate at least three related theories in the economics literature. Klein *et al.*, as well as Williamson, and Hart, contend that GM vertically

integrated with Fisher Body in 1926 to counteract the body company's hold-up behavior under their long term contract.¹⁴ Klein et al. and Oliver Williamson illustrate opportunism in contracts by observing that the initial 1919 contract between GM and Fisher emerged because new production technology called for investments in relationship-specific physical assets that made spot contracting suboptimal.¹⁵ Oliver Hart supports his property-rights theory of the firm by an analysis of the GM-Fisher Body acquisition. According to Hart, the GM-Fisher Body acquisition combined ownership of complementary assets to enhance incentives to make relationship-specific investments.¹⁶

These works have inspired a substantial literature on contracting and the theory of the firm.¹⁷ Since its first appearance in the economics literature, the historical accuracy of the Fisher Body story has been taken for granted. It is used frequently in academic discussions on contracting, vertical integration, and the theory of the firm to illustrate the economic implications of asset specificity and opportunism and the purported failure of market contracts, see for example Klein and Langlois and Robertson.¹⁸ Many economics and business textbooks refer at some length to the Fisher Body acquisition including: Jean Tirole; Paul Milgrom and John Roberts; Sharon Oster; Oliver Hart; Bernard Salanié; David Besanko, David Dranove, and Mark Shanley; James Brickley, Clifford Smith, and Jerold Zimmerman; and Jeffrey Church and Roger Ware.¹⁹ The Fisher Body story has become an essential ingredient in courses on contract theory, industrial organization, economics of organization and management strategy.

A. Klein, Crawford and Alchian's Theory of Vertical Integration

Klein et al. argue that contractual incompleteness together with the presence of investments in specific assets open the door to contractual hold up. Anticipating hold up, parties

to contracts invest in less-specific assets thus reducing gains from trade. Because boundedly-rational agents cannot write complete contracts, the existence of appropriable quasi-rents opens the door for contract hold up. The bargaining power of the parties at the renegotiation stage is presumed to depend on the ownership of relationship-specific assets so that the parties will have an incentive to reduce investment in those assets thus lowering joint surplus. Assuming that opportunistic behavior is mitigated within firms, Klein et al. propose vertical integration as the solution to the problem of opportunism in market contracts.²⁰

To illustrate their theory, Klein et al. observe that “[t]he original production process for automobiles consisted of individually constructed open, largely wooden, bodies. By 1919 the production process began to shift towards largely metal closed body construction for which specific stamping machines became important.” Therefore, they continue, in 1919 GM entered into a ten-year contract with Fisher Body for the supply of closed auto bodies under which GM “agreed to buy substantially all its closed bodies from Fisher.” According to Klein et al., the goal of this exclusive dealing clause was to prevent GM from acting opportunistically by threatening to purchase bodies elsewhere and lowering the price after Fisher Body had made “specific investment in production capacity.” In turn, to prevent Fisher Body from taking advantage of GM under the exclusive dealing clause “the contract attempted to fix the price which Fisher could charge for the bodies supplied to General Motors. [...] The price was set on a cost plus 17.6 per cent basis (where cost was defined exclusive of interest on invested capital).” In addition, “the contract included provisions that the price charged General Motors could not be greater than that charged other automobile manufacturers by Fisher for similar bodies nor greater than the average market price of similar bodies produced by companies other than Fisher and also included

provisions for compulsory arbitration in the event of any disputes regarding price.”

Demand for closed automobiles increased dramatically in the years immediately following the manufacturing contract and according to Klein et al. “these complex contractual pricing provisions did not work out in practice.” Hence, “General Motors was very unhappy with the price it was being charged by its now very important supplier, Fisher. General Motors believed the price was too high because of a substantial increase in body output per unit of capital employed. This was an understandable development given the absence of a capital cost pass-through in the original contract.” Moreover, they continue, “Fisher refused to locate their body plants adjacent to General Motors assembly plants, a move General Motors claimed was necessary for production efficiency.” Klein et al. conclude that “[b]y 1924, General Motors had found the Fisher contractual relationship intolerable and began negotiations for purchase of the remaining stock in Fisher Body, culminating in a final merger agreement in 1926.” Thus, Klein et al. base their argument on the need for Fisher Body to make large relationship-specific investments, Fisher Body’s opportunistic pricing policies, and Fisher Body’s unwillingness to locate its plants next to GM’s plants.

B. Oliver Williamson’s Transaction Cost Economics

Williamson examines the role of bounded rationality and uncertainty in the formation of contracts.²¹ Asset specificity and opportunism by parties to contracts creates the need for more complex governance structures, including vertical integration of the buyer and seller.

Williamson presents the relationship between GM and Fisher Body as a case study illustrating his theory of vertical integration.²²

Williamson concludes that the relationship between GM and Fisher Body moved through

three stages. In the first stage, the parties transacted through autonomous contracting, which was satisfactory while bodies were made mainly out of wood and did not require large specialized investments. The relationship entered a second stage as the technology of production shifted towards metal bodies. Large specific investments became necessary for production and larger mutual dependency developed. Hence, bilateral contracting became optimal. A pricing formula and dispute settlement by arbitration were instituted. The third and final stage in the relationship came about because “[u]nanticipated demand and cost realizations nevertheless placed this bilateral contracting relation under strain. Additional strains were in prospect, moreover, if Fisher Body were to accede to General Motors’ request that site-specific investments be undertaken.” In order to align operating and investment decisions in this important period of demand expansion, unified governance replaced bilateral governance. Williamson concludes that disagreement between the two corporations intensified as the degree of idiosyncrasy of the assets involved in the relationship progressed. Williamson’s explanation of the final 1926 merger is grounded on the same points made by Klein et al.: asset specificity, opportunism, and plant location. Williamson’s interpretation of the 1919 contract hinges on bilateral dependency resulting from the effects of technological change on asset specificity. Williamson emphasizes that in the case of Fisher Body, specialized physical assets were needed to support the changes in auto body design that accompanied the “shift to the metal body era.”

C. Oliver Hart’s Property Rights Theory of the Firm

As in Klein et al. and Williamson, Hart maintains that parties under invest in relationship-specific assets to reduce the impact of opportunism.²³ Hart shows that owning complementary assets creates outside options that increase the ex-post bargaining power of parties to a contract.

Owning a greater proportion of physical assets makes an agent less subject to hold up and more able to act opportunistically. Hart summarizes his theory as follows: “ownership is a source of power when contracts are incomplete.”²⁴ In Hart’s property-rights theory of the firm, physical assets will be allocated between the parties so that the resulting incentives to undertake ex-ante specific investments induce the largest possible joint surplus. The more assets an agent owns, the greater his incentive to undertake relationship-specific investment, particularly in human capital.

Hart asserts that “[f]or a long time Fisher Body and GM were separate firms linked by a long-term contract. However, in the 1920s GM’s demand for car bodies increased substantially. After Fisher Body refused to revise the formula for determining price, GM bought Fisher out.” Without historical support, Hart observes that “GM wanted to be sure that next time around it would be in a stronger bargaining position; in particular, it would be able to insist on extra supplies, without having to pay a great deal for them.”²⁵

Why did GM and Fisher Body not write a better contract? Hart points out that it is costly to write complete contingent contracts. Hence, even the most detailed contract is open to renegotiation. Consequently, both companies would be less willing to undertake relationship-specific investments for fear of being held up by contract renegotiation. The proposed solution was to make GM the owner of Fisher Body’s assets since doing so would confer residual control rights that would improve its future bargaining position. Hart notes that “[a]t an extreme, GM could dismiss the managers of Fisher Body if they refused to accede to GM’s requests.” Speaking hypothetically, Hart suggests that by owning Fisher, GM would have greater incentives to undertake relationship-specific investments. Overall, Hart’s interpretation of the merger

emphasizes that GM and Fisher Body were independent companies prior to the merger, Fisher Body behaved opportunistically, and GM wished to be in a better bargaining position in future renegotiations.

II. EVALUATION OF THE FABLE OF FISHER BODY

Given the influence of the Fisher Body story, it is important to examine whether or not historical events support the analyses of Klein *et al.*, Williamson, and Hart. GM did enter into a ten-year manufacturing contract in 1919 for the purchase of bodies from Fisher Body at 17.6 percent above cost.²⁶ However, a number of significant aspects of the account in the economics literature are incorrect. First, the contractual relationship between GM and Fisher Body appears to have been amicable and characterized by trust rather than “intolerable.” Fisher does not appear to have priced auto bodies opportunistically. Second, the manufacturing agreement should be viewed in the context of the 1919 acquisition, earnings contract, and voting-trust arrangements; the firms were not separate. Corporate governance arrangements accompanying the 1919 acquisition of Fisher Body by GM separated ownership from control, contradicting the view that property rights were necessary for control. Third, after the 1919 acquisition, final merger talks between the two companies began as early as 1922, suggesting that they did not arise out of alleged problems with the contract in 1926. Fourth, the two companies coordinated plant locations and solved capacity problems prior to the merger.

Finally, Fisher Body’s manufacturing technology focused primarily on wooden automobile bodies. This fact is highly significant because it shows that investments by Fisher were not transaction specific and thus did not require contractual protection. Wood working

technology was very flexible, allowing the company to easily change the styles of its auto bodies. Moreover, since the technology was wood-based, the company did not have substantial transaction-specific investments in metal presses and dies.

