

NBER WORKING PAPER SERIES

DEFINING A UNITARY BUSINESS: AN ECONOMIST'S VIEW

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Working Paper No. 1125

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
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May 1983

This paper is forthcoming in Charles E. McLure, Jr., editor, State Corporation Income Taxes: Issues in Worldwide Unitary Combination (tentative title), (Stanford: Hoover Institution Press). The research reported here is part of the NBER's research program in Taxation. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

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Abstract

The definition of a unitary business has figured prominently in several recent decisions of the U.S. Supreme Court on the constitutionality of state corporate income taxes. This paper employs economic analysis to frame a three part test of whether a unitary business exists. Underlying the tests is the notion that a unitary business exists when separate accounting cannot satisfactorily isolate the profits of individual firms. The first test is common control. The second is whether transfer prices on transactions within the group could be manipulated or are difficult to verify or substantial vertical integration, shared costs, economies of scale or scope, or other forms of economic interdependence make isolation of profits of affiliated firms impossible. The third test is one of substantiality.

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March 11, 1983

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I. Introduction

There is no longer significant disagreement that formula apportionment is required to divide the domestic income of a multistate firm engaged in a single unitary business among the states in which it has taxable nexus.¹ Separate accounting, whether applied on a geographic or functional basis, simply does not generally provide a satisfactory division of the income of a unitary business among the various states.² The reason for the inadequacy of separate accounting under these conditions, as stated in words that have become part of the conventional wisdom in this area, is its failure to recognize that the various parts of the unitary business (split along functional or geographic lines) are "dependent upon or contributory to" each other.³

Some states respect the legal distinction between separately incorporated firms, no matter how closely the various members of groups of firms may be affiliated. These states employ separate accounting for each firm and, at most, ask whether a given firm is engaged in more than one unitary business. Other states look beyond the legal fiction of separate incorporation to ask whether two or more members of a group of affiliated firms are jointly engaged in a unitary business. If they are, they are required (or allowed) to file a combined report in order to determine the income that is to be taxed by the state in question.⁴ Unitary combination is practiced most notably by California, but increasingly other states are applying this

approach, especially in taxing oil companies.⁵

Taxpayers generally argue that combination can result in taxation of extraterritorial values (prohibited by the due process clause of the U.S. Constitution), discrimination against interstate commerce (a violation of the commerce clause), and, when applied on a worldwide basis, violation of U.S. treaty obligations.⁶ States, for their part, typically argue that separate accounting cannot adequately isolate the income of firms engaged in a unitary business and that combination is required if firms are not to be allowed to use legal form to reduce taxes artificially, especially through manipulation of the internal transfer prices required for separate accounting predicated on legally distinct incorporation. The treatment of arguably foreign source income and of intercorporate dividends, as well as the definition of a unitary business, have figured especially prominently in cases recently decided by the U.S. Supreme Court or before it as this is written.⁷

The need to define a unitary business with clarity and certainty is readily apparent from even this brief description.⁸ Indeed, in Mobil the U.S. Supreme Court stated clearly and unequivocally that "the linchpin of apportionability . . . is the unitary-business principle,"⁹ and in Exxon, ASARCO, and Woolworth, as well as in Mobil, the Court considered explicitly whether unitary businesses existed.¹⁰

Whether a unitary business exists in a given instance depends on the economic realities -- the presence and strength of the contribution and dependency between the activities of various affiliated firms or parts of firms. Yet little has been written by economists about the proper test for a unitary business, at least outside the context of litigation. The present paper is an attempt to provide an objective and nontechnical -- and in

some respects still preliminary -- discussion of what an economist would reasonably consider a unitary business to be.

In focusing on the definition of a unitary business, I deliberately set aside important related issues, including the general need for interstate uniformity in taxing corporate income and the particular need for uniformity in determining taxing nexus and in choosing the apportionment formula to be applied.¹¹ Moreover, I avoid the highly controversial -- and partly noneconomic -- issue of whether unitary combination should be applied on a worldwide basis.¹²

Suppose that the ProMax group consists of two commonly owned and controlled firms, A and B. Our conceptual problem is to determine whether (1) ProMax consists of one unitary business or (2) firms A and B are each engaged in separate businesses. The basic test to be applied is whether, within a reasonable degree of accuracy, separate accounting can be used to isolate the individual profits of the two affiliated firms. If not, the two firms should be deemed to be engaged in a unitary business. To answer the question we examine various reasons separate accounting might not measure profits adequately. Not surprisingly, vertical transactions and various forms of interdependence will be found to lie at the heart of economic unity. I do not initially discuss the role played by common ownership and control, which is the subject of the fourth section. For the purpose of the second and third sections it will be convenient to assume that common ownership of firms A and B is complete and that there is no issue of common control.

The definition of a unitary business adopted here is, to a large degree, tautological. That is, formula apportionment -- and combination,

in the case of multiple firms -- is needed because, in general, separate accounting cannot satisfactorily divide income among affiliated firms or parts of one or more firms engaged in a unitary business.¹³ By implication, then, a unitary business is the smallest division of a firm or group of firms, the income of which can generally be accurately indicated by separate accounting.¹⁴ The remainder of this paper is an elaboration of this basic tautology. Of course, there may be instances in which separate accounting cannot, strictly speaking, isolate the income of individual firms, and yet the potential error in measurement of income would be so small that it would be unreasonable to require combination. Thus provision is made (in the fifth section) for a de minimus test of substantiality.

The remainder of the paper proceeds as follows. The next section discusses vertical integration and the potential for manipulation, inaccuracy, or nonexistence of transfer prices. The third section examines various other potential types of economic interdependence between firms. The fourth section examines the roles of ownership and control and stresses the importance of autonomous decision making in the test of unity. The fifth section discusses the need for a test of substantiality, summarizes the discussion up to that point, and compares my criteria for finding that a unitary business exists with several others, especially that of Jerry Hellerstein, a vocal advocate of a particular, somewhat more restrictive but more objective test. The final section briefly compares the test of unity employed by the Supreme Court in Mobil, ASARCO, and Woolworth with the criteria I propose.

II. Vertical Integration and Transfer Pricing

In the next section we examine a variety of economic interrelations that might link two affiliated firms together so closely that it would be conceptually impossible to use separate accounting to divide their joint income between them satisfactorily, if the interrelations are substantial. In such cases the firms should be treated as unitary for state tax purposes. In the first part of this section we examine a much simpler case -- one in which, by assumption, there are no such interrelations.¹⁵ In such cases the firms involved are not inherently unitary, since, in principle, separate accounting could, by assumption, isolate the income of the various firms. Nonetheless, if there is a substantial volume of transactions among the firms, it may be possible, in the absence of concerted administrative action, for affiliated firms to manipulate the prices, fees, or other charges made for the transfer of goods and services between them and therefore to attribute too much income to low-tax (or no tax) states and too little to high-tax states.¹⁶ Moreover, even under these very restrictive assumptions of independence of operations there may be cases where it is conceptually impossible to isolate the income of the various affiliated firms. Unitary combination is generally appropriate if the volume of interaffiliate transactions in goods and services with no readily determined value is substantial. Finally, more far-reaching vertical integration may be based on economic interdependence that renders accurate separate accounting impossible and leads to a finding of unity.

A. Simple Inaccuracy of Transfer Pricing

Suppose that affiliated firms A and B each operate in one state (A and B, respectively) and nowhere else. State A has an income tax and state B does not. Firm A operates a large commercial farm on which it raises wheat

and hogs. Firm B buys wheat from firm A, mills it, and sells flour in bulk to bakeries. It also sells some of the by-products of milling for use as animal feed; firm A buys some of these by-products to feed its hogs. Except for common ownership and control there is no other interdependence between the two firms. Assume for argument's sake that the markets for wheat, flour, the milling by-products used as animal feed, and hogs are perfectly competitive, so that there are readily identifiable market values for each of the four commodities. Finally, assume that the prices of all other inputs of both firms are also beyond the control of those firms.