A. The Contractual Relationship with Fisher Body Exhibited Trust

Prior to the 1926 merger, the long-term relationship between the two companies, the extensive interaction, and frequent exchange of information suggest an absence of opportunism. There are numerous specific indications of the amicable nature of contractual relations between the two companies.²⁷ GM national advertising campaigns mentioned Fisher's name and all GM cars showed a distinctive plate reading "Body by Fisher." GM invested heavily in Fisher Body in 1919 and invested \$4.5 million more in 1923 with Fisher Body expanding capacity to meet GM's demand. The increasing involvement of the Fishers in GM's top management that began with Fred Fisher's membership in GM's Executive Committee shows good relations between them and top management at GM. The extensive participation of Fisher brothers in GM executive positions continued uninterrupted and expanded during the period between 1919 and 1926 and indeed continued for many years after the 1926 merger providing evidence of the good relations between GM and the Fisher brothers that preceded the merger.

Before the 1919 acquisition, Fisher Body required substantial capital investment to increase its scale to meet demand. As is typical of entrepreneurial and family businesses that obtain external capital investment, the Fisher brothers faced dilution of ownership as well as a corresponding loss of control. The sources of finance capital, such as the sale of equity shares or the creation of joint ventures, have important implications for corporate control. The close working relationship between Fisher Body and its principal customer GM and the structure of

post-acquisition control arrangements offered by GM were likely to have influenced Fisher Body's decision to accept GM's offer in 1919. The Fisher's trust of GM is indicated by their turning to GM as a partner. Fisher Body's good relations with GM continued as shown by a letter to its shareholders of 1926 noting that the 1919 manufacturing contract "has been exceedingly profitable to Fisher Body" and that about 90 percent of Fisher's business consists of bodies made for GM. Also, according to Arthur Pound, Fisher Body accepted GM as an acquirer over two other car manufacturers because while the Fishers wanted to manufacture high-end quality bodies, they also were interested in expanding production. GM was growing rapidly and marketed automobiles on both ends of the product spectrum.²⁸

Klein et al.'s critical assertion that "[b]y 1924, General Motors had found the Fisher contractual relationship intolerable and began negotiations for purchase of the remaining stock"²⁹ is based on three United States v. E.I. Du Pont defendants' trial exhibits numbered GM-32, GM-33, and GM-34.³⁰ What of these exhibits? GM-32 is a letter from Pierre S. du Pont to Harry McGowen of October 1924 in which he states that "[a]s it has not been possible for Alfred Sloan to give personal attention to all of the ramifications of the Corporation, I think the Messrs. Fisher are especially well adapted to assist him in ferreting out troubles promptly and applying remedies." The letter continues:

"Interesting members of the Fisher family in General Motors will have a very beneficial effect in breaking up a line of separation of the two companies' interests that has not been altogether wholesome. From lack of knowledge, the two sides have tended to criticise each other, without good result. Hereafter the Fishers will better understand General Motors problems and difficulties and, I

think, General Motors men will better appreciate the Fisher problems.”

The letter goes on to list the many executive positions to which the Fishers will be appointed. GM-33 is Harry McGowen’s brief reply congratulating du Pont on bringing about more active participation by the Fisher brothers. Finally, GM-34 is a letter from Alfred P. Sloan to J.J. Raskob in February 13, 1926 stating that “the protection of our competitive position requires that we make the most determined effort possible to work out Fisher Body situation along more constructive lines to the end that proper co-ordination can be effected.”³¹ He alludes to general operating issues but spends most of the letter on what is clearly the main issue: natural contention over the ratio at which GM stock is to be exchanged for Fisher Body stock. The negotiation concerns an earnings agreement not the manufacturing contract. Sloan further observes in his letter that “Fred’s [Fisher] whole attitude is so enthusiastically for General Motors, its present position and its future, that of course it makes it very much easier to deal with the problem than ever before.” These three exhibits do not support a claim of an intolerable contractual relationship with opportunistic behavior. Rather, they indicate a desire for merger based on the benefits of coordination.

Contrary to Klein et al., Williamson, and Hart, there is little historical evidence that opportunism in pricing was a problem. GM was able to update pricing provisions because it had a controlling interest in Fisher Body dating back to 1919. Moreover, Chandler and Salsbury observe that when the 1919 earnings contract expired in 1924, GM and Fisher Body reached a new agreement that invalidated the old cost-plus 17.6 percent pricing formula used for the past seven years.³² Sloan’s testimony concerns pricing flexibility rather than high prices. Speaking of the years 1920 to 1923 in his 1952 deposition, Sloan states that the pricing formula

“became very restrictive; in other words, we were bound by a contract in which the minority interest was outstanding, which we had to respect. And it was a matter of great importance to us because we didn’t have the flexibility in our price procedure that was necessary to meet commercial needs.

It became absolutely necessary that we take over the 40 per cent in order that we might coordinate the Fisher Company, integrate their operations more in line with our own.”³³

This statement does not indicate the presence of opportunism or high monopoly prices. In fact, the suggested remedy involves coordination of operations instead of pricing. Significantly, in that same deposition and again in testimony a year later Sloan states that “I never saw the contract,” referring to the 1919 manufacturing contract for the production of closed bodies.³⁴

B. GM’s 1919 Acquisition of Fisher Body Separated Ownership and Control

In October of 1919, GM acquired a 60 percent interest in the Fisher Body Corporation. At the same time, GM entered into the 10-year manufacturing contract with the Fisher Body mentioned previously. Also, GM agreed to an earnings-sharing contract with Fred and Charles Fisher that paid 10 percent of net earnings to them as managers.³⁵ As part of the acquisition, GM established a voting-trust arrangement that effectively separated ownership and control for Fisher Body. The corporate control arrangement was closer to a collaborative joint venture than to a hostile takeover and indicates close cooperation at the highest levels of the companies.

As a result of the acquisition, Fisher Body increased its capitalization by issuing 300,000 new shares of common stock of no par value that GM bought at \$92 per share.³⁶ GM paid approximately \$5,800,000 in cash and \$21,851,000 in five-year serial notes. In fact, if we include

GM's pro rata share of new Fisher stock issues, the total investment in Fisher Body was \$32,151,825.

A five-year voting trust was established to hold the new stock dated November 24, 1919 to terminate on October 1, 1924.³⁷ The voting trust had a five-year duration because the Fisher Body Corporation was organized under the laws of New York State, which then limited voting trusts to a period of 5 years.³⁸ The voting trust provided a device for owners of stock to control a corporation without tying up the money to hold the shares, since the stock is transferred to the trust and the trust issues certificates that others can hold as stock.³⁹ In this case, holders of preferred stock transferred their certificates to the voting trustees and received a voting trust certificate. Voting trusts acted as holding companies and served as a means of unifying and allocating control rights and separating control from property rights. Arthur S. Dewing defines a voting trust as an administrative device employed to maintain the executing or financial control of a corporation whereby "men owning little or none of the stock are able to control, absolutely, the policy of a corporation."⁴⁰

The trustees were William C. Durant and Pierre S. du Pont from General Motors and Fred J. Fisher and Louis Mendelssohn from Fisher Body, thus giving Fisher Body half of the control of the trust.⁴¹ In addition, Fisher Body's board of directors was restructured. Its final composition included fourteen members, half of them representing the interests of GM and the other half those of the Fisher family. Despite of the 50/50 nature of this corporate control arrangement, the Fishers continued to manage their company. Thus, under the agreement the two companies were equally represented in both the voting trust and the board of directors. These arrangements show clearly the distinction between ownership and control. Significantly, even though GM owned 60

percent of Fisher Body, they only exercised 50 percent control. Even after GM completed its purchase of Fisher Body in 1926, the Executive Committee of the GM Corporation itself was split 50/50 between men from GM (Sloan, Brown, and Pratt) and three of the Fishers (Fred, Lawrence, and Charles) because the additional two members (Du Pont and Raskob) were essentially inactive according to Chandler and Salsbury.⁴²

Recall that Hart's property rights theory of the firm suggests that firms exist to consolidate ownership of physical assets to secure residual control rights.⁴³ The separation of ownership and control in the voting trust, the structure of Fisher Body's board of directors in 1919 and the control arrangements at GM after 1926 suggest that acquiring property rights to exercise residual control rights did not motivate the merger, in contrast to Hart's interpretation of the motives for integration. After the initial 60 percent acquisition of Fisher Body by GM, the Fishers were owners of a minority interest in Fisher Body's assets but had substantial control rights as managers, directors and members of the voting trust.

C. GM's Merger Talks with Fisher Body Began at Least in 1922

Contrary to any assertion that the 1926 merger resulted from contractual difficulties in the years immediately preceding, it should be emphasized that such a merger was contemplated much earlier. Indeed, Fisher Body's interest in a complete merger had arisen at least by 1922. Pierre S. du Pont writing to Lamont du Pont on October 31, 1922 observes that "Recently the Messrs. Fisher have brought up the question of their future relations with General Motors and have expressed a desire to become more intimately associated with the proposition as a whole and with that end in view, have requested a study of relative values of General Motors and Fisher assets with a view to an exchange of Fisher Body common stock for General Motors Shares."