Given these very restrictive assumptions, there is no conceptual difficulty in isolating the income of the two firms.¹⁷ But there is also no difficulty in seeing how transfer prices could be manipulated to shift income from firm A and state A, where it would be taxed, to firm B and state B, where it would not be taxed. Wheat could simply be sold by firm A to firm B at below the market price, or milling by-products could be sold by firm B to firm A at inflated prices. A slightly more sophisticated approach would be for firm A to sell wheat on credit to firm B, charging interest rates below market rates, or for firm B to sell to firm A on credit at above market rates.¹⁸

There are basically two ways to deal with this problem. One is to employ separate accounting, supplemented by a standard of arm's-length pricing. This is the way international transactions between affiliated firms are treated under section 482 of the U.S. Internal Revenue Code. The other is to avoid the administrative burden of such an approach by ruling that substantial intercorporate transactions between affiliates constitute prima facie evidence that a unitary business exists and that combination -- and with it formula apportionment of the income of the two firms -- is ap-

propriate in such cases.

There can be little doubt that under the highly restrictive assumptions of the example just presented separate accounting is the conceptually preferred approach. But once costs of administration and compliance are considered, the proper choice becomes less obvious.¹⁹ The precision made possible by separate accounting may simply not be worth the cost of verifying the transfer prices employed in thousands of transactions between affiliates. This conclusion is strengthened once one adds more realism to the example.

B. Absence of Arm's-Length Prices

Suppose, for example, that we are dealing with components of automobiles manufactured by firm A expressly for firm B and sold to no one else, rather than with the relatively simple set of transactions outlined above. (At this point we do not relax the assumption that there is no other interdependence between the firms.) In this case there is no independently verifiable arm's-length price to use in auditing transfer prices assigned to the components, and surrogates must be found, if separate accounting is to be employed. Troublesome problems also arise in valuing patents that are not generally licensed, specialized services provided only to affiliates, and loan guarantees.

The U.S. Internal Revenue Code provides three methods of determining transfer prices for tangible property when, as in this example, there is no comparable uncontrolled price.²⁰ These are (1) resale price, (2) cost plus, and (3) other methods. The resale price method attempts to compute a transfer price by deducting the customer's gross markup (value added plus profit margin) from the amount realized on resale after further processing. By comparison, the cost plus method bases the allowable transfer price on

the supplier's cost plus a profit margin. In both cases the problem is to determine the appropriate markup, something that is generally inherently impossible to do with precision.²¹ The regulations provide no guidance in applying the third (other) method that can be used if neither of these surrogates for an uncontrolled price provides a satisfactory estimate of transfer prices.

Implementation of section 482 is notorious for its many difficulties.²² It is hardly surprising that many states have not wanted to follow the federal government down the road to separate accounting and have opted instead for combination and formula apportionment in instances where a substantial volume of transactions occurs between affiliated firms.

Though one can have considerable sympathy with this state reaction, another important question arises: in the simpler case described in the first part of this section, should proof of actual manipulation of transfer prices be required for a finding of unity, or is the potential for manipulation enough? (Presumably the conceptual impossibility of accurate transfer prices for a substantial flow of products would ordinarily justify a finding of unity.) On the one hand, unused potential to manipulate transfer prices does not result in actual mismeasurement of income. But basing the test on actual manipulation would mean that states would have to perform mini-482 audits to see whether manipulation was occurring and would allow (indeed, encourage) firms to play an audit lottery. Besides that, it would contribute greatly to uncertainty. All things considered, it seems that where transactions between affiliates are virtually all in homogeneous products and occur on commercial terms, including easily verifiable free-market prices and interest rates, and there is no other important interdependence, separate accounting is appropriate; otherwise, the potential

for substantial mismeasurement should generally be enough to justify combination.

C. Reasons for Vertical Integration

If two commonly owned firms (or divisions within a single firm) were connected by a flow of goods and payments occurring strictly at market prices and nothing more, we might wonder why they were commonly owned. In fact, this state of affairs is probably quite rare; especially in manufacturing, a substantial volume of vertical transactions probably generally implies something not captured in market prices, namely vertical integration.²³

Oliver Williamson has emphasized savings in transaction costs as an important explanation of vertical integration. When vertical activities in the production-distribution chain are organized within one firm, there is less need to shop around, less difficulty in appraising products and services, less expense in contracting, more certainty of supply (and of markets), and more flexibility in adapting to changing conditions.²⁴

Williamson argues that contracting via markets may be especially difficult when major investments in highly specific fixed assets are required at various stages in the production-distribution process or where there is substantial possibility that product quality may be debased; under these circumstances firms may integrate forward or backward. Specificity of assets is important because no one wants to be left "holding the bag" -- when the bag contains an expensive single-use asset -- if a supplier or customer does not perform as expected. Vertical integration can overcome this impediment based on limited knowledge and fear of treachery.²⁵ Similarly, firms can assure the quality of supplies by integrating backwards or assure the quality of distributors by integrating forward and thereby avoid de-

basement of quality.²⁶ Advantages of vertical integration based on these types of savings in transaction costs are difficult to quantify and allocate between the various firms in a group (or divisions within a firm). Certainly they may not be adequately captured and allocated by transfer prices, and uncontrolled market prices are, in the nature of things, likely to be virtually nonexistent. I return to this point in the summary of this section.

Economies of scale (described more fully in the first part of the next section) can also make vertical integration attractive. In many areas of American industry there is room for only a few firms that can fully realize economies of scale. This leads to at least two (potentially related) reasons for vertical integration. First, industries with only a few firms often tend to be characterized by noncompetitive pricing. Where this is true, downstream (upstream) firms may be able to capture some of the profits from noncompetitive pricing by integrating backwards (forwards).²⁷ Where this occurs, it is difficult to know how to allocate the extraordinary profits between affiliates via separate accounting.²⁸

Second, vertical integration may sometimes be a defensive strategy. That is, suppose that one firm sees its competitors absorbing some of its formerly independent upstream suppliers, perhaps for reasons such as those specified above.²⁹ Rather than being left in the precarious position of relying on the even smaller number of suppliers left after the mergers, including those owned by its competitors, the firm may decide to absorb a supplier (or start its own supplying firm or division). Again, profits of the affiliates may be hard to isolate under these circumstances.

One alleged result of economies of scale that illustrates several points made thus far figured significantly in the finding of economic unity

in the Exxon case. Refining is a highly capital-intensive link between the production of crude oil and the distribution of refined products. Because of the enormous fixed costs and relatively modest operating costs, it is crucial to run refineries at near full capacity. Therefore, the state of Wisconsin argued, it is important to assure both reliable sources of supply and dependable markets, and profits attributable to the production, refining, and marketing functions of an integrated oil company cannot be isolated.³⁰

In a fully competitive environment, this argument would have little weight, since crude oil could simply be obtained on the open market and refined products could be sold at competitive prices. But in an imperfectly competitive world, avoiding shortages, squeezes, gluts, and so forth can be vital. Even if transfers of crude oil and refined products commonly occur at market prices, in such a world, separate accounting might fail to recognize the contribution reliable sources of crude oil and outlets for products would make to the profitability of the refining function. Similar situations obviously exist in other industries.

The Supreme Court also found that other aspects of Exxon's operations suggested a unitary business: centralized purchasing; use of a uniform credit card system; and uniform packaging, brand names, and promotional displays all run from the national headquarters.³¹ Particularly interesting is an exchange agreement, whereby gasoline sold in Wisconsin was obtained from another company.³² Though one could imagine that these exchanges were carried out by Exxon's marketing department, in fact they were arranged by the supply and refining departments, discrediting any suggestion that the marketing function was not integrated with refining.

D. Summary Statement: Manipulation or Synergism?

In this section I have identified three "levels" of vertical interactions that could lead to a finding of unity. Of course, these three are not always easily distinguishable. First, there are situations in which standardized products with readily determinable prices pass vertically between affiliates. In this case the primary issue is whether transfer prices are being manipulated or for some other reason fail to reflect market prices. If no further interdependence is present, such cases are not inherently unitary, and separate accounting could satisfactorily isolate the income of the various affiliated firms, since, by assumption, uncontrolled prices exist. On the other hand, it is easy to understand the states' preference for the administrative convenience of formula apportionment in such cases.