GM also was interested in a merger. Pierre S. du Pont stated that “a closer association with the Messrs. Fisher and closer cooperation between the two corporations would be of great benefit.”⁴⁴

In Autumn of 1922, Fred Fisher was elected a member of GM’s Executive Committee, which was the first step in a progressive involvement of the Fishers in GM’s top management.⁴⁵

In 1924, there were additional merger talks between Pierre S. du Pont and the Fishers.⁴⁶

The voting trust and the earnings contract expired on October 1, 1924 and a new earnings agreement was reached. A key provision of that contract was that the Fisher Brothers would be given ownership of shares in the Managers Security Company that were equivalent to those in similar executive positions at GM. Also, William Fisher would be the president of Fisher Body, Charles and Lawrence Fisher would also join GM’s executive committee with Charles spending time managing Fisher Body and Edward and Alfred would be operating executives at Fisher Body.⁴⁷ Fisher Body’s profit would be calculated in the same way as that of any other GM operating division instead of the earlier cost-plus formula.⁴⁸

Merger talks began again a year later. GM’s management was concerned that the remaining 40 percent interest in hands of the Fisher family, Louis Mendelssohn and Aaron Mendelson could eventually be transferred or sold to some third party.⁴⁹ Also, during the years of expansion and reorganization at GM, both Sloan and du Pont had realized the value of having the Fishers devote their managerial attention to GM itself. They persuaded Lawrence Fisher to become general manager at Cadillac in 1925.

Fisher Body’s interest in a merger was apparent. In explaining the proposed merger to its shareholders in 1926, Fisher Body noted that the ten-year manufacturing contract of 1919 “has but a relatively short term remaining... In 1929 a new contract must be negotiated, or General

Motors will be free either to build its own bodies or purchase them elsewhere.”⁵⁰ After a series of negotiations, GM completed its acquisition of Fisher Body on June 30, 1926. The transaction took place by exchange of securities at a ratio of 1.5 shares of GM per share of Fisher. The market value of the stock issued by GM for the transaction was \$136m while Fisher’s assets were listed at \$92.3m.

D. Fisher Body Plants Were Located Close to GM’s Plants

By 1923 a schedule for the construction of body assembly plants was implemented. Plant location issues were essentially settled by 1924 before the original voting trust expired.⁵¹ In 1923 and as a consequence of an increase in demand in 1922, Fisher Body added additional plants, increasing its body assembly capacity by 1,643,246 square feet. In the three years immediately following the acquisition Fisher’s capacity increased by only 263,831 square feet. Table 1 shows Fisher’s body assembly plant expansion during the period 1923-1929.

Many Fisher Body plants were located adjacent to GM plants before 1926, as is demonstrated by Table 1. For example, Fisher plants operated closely with adjacent Chevrolet plants in Flint, Buffalo, Norwood and Janesville, with Pontiac in Oakland, with Oldsmobile in Lansing.⁵² A GM report from 1924 states “Wherever, in the United States and Canada, there is an important passenger car plant of Buick, Cadillac, Chevrolet, Oakland, or Oldsmobile, there is, or will be close by, a plant of Fisher Body, adequate to meet the demand for closed bodies of high quality.”⁵³

TABLE 1 ABOUT HERE

E. Fisher's Productive Assets Were Not Relationship Specific

Fisher Body did not make significant relationship-specific investments in metal presses to manufacture the bodies for GM because automobile bodies were mostly made out of wood not metal. Fisher Body did not switch to the new metal production technology until the late 1930s, some two decades after the 1919 contract. Fisher's production technology in the 1910s, 1920s, and most of the 1930s, was labor intensive. Thus, problems resulting from asset specificity could not have been a motivating factor in the acquisition and merger.

Michael Lamm and Dave Hollis point out that "From 1905 through the mid-1930s, most car bodies were framed in wood and covered with sheetmetal skins. This type of construction was called 'composite.'"⁵⁴ Although some rudimentary dies and presses were used for stamping the metal sheets that covered the wooden frames, these had been employed by Fisher long before 1919.⁵⁵ It was only in the late 1930s that Fisher Body, then a division of GM, began using large expensive dies and presses for the production of car bodies.

In fact, Fisher Body was the last major body producer to switch to metal-based technology. Lamm and Hollis point out that "General Motors (Fisher) was the last major U.S. holdout to use composite body construction. The Fisher Brothers, of course, had grown up in the tradition of woodworking, which probably had a lot to do with their conservatism." They add that "General Motors kept building composite bodies until the 1937 model year." As White relates:⁵⁶

"By 1919, when GM purchased a majority of its stock, Fisher Body was the world's largest manufacturer of automobile bodies. The six Fisher brothers who then managed the corporation were specialists in closed-body construction and

staunch advocates of the wood-and-steel body. ... In 1925 Chevrolet rejected an offer by Budd to build all-steel bodies. Six years later Fisher bodies still had hardwood frames but also had steel or iron brace in place of wood at every joint; that type of construction continued in use for the next four years.”

The considerable reliance on wood in auto body construction is apparent. GM’s 1924 report gives a good indication of the amount of wood used by Fisher: “Timberlands are located in many States. There are three saw mills, one of which is believed to be the largest hardwood mill in the United States. Annual capacity: 100,000,000 feet of hardwood lumber.”⁵⁷ Based on annual production, the report observes that: “The lumber in the bodies would build 10,000 seven-room dwellings.” Even in 1933, Fisher Body owned 222,000 acres of timberlands in Michigan and the Southern states and 852,456 square feet of floor space in wood working plants.⁵⁸

The body production process was highly labor intensive. GM’s 1924 report further indicates that “[e]very piece of wood in a closed body is glued, screwed and bolted into place. There are used 750,000 pounds of dry glue, 720 million screws, 17 million bolts.” The investments Fisher undertook in 1919 (and in the 1920s) to supply General Motors were neither large nor highly specific. Lamm and Hollis describe the body manufacturing technology in the early years of automobile production:

“Unlike all-steel bodies, whose shapes were hard to revise because they required expensive dies and presswork, the styling of wood-framed bodies could be changed fairly easily by redesigning and reshaping the wooden frame members and then re-forming the sheetmetal over them. For mass production, wooden pieces could be gang-sawed and shaped either by hand or with simple milling

machinery. Jigs were made so that larger individual body parts, like roofs and door framing, could be built up as subassemblies. Complicated shapes, like rear wheelhouses, were sometimes made up from as many as 10 individual pieces of wood, which had to be glued and screwed together in special jigs. These subassemblies came together in ever-bigger jigs until they formed the framing for an entire automobile body.”⁵⁹

The flexibility of wood-based manufacturing shows an absence of asset specificity.

III. THE ROLE OF VERTICAL COORDINATION IN THE FISHER BODY ACQUISITION

In this section, we show that GM merged with Fisher Body in order to achieve better vertical coordination in terms of assurance of auto body supplies and access to the executive talents of the Fishers. First, the bodies produced by Fisher offered competitive advantages because they were noted for their distinct quality and style. GM’s 1919 Annual Report is clear: “Your Corporation was fortunate in assuring an enlarged supply of bodies through the acquisition of a majority interest in the Fisher Body Corporation, Detroit, Michigan, the largest builder of automobile bodies in the world.” The report further observes “The Fisher Body Corporation is expanding its Detroit facilities, thereby assuring your Corporation an adequate supply of bodies, particularly of the closed type, demand of which is increasing rapidly.”⁶⁰

Second, GM’s interest in acquiring this important supplier was far from an isolated event. The 1919 purchase was part of Durant’s overall acquisition drive at GM. Mergers with suppliers were intended to achieve assurance of supplies in a rapidly growing and highly competitive

market. This drive reflected the prevailing view of vertical integration in the strategic management and economics literatures at that time.⁶¹ Chandler's The Visible Hand documents the extensive vertical integration in American business between 1900 and 1917 and attributes internalization of the market processes connecting mass production with distribution to efficiencies of the "visible hand of administrative coordination."⁶² Earlier, Chandler observes that the strategy of expansion of industry was based on a desire to assure a more certain supply of stocks, raw materials, and other supplies.⁶³

Third, the Fisher Body acquisition enhanced day-to-day coordination between production of auto bodies and of automobiles. Enhanced coordination was an essential element of the reforms put in place by du Pont and Sloan in the period 1920 to 1924. With the 1926 merger, Fisher Body became a division of GM.

Fourth, the companies could better coordinate their personnel policies by creating an internal market for executives having the skills sought by Alfred P. Sloan. The Fisher Body acquisition gave GM access to the Fisher brothers as managers and directors. Sloan emphasizes the importance of incorporating the Fisher brothers into the operating organization of General Motors: "because we needed talent of the highest order."⁶⁴

A. Auto Bodies by Fisher Offered Competitive Advantages

GM's acquisition of Fisher Body was motivated by the need to assure a supply of Fisher's auto bodies, which were a crucial competitive advantage for GM. As Sloan observes: "the Fisher bodies were recognized throughout the trade as having that something added to them that was very distinguished and gave an appearance that other competitive bodies did not have."⁶⁵ Not only did the Fisher bodies have a reputation for quality and craftsmanship, but from the very first

days, the Fisher brothers paid particular attention to the development and manufacture of closed-car bodies. This was risky because almost all automobiles were of the open type in the early 1900s. Their choice was well timed because by 1927 approximately 85 percent of all automobiles were of the closed type. The Fisher closed body represented comfort and luxury and was instrumental in GM's competition with Ford. Sloan calls the closed body the "last decisive element" in the competition with Ford.⁶⁶

As early as 1910, Cadillac, which had been acquired by General Motors on July 1, 1909, placed an order with Fisher for 150 closed bodies. This was the largest order of closed bodies ever made. In December 1910, the Fishers decided to organize the Fisher Closed Body Company to deal with similar orders. The Fishers proved to be skilled managers and experts in closed body production technology. The Fisher enterprises grew fast: capacity in 1910 was 10 open bodies a day, in 1914 annual output was 105,000 closed and open bodies and by 1916 yearly productive capacity was 370,000 bodies.⁶⁷ The number of Fisher plants grew from 4 in 1911 to 16 in 1918 and to 44 in 1924.⁶⁸ Consolidated profits were \$369,321 in 1913-14, \$576,495 in 1914-15, and \$1,390,592 in 1915-16.