More complicated are situations in which vertical transactions involve nonstandardized products for which there are no readily known free-market prices. In such cases tax administrators auditing returns based on separate accounting must resort to tests such as those provided in section 482 for use when uncontrolled prices do not exist. In this case the argument for unitary combination is much stronger and goes well beyond mere administrative convenience; in extreme cases accurate separate accounting may simply not be feasible.

The third level of complication involves such complete vertical integration that it is basically hopeless to employ separate accounting in the effort to isolate the income of vertically related affiliates. In such cases economic interdependence is so great that even if uncontrolled prices exist, their use may not adequately reflect the contributions of the component parts to the income of the entire unitary business. In such cases formula apportionment is appropriate.

This may be a useful point at which to introduce a distinction between two somewhat different reasons separate accounting may fail to isolate the income of affiliated firms.³³ In the first case the total income of two firms does not significantly depend on whether or not they are affiliated, but the division of income between them for tax purposes may. The simple vertical transactions described in the first part of this section illustrate this case. Sharing the expenses of a constant-cost operation (described in the next section) is another example. In both cases we are dealing primarily with the division between firms of a total amount of profits that does not depend on whether the firms are affiliated. In such cases, the failure of separate accounting -- and the need for unitary combination -- is primarily administrative, not conceptually inherent. Section 482, at least implicitly, is designed to deal with this situation.

In the second case the joint profits of the two affiliated firms are substantially greater than the sum of the profits of the two firms would be if they acted independently.³⁴ Among reasons for this phenomenon that we have already identified are savings in transaction costs (based on specificity of assets and avoiding debasement of quality) and economies of scale. Other important sources of economic interdependence that create this type of synergism are discussed in the next section. In these cases the firms are conceptually unitary in the sense that it is inherently impossible to split the joint profits between them with scientific precision. Separate accounting based on arm's-length pricing rules are bound to fail under these circumstances.³⁵

The case of automobile components described above could fall in either of these categories, depending on the facts. Advocates of section 482 procedures implicitly assume that it falls in the first. Advocates of unitary

combination, on the other hand, contend that the prerequisites for applying a section 482 approach are unlikely to be found in practice.

III. Contribution and Dependence

Thus far we have concentrated on vertical patterns of interdependence. More controversial is what might be called horizontal interdependence -- interrelations between affiliated firms in which one is not the customer of the other -- that call for a finding of unity. (Of course, in any given case, horizontal and vertical interdependence may be found together.) All the important reasons for a finding of unity based on horizontal interdependence fall in the second (synergism) category described in the last part of the previous section.

A. Interdependence in Supply: Economies of Scale and Scope

Economies of scale constitute one of the most pervasive potential sources of interdependence in supply. Such economies exist when output can be increased by some given multiple (2 for example) by increasing all inputs by a common, but smaller multiple (say by 1.8). Common examples include those based on the technical relationship between diameter and area; when the diameter -- of pipelines, cylindrical storage facilities, and so forth -- is doubled, capacity is four times as large. This implies that two equally large and adjacent markets can be served by a trunk pipeline only some 40 percent (the square root of two, minus one) larger than that needed to serve one of them. If affiliated firms A and B served the two markets but shared the joint trunk pipeline, we could not scientifically determine the profit of either, for there is no way of knowing what fraction of the total cost of the large pipeline (between 41.4 percent and 100 percent of the cost of a separate pipeline) to allocate to one of

the markets and the firm serving it, and how much to the other.³⁶

The implications of this example go well beyond those of an attempt to employ separate geographic accounting for several firms (and jurisdictions) served by one pipeline or by common storage facilities. Economies of scale exist in the maintenance of inventories that, from an economic and mathematical point of view, resemble those just discussed. This implies that two firms acting jointly can maintain an optimal level of inventories at lower total cost than if each maintained its own inventories. Again, it would be impossible to determine the separate profits of two affiliated firms following such a course.