The period 1916-1919 was particularly successful for the Fishers and their name became firmly established in the public mind with a reputation for quality. On August 22, 1916, two months before GM incorporated, the Fishers merged the Fisher Body Company, the Fisher Closed Body Company, and the Fisher Body Company of Canada (created in 1912) into the Fisher Body Corporation establishing the largest body manufacturing company. Fisher Body's customers included Abbott, Buick, Cadillac, Chalmers, Chandler, Chevrolet, Church-Field, Elmore, EMF, Ford, Herreshof, Hudson, Krit, Maxwell, Oakland, Oldsmobile, Packard, Regal

and Studebaker.⁶⁹

The crucial importance of the closed auto body is illustrated by Table 2 which shows a dramatic shift in the industry from open to closed body production. The demand for Fisher's auto bodies increased rapidly as shown by Table 3 and greater growth was projected. Moreover, the proportion of Fisher bodies that were closed increased substantially from under a quarter to well over half. The competitive value of closed bodies was reflected in Fisher's market share. In 1919, the Fisher Body Corporation held a 50 percent share of the U.S. market for closed bodies. By 1926, Fisher's share of the closed-body market rose to 60 percent. By 1925, Fisher Body was producing 40 types of closed bodies for Cadillac, Buick, Oakland, Oldsmobile and Chevrolet.⁷⁰

TABLE 2 ABOUT HERE

TABLE 3 ABOUT HERE

During the period 1920-21 Fisher Body supplied bodies for Cadillac and Buick and continued serving other non-GM automobile manufacturers such as Chandler and Cleveland. In 1922 demand for closed bodies increased dramatically and all automobile manufacturers faced capacity constraints, for example, Ford Motor Company fell behind by 100,000 orders in late 1922. Fisher Body met GM's growing needs that year from a large new plant in Detroit and a newly acquired plant in Pontiac.⁷¹

B. Vertical and Horizontal Expansion at GM

GM's purchase and merger with Fisher Body was consistent with GM's pattern of growth and development. The General Motors Company, founded in September 16, 1908, by the Director and General Manager of the Buick Motor Car Company, William Crapo Durant, grew primarily by vertical and horizontal acquisition. GM obtained a complete or controlling interest in more than 20 automobile and parts-producing firms and was marketing 10 different brands of motor vehicles by 1910.⁷² The company offered a large collection of diverse models as a means of pooling risk from fluctuating demand for specific makes.⁷³ GM was incorporated in Delaware in October 13, 1916.⁷⁴ In the summer of 1917, Durant transformed GM to an operating company by turning all the subsidiaries into divisions. Durant began a new expansion program that included a capacity expansion plan and an increase in capitalization from \$60m to \$100m.⁷⁵ In May 2, 1918, GM bought the Chevrolet Motor Company and its subsidiaries.⁷⁶

From its inception, GM followed a policy of increased self-manufacturing of components and parts.⁷⁷ Vertical integration was a driving force for Durant who was committed to assuring the availability of auto parts.⁷⁸ For example, Durant formed the United Motors Corporation as a means of acquiring parts suppliers in May 1916 and merged the company into GM in the Spring of 1918. Durant's policies continued under du Pont and Sloan. Pierre S. du Pont backed the unification of Durant's holdings under a single corporate umbrella and holding company, which was essentially complete by 1918 before the initial acquisition of Fisher Body took place.⁷⁹ du Pont also established an executive committee consisting of the heads of all major divisions that had full authority and responsibility on all operating policies and a Finance committee composed of Henry F. and Irénée du Pont, J.A. Haskell (a director and executive at Du Pont), W. C. Durant,

and J. J. Raskob.⁸⁰

The Fisher Body acquisition was part of an overall program of increased investments in 1919.⁸¹ Coinciding with the post-war boom, GM's output in that year increased by almost 60 percent while profits quadrupled to \$60m over the previous year. GM spent \$20m to expand existing car-producing plants, began work on a \$20m office building in Detroit, committed \$20m for a housing project for employees, created the General Motors Acceptance Corporation to aid in financing distributors, dealers, and retail purchasers.⁸² GM also acquired additional or new interests in 9 parts-making firms and 3 other enterprises.⁸³

Developments at GM following the initial acquisition of Fisher Body set the stage for the merger in 1926. The post-war recession created problems at GM that emphasized the need for internal coordination and led to Durant's resignation as President on Nov. 30, 1920.⁸⁴ Pierre S. du Pont succeeded Durant and served until May 10, 1923 when Sloan became President. du Pont remained as chairman and working with Sloan imposed professional management based on market forecasts and financial analysis, which was critical to improving internal coordination.⁸⁵ In two and a half years, du Pont liquidated the least profitable groups and restructured the relationships among divisions while preserving decentralized administration.

GM's 1920 Annual Report identifies the development and integration into the GM organization of the Central Axle Division, Central Forge Division, Central Gear Division, Central Products Division, Michigan Crank Shaft Division, Muncie Products Division, Northway Motor and Manufacturing Division, Jaxon Steel Products Division, and Lancaster Steel Products Corporation. The report adds that GM has become the "producer of the greater part of its requirements of accessories" through its ownership of the Harrison Radiator Corporation, Dayton

Engineering Laboratories Company, Hyatt Roller Bearings Division, Klaxon Company, New Departure Manufacturing Company, Remy Electric Division, and Champion Ignition Company. By 1920, GM “had extended its scope so that not only all the engines used in its cars, but a large proportion of such units as gears, axles, crankshafts, radiators, electrical equipment, roller bearings, warning signals, spark plugs, bodies, plate glass, and body hardware, were produced either by a General Motors unit or by a subsidiary”.⁸⁶ GM’s 1921 Annual Report states that the company “has become firmly entrenched in lines that relate directly to the construction of the car, truck or tractor”.⁸⁷

TABLE 4 ABOUT HERE

GM’s vertical integration was focused on automobile components rather than on primary inputs.⁸⁸ The preference for vertical integration in the automobile industry at that time is illustrated by Ford’s slogan “From Mine to Finished Car, One Organization,” indicating Ford’s production of primary inputs. Seltzer points out that “[a]n increasing measure of industrial integration has accompanied the concentration of [automobile] production in the recent years”⁸⁹ with GM and other automobile producers manufacturing an increasing proportion of their products. For the automobile industry, the value of purchased components declined steadily as a percentage of the value of finished vehicles during the period 1922 to 1926, see Table 4.

C. Coordination and Transaction Costs

Related to the need for assurance of supplies, the GM acquisition of Fisher in 1926 was motivated by the desire to achieve least-cost coordination between production of auto bodies and

assembly, as noted by Sloan in his 1952 deposition, Chandler and Salsbury, and Marx and Peterson.⁹⁰ The key step in the coordination process was the conversion of Fisher Body Corporation into a division of GM at the time of the merger in 1926. By making Fisher Body a division, Sloan could integrate auto body production into the newly-created system of inventory and production management and interdivisional coordination.

In GM's 1921 reorganization, du Pont and Sloan created a unified central office for the corporation. They created an Accessories Group for units that sold more than 60 percent of their output outside the company and a Parts Group for units that sold 60 percent of their output within the company.⁹¹ In 1922, Sloan established a General Purchasing Committee to coordinate purchasing across the divisions and to gain experience in such coordination.

In the mid-1920s Sloan instituted organizational reforms aimed at better coordination between GM's operating divisions. Information obtained from dealers improved dramatically allowing better sales predictions, more efficient production scheduling and better purchasing coordination.⁹² GM implemented an advanced management accounting system after 1921.⁹³ Seth Norton examines the effects of these changes on GM's performance and finds that GM's rate of return increased from 8.1 percent for the period 1918-25 to 13.5 percent for the period 1926-1940, while GM's inventory to sales ratio declined significantly. Norton finds improved synchronization in GM's divisional sales and dealer sales in the period 1926-29 as compared to 1922-25.⁹⁴

Improved demand information and production scheduling were used to enhance coordination of production with output of auto bodies through GM's interdivisional committees. Sloan explains the Fisher Body acquisition in terms of "operating economies to be gained by co-

ordinating body and chassis assembly.”⁹⁵ Emphasizing coordination by committee, Sloan implemented long-range inventory and production controls to reduce carrying costs and better meet demand.

A critical aspect of coordination in auto assembly is guaranteeing that all components and parts are produced according to the correct technical specifications and that they are delivered precisely when needed.⁹⁶ Part designs must change frequently in conformity with the introduction of new products. Part deliveries must adjust to production schedules and demand fluctuations to avoid shortages or costly excess inventories. Divestitures and sourcing decisions by major automakers suggest that conditions in the automobile industry at the beginning of the 21st century favor divestiture of parts manufacturing and reliance on market contracts. However, understanding the Fisher Body acquisition requires examining the relative costs of arms-length transactions versus those of internal coordination that were present in the 1910s and early 1920s.