If two affiliated firms shared a pipeline or storage facilities or maintained joint inventories, they might be seen immediately to benefit from important economies of scale; this would probably lead directly to a finding of unity. What may be less obvious is that the same theory applies to inventories of a very important commodity held by all firms, regardless of their line of business: cash balances. That is, two firms with ready access to the same pool of financial resources can economize on the cash they need to keep in their vaults or in low-interest liquid deposits.³⁷

Fixed costs resulting from indivisibilities are a second important source of economies of scale. Once the initial investment has been made in accounting systems, legal departments, research labs, and so forth, it may be possible to expand their output without increasing their inputs (and their costs) proportionately. Various rules of thumb are used by cost accountants to allocate fixed costs among firms. For example, if variable costs can be attributed accurately to the two firms, fixed costs may be allocated in the same proportion. Nonetheless, there is no scientific basis for this or any other allocation of fixed costs. Thus, profits of

individual firms sharing the facility characterized by fixed costs cannot be measured accurately by separate accounting.

It is important to note that many economies of scale of this type may be available over only a relatively limited range of output. That is, there may be economies of scale, for example, in processing credit charges and patent applications, but only up to a point; beyond that, these may essentially be constant-cost activities.³⁸ Where constant costs prevail at all levels of output, there is no synergistic effect of affiliation; there is only the need to determine the costs attributable to each of the affiliates. Even economies of scale that are exhausted at a scale far below the actual scale of operation do, strictly speaking, imply that not all profits can be split accurately between two firms sharing the fixed facility. But these unallocable costs may be so small, in relative terms, that they can safely be ignored without seriously affecting the division of income between the firms. Where that is true, it would be improper to characterize otherwise separate activities as part of a unitary business.³⁹ Much the same thing can be said of economies that may be small in relative terms, even though they are not fully exhausted at the actual level of operation. It makes no sense to predicate a finding of unity on scale economies that could not possibly significantly distort the measurement of income.⁴⁰ In any given situation the relative importance of economies of scale resulting from fixed costs -- or from other sources -- is an empirical question. This point is pursued further in the fifth section.

Top-level management may be one of the inputs to modern corporate activity in which the range of potential economies of scale based on indivisibilities is the greatest.⁴¹ Economies of scale in research and development (R and D) and the exploitation of knowledge based on R and D may also

lie near this end of the spectrum. The point is not that additional experiments can be conducted with the same set of test tubes and scientists; indeed, much research may, after a point, be characterized by roughly constant returns to scale. The important thing about research in the present context, aside from the synergism that sometimes occurs in large industrial labs, is the fact that once discovered, knowledge can be applied to produce output ranging from negligible to virtually unlimited. For example, once a given pain killer has been discovered, one capsule or one billion capsules can be produced. Similarly, the technology of under water exploration and development can be used by the petroleum industry to drill one well or one hundred.

Much of what has been said up to this point in this section can be reoriented slightly and brought together under the general heading of economies of scope, a term that has appeared in the economics literature only within the past decade.⁴² Such economies exist when the cost of producing two or more products jointly is less than the sum of the costs of producing them separately. They arise from the sharing or joint use of inputs; for example, if a given input is imperfectly divisible or has the property of a public good, once the input is acquired for one use it is available for others.⁴³ Economies of scope have been offered as reasons for both horizontal diversification and vertical integration.

B. Transaction Costs and Horizontal Diversity

The existence of economies of scope sets the stage for one explanation for the existence of multiproduct firms. In some instances economies of scope can be realized by a separate firm that sells services subject to these economies to other entities. (For example, a firm that owns a pipeline might sell transportation services to two separate firms serving

nearby markets.) But in others it will be more economical to save transaction costs by organizing activities internally (for example, by having expensive, highly specialized assets owned by one member of a multiproduct group of firms).