Authority relationships within the firm tend to facilitate such coordination according to Herbert Simon.⁹⁷ Authority relationships can respond to contingencies at less cost than through external contracting by facilitating informal communication and flexibility. This difference may have been increased by a number of factors existing during that period that favored communication within the firm in comparison with market transactions. The state of the telecommunications technology made distant transmission of information across independent organizations very costly in comparison with reliance on internal managers.⁹⁸ Billing and invoicing were done manually and hence were expensive labor-intensive operations. As a result, more data transmission and record keeping were necessary for interfirm transactions than for internal communication. Because air travel was still at the experimental stage and the Interstate

Highway System had not yet been built, physical movement of personnel and merchandise were very costly suggesting reliance on delegated authority rather than arms-length transactions. In 1923, GM initiated the practice of frequent model changes.⁹⁹ New designs and modifications to existing models required further exchange of information with parts manufacturers.

Complete integration of the two companies after 1926 allowed for operating economies and more comprehensive sharing of common resources, especially managerial talent and financial assets, since GM's divisions shared financial, marketing, and administrative resources. Eva Flügge mentions that the organizational reforms instituted by Sloan called for greater integration as the cost of adding one extra enterprise to the system was small (supposedly, because autonomous management was preserved) compared to the savings derived from using central organization to coordinate activities since duplication in administrative departments was reduced.¹⁰⁰ After the 60 percent acquisition in 1919, GM and Fisher Body shared financial, marketing and administrative resources. The 1926 GM Annual Report anticipates that “[o]perating economies of important consequence will be developed through the ability to do those things which result in the lowest possible cost, many of which were impossible with the institutions operated separately.”

D. Personnel Coordination

GM was intent on having access to the executive talents of the Fisher brothers. Their experience in auto body manufacturing and their reputation for body styling were important features for GM. Sloan identifies the value of the Fishers as a motivating factor in the acquisition: “...the four Fisher brothers, who developed the Fisher body, were men of high level and competence in the manufacture and in engineering of that type. They were particularly

outstanding in the fact that they had the highest regard for quality.”¹⁰¹

In the 1910s and 1920s, a number of factors favored the development of internal labor markets over external labor markets for managers. The high time costs of travel and underdeveloped communications already mentioned raised labor search costs. Specialized business education was relatively new (the Harvard Business School was founded in 1908). According to Frank H. Knight: “to find men capable of managing business efficiently and secure to them the positions of responsible control is perhaps the most important single problem of economic organization on the efficiency side.”¹⁰²

The problem of identifying talented managers was especially acute for GM. In 1923, Sloan implemented a number of important organizational reforms. GM introduced the multidivisional organizational form, with semi-autonomous product-based divisions coordinated from a central office (the Executive and Finance Committees). GM faced a shortage of individuals able to manage within this new organizational form. By 1923, the Fisher brothers had a great deal of valuable experience in the industry: Fred and Charles (15 years), Lawrence (11 years), Edward and Alfred (10 years), and William (8 years). They had distinguished themselves as outstanding managers knowledgeable in automobile markets and auto manufacturing technology. Also, they had worked closely with GM practically since its inception in 1908 and were familiar with GM’s organization.

In October of 1924, Lawrence and Charles Fisher entered the GM Executive Committee and Fred (who had been in the Executive Committee since 1922) was appointed to the Finance Committee. Together with Sloan and du Pont, Fred Fisher was one of only three men in both the Executive and the Finance committees and together with Sloan and Brown, he was one of only

three men in both the Executive and the Operations committees.¹⁰³ In 1925 Lawrence was named general manager at Cadillac.¹⁰⁴

Integration was the natural way to convince the Fishers to dedicate all of their time to GM. The brothers had been thoroughly devoted to the company they had founded 18 years before and it would have been difficult to convince them to abandon its management in favor of GM without combining the two companies. The 1926 annual report mentions the importance of bringing the Fishers into closer relationship with GM:

“Many benefits will accrue through the consolidation of the two properties. [...]

Of even greater importance, is the bringing into the General Motors operating organization in closer relationship, the Fisher brothers, through whose constructive ability, foresight and energy the institution bearing their name has been built up to the dominating position it now holds.”

Following the 1926 merger, the Fishers were placed in various key managerial posts. Charles and Lawrence were appointed to the Works Managers and the Sales Committees, respectively. Fred entered the Finance and the Operations Committees and continued in the Executive Committee. Together with Sloan, Fred Fisher was one of only two men belonging simultaneously to the three committees. William headed the Body Group that included the Fisher Plants plus accessory divisions. Finally, Alfred represented the Body Group on the General Technical Committee and eventually rose to vice-president in charge of engineering.¹⁰⁵

IV. EVALUATION OF THE MARKET POWER MOTIVE

In United States v. E.I. Du Pont, the government questioned the purchase by Du Pont of a 23 percent stock interest in GM in the period 1917-1919 based on Section 7 of the Clayton Act.¹⁰⁶

The government alleged among other things that GM's purchase of Fisher Body was intended to favor Du Pont and to foreclose other suppliers of Fisher Body.

The case was the first application of Section 7 to vertical integration. In a 1957 Supreme Court decision on appeal (353 U.S. 586), Justice Brennan found that Fisher Body was acquired by GM because it resisted sales pressure from du Pont to purchase products such as paints and fabrics. This conclusion appears to contradict the evidence in the case. Incredibly, Brennan maintains that the Fisher brothers continued to face such pressures and to hold out against it until 1947 or 1948, even after their company had been acquired and integrated into GM. Justice Burton, joined by Justice Frankfurter dissenting, points out that "the record affirmatively shows that the new products which du Pont has sold to General Motors since 1926 have made their way, at General Motors as elsewhere, on their merits."

A review of the case suggests that the Supreme Court decision has little basis in fact and no foundation in economic analysis.¹⁰⁷ The accusation that GM vertically integrated with Fisher Body to foreclose suppliers other than du Pont is not justified either by the events of the period or by any economic motivation. Such an accusation forced Du Pont, GM and Alfred P. Sloan to justify GM's acquisition of Fisher Body. As a consequence, it is not surprising that contractual difficulties might be mentioned among other explanations for a merger that took place over 30 years before.

Since the 1926 merger was vertical, it did not increase GM's market share in automobiles and thus could not be interpreted as an attempt to increase market power. In addition, double marginalization was not an issue in 1919 since the companies continued to transact on the basis of a cost-plus contract after the acquisition. Double marginalization did not trigger the 1926 buy out either since from 1924 on the 17.6 percent mark-up over cost was eliminated and Fisher Body's profit was calculated by the same method used to compute that of any other GM operating division. The Fishers may have been concerned temporarily about the high prices charged by automobile manufacturers for closed cars since they thought it reduced the quantity demanded thus lowering potential gains from scale economies. They considered entering automobile production but eventually chose not to as competition for closed type cars intensified and prices fell.¹⁰⁸

V. CONCLUSION

Economic considerations and historical evidence suggest that enhancing coordination, rather than avoiding opportunism, stands out as the main reason for GM's merger with Fisher Body. Our analysis shows that asset specificity and contractual hold up do not adequately explain GM's vertical integration into automobile bodies. GM's purchase of a 60 percent controlling interest in Fisher Body in 1919 and vertical integration in 1926 were primarily motivated by the need to assure reliable supplies of their auto bodies, which conferred unique competitive advantages. The acquisition and merger were consistent with GM's vertical integration into many types of automobile components manufacturing. By making Fisher a division of GM in 1926, GM included the company in its system of interdivisional coordination of inventories, production and

purchasing.

Expansion of the automobile industry and increased intensity of competition created a need for enhanced vertical coordination. As automobile buyers were becoming more sophisticated, GM began offering a larger number of models, as illustrated by its slogan “One car for every purse and purpose,” which required extensive exchange of information between the assembling plants and Fisher Body. The greater complexity of automobile production technology that accompanied the higher scale of operations increased the need for information transfer between the two companies. Interruptions in the regular flow of automobile bodies would have halted the entire automobile assembly line and the delivery of cars to dealers. GM’s preference for vertical integration into components relative to market exchange reflected the costs of carrying out market transactions and internal communication that existed in the early part of the twentieth century. Vertical integration permitted GM to realize cost economies from coordinating production decisions and sharing resources.

The implementation of the new organizational reforms introduced by Sloan required managers capable of coordinating operations, decentralized decision making and effective usage of common resources. Because there was a limited outside market for executives with these skills and since the Fishers had worked closely GM, they were perhaps the best-qualified candidates for the posts Sloan had to fill. Additionally, the Fishers brought crucial operational and manufacturing experience. By integrating Fisher Body into GM, Sloan was able to attract the Fisher brothers as managers and corporate directors.

GM’s contractual relationship with Fisher prior to the final merger exhibited trust and cooperation rather than opportunism. Aoki sees some types of purchasing contracts as facilitating

cooperation with suppliers along J-Firm lines.¹⁰⁹ The possibility that contracts enhance cooperation has important contemporary implications because GM is engaged in changing the vertically integrated structure that it originally established. GM's merger with Fisher reflected economic conditions in the early part of the century rather than immutable contractual hold-up and market failure. Given technological change in communications, data processing, and manufacturing, developments in the market for managers and skilled labor, and advances in the field of management strategy, the original motivations for GM's organization structure no longer apply. Jack Smith, GM's Chairman told The Economist of October 10, 1998, "As the world opened up to free trade, Sloan's system was not competitive." Indeed, in 1999 GM spun off parts manufacturing unit Delphi Automotive Systems Corp. to create the world's largest auto parts supplier with over 200,000 employees. Advising companies to consolidate asset ownership to avoid contractual opportunism on the basis of the Fable of Fisher Body would not be well founded.

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TABLE 1

FISHER BODY ASSEMBLY PLANTS		
YEAR	PLANT	FLOOR
1923	Flint No. 2	266,443
	Lansing	622,234
	Buffalo	150,692
	Norwood	182,167
	Janesville	257,790
	Oakland	163,920
1925	Tarrytown	376,924
1928	Atlanta	130,258
1929	Kansas City	133,573

Source: Arthur Pound, The Turning Wheel; The Story of General Motors through Twenty-Five Years. 1908-1933 289 (1934).

TABLE 2
 CLOSED BODIES AS A PERCENTAGE
 OF TOTAL VEHICLES

YEAR	PERCENT
1919	10
1920	17
1921	22
1922	30
1923	34
1924	43
1925	56
1926	74
1927	85

Source: Kimes, Beverly Rae, and Clark Jr., Henry Austin. Standard Catalogue of American Cars, 1805-1942, 3rd edition, Iola, WI: Krause Publications, 10 (1996), see also Epstein, Ralph C. The Automobile Industry: Its Economic and Commercial Development. Chicago and New York: A.W. Shaw Co., (1928).

TABLE 3

FISHER BODY'S OUTPUT OF BODIES IN THE

FISCAL YEARS ENDED APRIL 30

YEAR	OPEN	CLOSED	TOTAL	PERCENT CLOSED
1919	103,449	31,318	134,767	23.24
1920	245,114	83,864	328,978	25.49
1921	112,401	87,796	200,197	43.84
1922	58,435	99,789	158,224	63.07
1923	202,867	217,632	420,499	51.76
1924	239,502	335,477	574,979	58.35

Source: General Motors Corporation, Fisher Body: Its Contribution to the Automotive Industry

(1924).

TABLE 4

VALUE OF PURCHASED COMPONENTS			
YEAR	VALUE FINISHED	VALUE PURCHASED	PERCENT
	VEHICLES	COMPONENTS	
1922	1,787,122,708	982,952,384	55
1923	2,582,398,876	1,270,000,000	49
1924	2,328,249,632	900,321,000	39
1925	2,957,368,637	1,128,648,000	38
1926	3,163,756,676	823,394,000	26

Source: Lawrence H. Seltzer, A Financial History of the American Automobile Industry; a Study of the Ways in which the Leading American Producers of Automobiles Have Met Their Capital Requirements 57 (1928).

ENDNOTES

- *. We are grateful to Thomas G. Marx, General Director of Issues Management at the General Motors Corporation, for his very valuable assistance. We also thank the Kettering/GMI Alumni Foundation Collection of Industrial History and the Hagley Museum and Library. We thank Marcus Alexis, Nabil Al-Najjar, Shane Greenstein and Brian Uzzi for very helpful comments. We are grateful to Dennis W. Carlton and an anonymous referee for helpful suggestions that greatly improved the presentation. The opinions expressed are the responsibility of the authors.
1. The Fisher Body account is yet another example of an alleged fundamental market failure that contradicts the historical record. We are indebted to earlier economic and historical analyses of other market-failure stories: Steven N. Cheung, *The Fable of the Bees: An Economic Investigation*, 16 *J. Law & Econ.* 11 (1973), Ronald H. Coase, *The Lighthouse in Economics*, 17 *J. Law & Econ.* 357 (1974), and Stan J. Liebowitz & Stephen E. Margolis, *The Fable of the Keys*, 33 *J. Law & Econ.* 1 (1990).
 2. Benjamin Klein, Robert G. Crawford, and Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 *J. Law & Econ.* 297 (1978).
 3. Oliver E. Williamson, *The Economic Institutions of Capitalism* (1985).
 4. Oliver Hart, *Firms, Contracts, and Financial Structure* (1995).
 5. Klein *et al.*, *supra* note 2.
 6. Alfred D. Chandler, *Strategy and Structure* (1962) and *The Invisible Hand* (1977). Kenneth J. Arrow, *Vertical Integration and Communication*, 6 *Bell J. of Econ.* 173 (1975). Dennis W. Carlton, *Vertical Integration in Competitive Markets Under*

Uncertainty, 27 J. Ind. Econ. 189 (1979).

7. The Fisher Body Company was founded by the eldest two of the seven Fisher brothers, Fred and Charles, (along with an uncle) for \$50,000 on July 22, 1908 in Detroit, two months before the General Motors Company was founded. The seven brothers were Fred J. (1878-1941), Charles T. (1880-1963), William A. (1886-1969), Lawrence P. (1888-1961), Edward F. (1891-1972), Alfred J. (1892-1963), and Howard F. (born in 1902). There were also four Fisher sisters: Anna, Mayme, Loretta, and Clara. Four of the other brothers (William, Lawrence, Edward, and Alfred) joined the company and assumed operating positions. In 1912, Lawrence joined as superintendent of paint and trim; in 1913, Edward and Alfred joined after having completed drafting and design studies in New York; William joined in 1915. The youngest, Howard, managed the family real state holdings. Louis Mendelssohn and Aaron Mendelson provided early financial backing and assumed the positions of treasurer and secretary, respectively. Roger B. White, Body by Fisher. The Closed Car Revolution, 29 Autom. Quar. 46 (1991).
8. Ronald H. Coase, The Nature of the Firm: Origin, Meaning, Influence, 4 J. Law, Econ. & Org. 3 (1988).
9. In that same occasion, Coase also visited an A.O. Smith plant, one of GM's main suppliers and the largest producer of automobile frames in the world. Coase relates how impressed he was with the level of automation and the degree of specificity of the assets involved in the production of automobile frames. Nevertheless, A.O. Smith had an amicable relationship with GM and forty five years later, GM was still one of A.O. Smith's main customers. Coase reasoned that the willingness to build a reputation for

trustworthiness to promote future business invalidated the asset specificity/opportunism thesis.

10. Coase, supra note 8, at 43.
11. Alfred D. Chandler & Stephen Salsbury, *Pierre S. du Pont and the Making of the Modern Corporation* (1971). Thomas G. Marx & Laura B. Peterson, *Asset Specificity, Opportunism and the Vertical Integration of Body and Frame Production in the Automobile Industry* (unpublished manuscript, General Motors Corporation and Suffolk University Law School, 1993). Susan Helper, John Paul MacDuffie, and Charles Sabel, *The Boundaries of the Firm as a Design Problem* (unpublished manuscript, Columbia Law School, November 1997).
12. Patrick Bolton & David Scharfstein, *Corporate Finance, the Theory of the Firm, and Organizations*, 12 *J. Econ. Persp.* 95 (1998).
13. Bengt Holmström & John Roberts, *The Boundaries of the Firm Revisited*, 12 *J. Econ. Persp.* 73 (1998).
14. Klein et al., supra note 2. Williamson, supra note 3. Hart, supra note 4.
15. Williamson, supra note 3, at 114.
16. Hart, supra note 4, at 7.
17. See for example Kirk Monteverde & David J. Teece, *Appropriable Quasirents and Quasi-vertical Integration*, 25 *J. Law & Econ.* 321 (1982), Paul A. Groot, *Investment and Wages in the Absence of Binding Contracts: A Nash Bargaining Approach*, 52 *Econometrica* 449 (1984), Sanford J. Grossman & Oliver Hart, *The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration*, 94 *J. Pol. Econ.* 691 (1986), Matias Dewatripont, *Commitment Through Renegotiation-Proof Contracts with Third Parties*, 88

- Rev. Econ. Studies 377 (1988), Oliver Hart and John Moore, Property Rights and the Nature of the Firm, 98 J. Pol. Econ. 1119 (1990), Tai-Yeong Chung, Incomplete Contracts, Specific Investments, and Risk Sharing, 58 Rev. Econ. Studies 1031 (1991), William P. Rogerson, Contractual Solutions to the Hold-Up Problem, 59 Rev. Econ. Studies 777 (1992), Philippe Aghion, Matias Dewatripont, and Patrick Rey, Renegotiation Design with Unverifiable Information, 62 Econometrica 257 (1994), Georg Nöldeke & Klaus M. Schmidt, Option Contracts and Renegotiation: A Solution to the Hold-Up Problem, 26 Rand J. Econ. 163 (1995), Aaron Edlin & Stephen Reichelstein, Holdups, Standard Breach Remedies, and Optimal Investment, 86 Am. Econ. Rev. 478 (1996), and Peter J. Buckley & Malcolm Chapman, The Perception and Measurement of Transaction Costs, 21 Cambridge J. Econ. 127 (1997), Yeon-Koo Che & David Hausch, Cooperative Investments and the Value of Contracting, 89 Am. Econ. Rev. 125 (1999).
18. Benjamin Klein, Vertical Integration as Organizational Ownership: The Fisher Body-General Motors Relationship Revisited, 4 J. Law, Econ. & Org. 199 (1988). Richard N. Langlois and Paul L. Robertson, Explaining Vertical Integration: Lessons from the American Automobile Industry, 49 J. Econ. Hist. 361 (1989).
19. Jean Tirole, The Theory of Industrial Organization 33 (1988), Paul Milgrom & John Roberts, Economics, Organization, and Management 137 (1992), Sharon Oster, Modern Competitive Analysis 209 (1994), Oliver Hart, Firms, Contracts, and Financial Structure 7 (1995), David Besanko, David Dranove, and Mark Shanley, Economics of Strategy 146 (1996), Bernard Salanié, The Economics of Contracts 181 (1997), James A. Brickley, Clifford W. Smith, and Jerold L. Zimmerman, Managerial Economics and Organizational Architecture 56 (1997), Jeffrey Church & Roger Ware, Industrial

Organization: A Strategic Approach 94 (1999). Salanié, for example, explains things as follows:

“In the 1920s Fisher Bodies [sic] was producing car doors for General Motors; it therefore invested in some rather specialized machine tools and organized its production so as to respond best to the needs of General Motors. Clearly Fisher Bodies [sic] would have lost a considerable part of the value of its investments if it had left General Motors for another car maker. Therefore a contract signed in 1919 gave Fisher Bodies [sic] a ten-year exclusive dealing clause to protect it from being held up by General Motors. On the other hand, this gave Fisher Bodies [sic] the possibility of raising prices outrageously; to prevent this, the contract also contained a cost-plus clause. It turned out, however, that Fisher Bodies [sic] manipulated the price-protection clause by choosing a very low capital intensity and locating its plants far from those of General Motors. General Motors thus was effectively held up by Fisher Bodies [sic] and eventually bought it in 1926.”