One explanation for the benefits of organization of production and distribution within firms (or groups of firms), rather than between unaffiliated firms, emphasizes the savings in transaction costs it allows.⁴⁴ Following Williamson, Teece has emphasized the role of "transactions difficulties" in explaining the existence of multiproduct firms where know-how is an important input.⁴⁵ Because of the peculiar nature of information -- "its value for the purchaser is not known until he has the information, but then he has in effect acquired it without cost" -- it is difficult for markets to effect its transfer between firms efficiently;⁴⁶ buyers have difficulty in determining the value of information, and sellers are reluctant to disclose it. These problems are compounded by the fact that know-how often cannot simply be transferred via blueprints or instruction manuals, because it involves an important element of learning-by-doing. Markets are most likely to handle the transfer of information between firms satisfactorily where the information to be transmitted is not proprietary, the application is not specialized, and transfers are infrequent.⁴⁷ But where information is proprietary, it is used in specialized applications, and transfers of know-how occur frequently, it is more likely that new applications will be effected within multiproduct firms or groups of firms, rather than through market transactions.

Teece identifies technological know-how, transfer of managerial and organizational know-how, and goodwill (including brand loyalty) as types of assets where market mechanisms may fail and for which intrafirm transfers

are superior to interfirm transfers. The very nature of this argument suggests that there is no market price for the services being provided, and that affiliated firms able to benefit from the sharing of such knowledge will have lower costs than if they were unaffiliated. Therefore the profits of the individual affiliated firms making joint use of this kind of information cannot be isolated. If the savings in transaction costs resulting from internal organization are substantial, unitary combination, rather than separate accounting, is the proper approach.

It may be worthwhile to emphasize at this point a potentially crucial difference between this and the previous case of shared costs.⁴⁸ Some shared activities may occur at near constant costs or may be ancillary to the basic operation of a business and sufficiently unimportant in relative terms that their allocation could not seriously affect the division of income between firms arguably engaged in different businesses; legal or accounting services may be an example. In such cases, separate accounting with arbitrary allocation of the shared costs may be appropriate, and combination may produce quite artificial results. By comparison, the important feature of some expenses may be not that they are shared but that they create such interdependence between activities of various affiliated firms that separate accounting cannot isolate the income of the firms engaged in joint activities; where this occurs unitary apportionment is required, even if the expenses are relatively minor.

C. Externalities

External economies and diseconomies, or externalities, exist when the activities of one firm create benefits or costs for another firm for which the first is not compensated.⁴⁹ Examples of external diseconomies are legion; pollution in its many forms is the best example. Important exter-

nal economies are harder to find. Standard examples include general training (that is, training that is not job-specific) and the flower gardener who cannot collect for the benefits the apiary realizes. In what follows I concentrate on external costs. External benefits are treated at various other points in this paper. For example, the benefits of advertising sponsored by one firm that spill over to affect the demand for the product of an affiliated firm (considered further in the fourth part of this section) can be treated as a special kind of externality. (See also "Reasons for Vertical Integration" in the preceding section for a consideration of avoidance of debasement of quality as a potential reason for vertical integration.)

Suppose that for technologic-geographic reasons firm A is in a position to create air or water pollution that adversely affects the ability (costs) of affiliated firm B to produce or distribute its product.⁵⁰ Under certain conditions totally unaffiliated firms would reach bargains by which firm B would compensate firm A to limit its pollution.⁵¹ So, by the same token, might affiliated but autonomous firms reach similar bargains, independently of any direction from above predicated on a desire to maximize joint profits of the ProMax group. In such a case, separate accounting might well accurately reflect the distinct income streams of the two affiliated firms, just as it might in the case of totally independent, unaffiliated firms. In other words, the economic interdependence assumed to result from the pollution would not necessarily justify characterizing the firms as part of one unitary business. But there is no reason to believe that affiliated firms that are not autonomous would strike exactly the same bargain as unaffiliated firms. Indeed, the interaffiliate "bargain" on pollution might simply be a sophisticated way of transferring taxable income

between the affiliates.

Alternatively, if no such bargain were reached between the affiliated firms, it might appear that this is prima facie evidence that separate accounting would be satisfactory, as it is for affiliated firms where there is uncompensated pollution. But the ProMax board might decide that the profit-maximizing approach for the group would be to let firm A pollute and have firm B live with the pollution. Alternatively, the board of ProMax, might simply mandate that firm A install pollution abatement equipment or otherwise avoid pollution in order to protect the position of firm B, if that were the lowest-cost approach.⁵² In either case it appears that a finding of a unitary business would be proper.