20. Klein et al., supra note 2, at 298 and 302.
21. Williamson, supra note 3 and Oliver E. Williamson, Transaction Cost Economics: The Governance of Contractual Relations, 22 J. Law & Econ. 3 (1979).
22. Williamson, supra note 3, at 114, summarizes the relationship between Fisher Body and GM in four points:

“1. In 1919 General Motors entered a ten-year contractual agreement with Fisher Body whereby General Motors agreed to purchase substantially all its closed bodies from Fisher. 2. The price of delivery was set on a cost-plus basis and included provisions that General Motors would not be charged more than rival

automobile manufacturers. Price disputes were to be settled by compulsory arbitration. 3. The demand for General Motors' production of closed body cars increased substantially above that which had been forecast. As a consequence General Motors became dissatisfied with the terms under which prices were to be adjusted. It furthermore urged Fisher to locate its body plants adjacent to GM assembly plants, thereby to realize transportation and inventory economies. Fisher Body resisted. 4. General Motors began acquiring Fisher stock in 1924 and completed a merger agreement in 1926."

23. Hart, supra note 4.

24. Id., at 29.

25. Id., at 7.

26. The ten-year duration of the manufacturing contract is confirmed by a May 17, 1926 letter to the stockholders of the Fisher Body Corporation from Louis Mendelssohn and William A. Fisher, Government Trial Exhibit 506. GM and Fisher Body had previously entered into a prior ten year manufacturing contract on November 9, 1917 to purchase bodies at cost plus 17.6 percent according to Lawrence H. Seltzer, *A Financial History of the American Automobile Industry; a Study of the Ways in which the Leading American Producers of Automobiles Have Met their Capital Requirements* 191 (1928) and Roger B. White, *Fisher Body Corporation*, in *Encyclopedia of American Business History and Biography: The Automobile Industry. 1896-1920* 187 (1990). See also Chandler & Salsbury, supra note 11, at 465. The contract was renegotiated with the same cost-plus 17.6 percent formula in 1919 according to Seltzer, id., at 218, Chandler & Salsbury, id., at 465, and White, id., at 189. For other references to the presence of a ten-year

manufacturing contract see also Poors Manual of Industrials 1488 (1921), Arthur Pound, The Turning Wheel; The Story of General Motors through Twenty-Five Years. 1908-1933 291 (1934), Alfred P. Sloan, My years with General Motors 15 (1963), and Al Fleming, Body by Fisher, Automotive News, GM 75th Anniversary Issue, 143 (1983). Chandler & Salsbury, *id.*, at 465, and White, *id.*, at 189, state that the contract was to be carried out for only five years until October 1924, coinciding approximately with the conclusion of the voting trust and other contractual arrangements for compensating the Fisher Brothers.

27. This interaction resembles the stylized cooperative relationship between a parent company and subcontractors described by Masahiko Aoki, Horizontal vs. Vertical Information Structure of the Firm, 76 Am. Econ. Rev. 971 (1986) and Masahiko Aoki, Toward an Economic Model of the Japanese Firm, 28 J. Econ. Lit. 1 (1990).
28. Pound, *supra* note 26, at 291.
29. Klein *et al.*, *supra* note 2, at 310.
30. United States v. E.I. Du Pont de Nemours & Co., General Motors *et al.*, 366 U.S. 316 (1961), vol. 1, Defendants trial exhibits numbers GM-32, GM-33, GM-34.
31. J. J. Raskob was a director and the treasurer of the Du Pont Company. Chandler, *supra* note 6, at 125.
32. Chandler & Salsbury, *supra* note 11.
33. 366 US 316 (1961), Deposition of Alfred P. Sloan, Jr. in United States v. E. I. Du Pont de Nemours & Co., General Motors *et al.*, April 28, 1952, Civil Action No. 49-C-1071, at 188.
34. *Id.*, at 187 and testimony of Alfred P. Sloan, Jr. in United States v. E. I. Du Pont de

- Nemours & Co., General Motors et al., March 17, 1953, at 2908.
35. This arrangement is mentioned in a letter from J.J. Raskob to William C. Durant contained in the Kettering/GMI Alumni Foundation Collection of Industrial History. The four younger brothers already had a contract for 5 percent of net earnings. A letter from Pierre S. du Pont to Harry McGowen on October 21, 1924 notes the expiration of the contract on October 1, 1924 referring to the payments received by the Fisher brothers. See defendants trial exhibit number GM-32, supra note 30.
 36. Chandler & Salsbury, supra note 11, at 465. Seltzer, supra note 26, at 191. Marx & Peterson, supra note 11, at 8.
 37. The voting trust agreement covering stock of Fisher Body Corporation was between that company and Fred J. Fisher, Louis Mendelssohn, William .C. Durant and Pierre S. du Pont, see Government Trial Exhibit No. 429. See also Poors Manual of Industrials 1921 at 1489.
 38. Harry A. Cushing, Voting Trusts 22 (1927).
 39. Harry A. Cushing, Voting Trusts (1915) and Arthur Stone Dewing, The Financial Policy of Corporations, Vol. III, The Administration of Income (1921).
 40. Dewing, id.
 41. Pierre S. du Pont's contact with GM began on February, 1914 after he invested \$140,000 in common stock. By the end of next the year, half the value of du Pont's investment portfolio (outside chemicals) was in GM. In November 16, 1915 du Pont was named Chairman of the Board of Directors of GM. He acted as a counselor to William C. Durant (President of GM from June 1, 1916 to November 30, 1920) and provided a sizable amount of funds to finance the 1918-1919 expansion program, which included the

- purchase of Fisher Body. On November 30, 1920, du Pont succeeded Durant in office and held the appointment until May 10, 1923 and continued as Chairman of the Board until February 7, 1929. Pound, supra note 26, and Chandler & Salsbury, supra note 11.
42. Chandler & Salsbury, supra note 11, at 465.
 43. Bolton & Scharfstein, supra note 12, point out shortcomings in Hart's theory arising from his not considering the separation of securities ownership and management control at GM itself although they do not consider the issues addressed here.
 44. Government Trial Exhibit No 435.
 45. Sloan, supra note 26, at 161, and Chandler & Salsbury, supra note 11, at 526.
 46. According to Chandler & Salsbury, supra note 11, at 575, Fred Fisher agreed that more involvement in GM would be positive, but did not accept complete integration because Fisher Body was a very profitable company and the Fishers did not want to see their family business completely absorbed by GM.
 47. GM-32, supra note 30.
 48. Chandler & Salsbury, supra note 11, at 576.
 49. Id.
 50. Letter to the stockholders of the Fisher Body Corporation, supra note 26.
 51. Marx & Peterson, supra note 11.
 52. Pound, supra note 26, at 289, and White, supra note 7, at 56. Helper et al., supra note 11, point out the co-location of GM and Fisher Body plants.
 53. General Motors Corporation, Fisher Body: Its Contribution to the Automotive Industry (1924). This is quoted by Helper et al., supra note 11, who suggest that Klein et al., supra note 2, erred on the question of plant location by relying on Sloan's testimony in US v. E.

I. Du Pont et al. in 1953, almost three decades after the fact.

54. Michael Lamm & Dave Hollis, *A Century of Automotive Style: 100 Years of American Car Design* 35 (1996).

55. Lamm & Hollis, *id.*, at 27, describe early sheetmetal presses as follows:

“By 1910, a few bodymakers, including C.R. Wilson and Fisher were starting to use primitive drop presses to make sheet metal stampings. These presses consisted of a semi-steel female die and a lead male punch. The punch usually took its shape directly from the female die. Large loops were cast into the top surface of the lead punch, and it was lifted to the ceiling by ropes. Channels guided the punch to direct its drop into the female die.

To make the actual stamping, workmen heated large sheets of steel in a gas furnace. When the metal was red-hot, they used tongs to hold the cherry-colored sheet over the female die. The male lead punch was then dropped from the ceiling and forced the sheetmetal into the female die.

The quality of sheet steel varied widely in that day, and it wasn't unusual to have the stamped piece split as it took shape. Metal lubricants, more ductile sheets and a more consistent quality arrived with the advent of larger hydraulic and toggle presses.”

In fact, the first large presses were not invented until the late 1920s to early 1930s. See Karl Ludvigsen, *A Century of Automobile Body Evolution*, 103 *Automotive Engineering* 51 (1995).

56. White, *supra* note 26.

57. General Motors Corporation, *supra* note 53.

58. Pound, supra note 26, at 298.
59. Lamm & Hollis, supra note 16, at 35.
60. General Motors Corporation, Annual Report (1919).
61. For example, Lawrence K. Frank, The Significance of Industrial Integration, 33 J. Pol. Econ. 179 (1925), argues that “co-ordinated operation calls for the ownership or control by some organization of all other stages” and suggests that “the price system, in so far as it affects the conduct of industry at least, is being rendered obsolete” due to vertical integration.
62. Chandler, Visible Hand, supra note 6, at 34.
63. Chandler, Strategy and Structure, supra note 6, at 37.
64. Sloan, supra note 33, at 189.
65. Id.
66. Sloan, supra note 26, at 160.
67. General Motors Corporation, supra note 53, at 5. Pound, supra note 16.
68. White, supra note 7, at 50.
69. White, id., and Fleming, supra note 26, at 144.
70. White, id., at 48.
71. Id., at 55.
72. Seltzer, supra note 26, at 36 and 154, and Pound, supra note 26, at 119. Among the car-producing firms there were: Buick Motor Company, Cadillac Motor Car Company, and Olds Motor Works. Other acquisitions were: Oakland Motor Car Company, Markette Motor Car Company, Cartercar Company, Elmore Manufacturing Company, Randolph Motor Car Company, Reliance Motor Truck Company, Rapid Motor Vehicle Company, Weston-Mott Company, Rainier, W.T.Steward Body plant (assets), Michigan Motor

Castings Company, Northway Motor & Manufacturing Company, Ewing Automobile Company, Dow Rim Company, Welch Motor Car Company, Michigan Auto Parts Company, Jackson-Church-Wilcox Company, Novelty Incandescent Lamp Company, Heany Lamp Companies, McLaughlin Motor Car Company, Champion Ignition Company, Brown-Lipe-Chapin Company, and Oak Park Power Company.

73. Seltzer, supra note 26, at 157. GM's substantial acquisition costs had serious consequences for the company. In the second quarter of 1910 the American economy entered in a recession and automobile sales dropped dramatically, id., at 161, and Carl H.A. Dassbach, *Global enterprises and the world economy: Ford, General Motors, and IBM. the emergence of the transnational enterprise* 107 (1988). In late September 1910, GM obtained a \$15m loan underwritten by a consortium of 23 banks headed by Lee, Higginson & Co., of Boston, J. & W. Seligman & Co., and the Central Trust Company of New York. A five year voting trust was instituted with a majority of GM stock and a board composed of three representatives of the syndicate, Anthony N. Brady (a large stockholder), and William C. Durant. Seltzer, id., at 164. This agreement effectively gave the bankers complete control of the board of directors. The bankers imposed conservative financial controls, dropping five of the eleven lines of motor vehicles, merging three into the GM Truck Company, leaving untouched only Buick, Cadillac, Olds, and Oakland. Id., at 37 and 168. Durant's setback was only temporary. In November 6, 1911, together with the Chevrolet brothers, Durant founded the Chevrolet Motor Company. The success of this enterprise enabled him to acquire back a large proportion of GM shares. In 1916, Durant returned to direct GM after buying a controlling interest in the company and fully repaying the bankers syndicate. Dassbach,

id., at 112.

74. On August 1, 1917, the General Motors Corporation formally became an operating company. Seltzer, id., at 178, Pound, supra note 26, at 164, and Dassbach, id., at 121.
75. In December 31, 1917, fixed-plant investment reached \$38,657,835, more than double than in July 1916; inventories increased from \$25,100,450 to \$46,559,394; reinvested profits in this period totaled \$27,810,043. Seltzer, id., at 179. See also Chandler & Salsbury, supra note 11, at 464.
76. Seltzer, id., at 180.
77. C.C. Edmonds, Tendencies in the Automobile Industry, 13 Am. Econ. Rev. 422 (1923).
78. According to the New York Times Annalist (Aug. 2, 1920):

“It is said to be the dream of the genius behind the General Motors Corporation to make that company self-sustaining in every particular. W. C. Durant, his friends say, plans for the day when the General Motors pyramid will reach out into the ore fields and mine its own ore; when, over its own lines, which may be lines of motor trucks, it will bring the ore to its iron works, move it along to its steel-mills, distribute the steel to its own plants which will turn out the parts, take the parts to its assembly plants, and then send out the cars, trucks, and tractors to the sales agents, also part of the General Motors consolidation, for ultimate distribution to the users. And already there is the General Motors Acceptance Corporation which can finance the purchasers. A ranch or two for the leather upholstering and maybe an electric light plant might be added, if the Durant idea comes to realization, as those close to him expect it to, probably will be.”
79. Chandler & Salsbury, supra note 11, at 461.

80. The Finance committee was to set dividends, salaries of top executives, approve estimates for capital expenditures on an annual and semi-annual basis, authorize the regular budgets, and make plans for the issuance of securities. Chandler, supra note 6.
81. After learning that Willys-Overland and another car manufacturer were holding negotiations with the Fishers to form a partnership that would give Fisher a controlling interest, Durant and du Pont decided to propose a closer association with their most important supplier, Chandler & Salsbury, supra note 11, at 465, and Pound, supra note 26, at 291.
82. Seltzer, supra note 26, at 192.
83. Guardian Refrigerator Company (latter, Frigidaire, producer of electric refrigerators), the Dayton Products Company (producer of detonators, pressure indicators, etc.), and the Domestic Engineering Company (producer of Delco-Light power plant). Id.
84. A sudden decline in sales resulting from the post-war recession occurred in Summer and Fall of 1920. On top of the \$79m required to complete the expansion plans begun the previous year, large amounts of funds were needed to finance the inventories that had been accumulating due to deficient inventory management and the decline in sales. In March, 1920, the Executive Committee approved a set of production guidelines with the objective of reducing inventories. GM was not able to generate enough cash-flows to meet these obligations. Id., at 198.
85. Pound, supra note 26, at chapters 14 and 15. See also Seth W. Norton, Information and Competitive Advantage: the Rise of General Motors, 40 J. Law & Econ. 245 (1997), and Anthony P. O'Brien, The Importance of Adjusting Production to Sales in the Early Automobile Industry, 34 Expl. in Econ. Hist. 195 (1997).

86. Edmonds, supra note 77.
87. Quoted by Chandler, supra note 6, Strategy and Structure, at 144.
88. Id.
89. Seltzer, supra note 26, at 57.
90. Sloan, supra note 33, Chandler & Salsbury, supra note 11, and Marx & Peterson, supra note 11.
91. Chandler & Salsbury, supra note 11, at 495.
92. Pound, supra note 26, at 196, and O'Brien, supra note 85.
93. See Thomas H. Johnson, Management Accounting in an Early Multidivisional Organization: General Motors in the 1920s, 52,4 Business Hist. Rev. 490 (1978), and the extensive references therein.
94. Norton, supra note 85.
95. Sloan, supra note 26, at 161.
96. Paul Milgrom & John Roberts, Economics, Organization and Management 91 and 556 (1992), discuss resource allocation problems with design attributes and those with innovation attributes. They suggest that these types of resource allocation problem favor centralized coordination.
97. Herbert A. Simon, Administrative Behavior 139 (1945).
98. For example, in 1919 the Bell System announced plans for the introduction of machine switching (dial telephones) in its exchanges.
99. Sloan, supra note 26, at chapter 13.
100. Eva Flügge, Possibilities and Problems of Integration in the Automobile Industry, 37 J. of Pol. Econ. 150 (1929).
101. Sloan, supra note 33, at 189.

102. Frank H. Knight, *Risk, Uncertainty and Profit* (1921).
103. Chandler & Salsbury, supra note 11, at 577.
104. Sloan, supra note 34, further observes:
“...they [the Fishers] were very capable people and we [General Motors] needed men of talent, and they had distinguished themselves in developing a very fine enterprise, and Fisher bodies were recognized as outstanding in quality, and we needed that kind of talent in General Motors at that time, and needed it badly, and I was very anxious to have them come in and help us in the broader problems of General Motors, feeling satisfied that our interest in Fisher Body would be properly taken care of by the remaining three brothers.”
105. Chandler & Salsbury, supra note 11, at 577, and Pound, supra note 26, at 293.
106. *United States v. E.I. Du Pont de Nemours & Co., General Motors, et al.*, 126 F. Supp 235, N.D. Illinois (1954); 353 U.S. 586 (1957); 366 U.S. 316 (1961). The 1957 decision was on appeal and the 1961 decision was concerned with remedies related to the prior case.
107. As Roger D. Blair & David L. Kaserman, *Antitrust Economics* 327 (1985), point out, the “Supreme Court Decision did not rest on the empirical market facts as they existed during the 1917-1919 period when Du Pont was in the process of acquiring the General Motors stock. Instead, it was based upon the market facts at the time of the suit, which was some 30 years later” (emphasis in original).
108. Pound, supra note 26, at 290. In 1913 Studebaker and Cartercar were selling closed “sedans” for about \$2,000. In 1915 Ford introduced a closed version of the Model T which was sold for \$975, but sales were very small for the first three years of production. In the late Teens, Hudson, Overland, and other producers offered medium-priced closed

cars. White, supra note 7, at 53. In 1921 the Hudson Motor Company sold a closed version of the Essex model at a price only \$300 above the same model touring car.

Chandler & Salsbury, supra note 11, at 575.

109. Aoki, supra note 27.