It thus appears that in this case objective evidence tells us relatively little about whether or not a unitary business exists. Failure to prevent pollution could be consistent with either total autonomy of firms A and B or with a conscious decision that allowing pollution would be the optimum policy for the group. Conversely, pollution abatement could occur if either firms A and B were autonomous but reached an agreement whereby A would limit pollution in exchange for compensation, or a higher-level decision were made that group profits would be higher if firm A would limit pollution. The issue is confused even further by the fact that efforts to avoid pollution may be based on generally applicable regulations, rather than on the goal of maximizing group profits. It may be that in such cases the only way to determine whether the firms are truly unitary is to examine the records of meetings of the boards of directors and executive committees of ProMax. In the absence of such an extreme move, it may be advisable to take important externalities between affiliates, or efforts to prevent them that do not have benefits beyond the group, in the case of diseconomies, as

evidence that firms are engaged in a unitary business. Of course, as in the case of other forms of interdependence, trivial externalities should not be allowed to generate a finding of unity.

D. Interdependence in Demand

Interdependence can occur on the demand side of firms' transactions, as well as on the cost side. This can clearly be true when the outputs produced by two firms are very strong complements or very strong substitutes. Thus, for example, one might argue that it would be difficult to separate the profits of affiliated firms operating in the following pairs of industries producing complements: flashlights and batteries; small boats and outboard motors; automobiles and gasoline.⁵³ But there is something wrong with this argument as stated thus far. The problem is that market structure has not been considered. Suppose that both flashlights and batteries were manufactured and sold under perfectly competitive conditions. The products of the two industries might, indeed, be complementary; but the products of all firms in one of the industries would be interchangeable. Thus no single firm producing flashlights could substantially alter the demand for the batteries produced by its affiliate, say by altering the price of its own product. Only if neither of the industries were perfectly competitive (that is, only if neither faced a perfectly elastic demand curve) would complementarity between products interfere with the adequacy of separate accounting to isolate the profits of the two firms. Two important empirical and judgmental questions must therefore be answered: how great is the complementarity between the particular products of affiliated firms, and how much complementarity is required for a finding that a unitary business exists?

This is a useful place to consider the role of advertising. One im-

portant purpose of advertising -- in addition to moving the demand curve out -- is to differentiate the advertised product from others and thereby reduce its elasticity of demand. But brand awareness generated by advertising will often carry over to (or span a range of) related products. (This is, in a sense, a form of jointness or external benefit.) If advertising simultaneously creates the same brand identification for both batteries and flashlights, the two demand curves are not totally elastic or mutually independent and separate accounting cannot isolate the profits of two firms producing flashlights and batteries that are linked by advertising but are otherwise distinct. That is, where brand loyalty based on advertising is important, interdependence cannot be handled adequately by simply attributing part (or even all) of the advertising expense to one of the activities; the activities should be treated as unitary.

Of course, the potential for advertising to unite activities does not stop with products that are complementary in use. For example, General Electric's brand identification and product loyalty can be expected to span an entire range of otherwise quite unrelated household appliances.⁵⁴

Much the same thing can be said about substitutes as about complements. Though they are not perfect substitutes, coal, fuel oil, wood, and sweaters are all means of staying warm. Suppose that one firm owned a woodlot and its affiliate manufactured woolen sweaters. Since both of these industries are fairly competitive, it seems unlikely that the demand curves faced by the two affiliates would be highly interdependent. Thus there seems to be little reason to combine operations of the two firms in one state tax report, despite the substitutability between wood and wool at the industry level.

Consider now the situation of coal and fuel oil. Here it seems much

more likely that there might be enough interdependence at the firm level to warrant a finding that separate accounting could not isolate the profits of two related firms operating in the two fields. But it remains an empirical question whether the important interdependence occurs on the demand side. On balance, it seems far more likely that a finding of unity in this case should be based on shared technology and the savings of transaction costs discussed in the second part of this section.⁵⁵

Market sharing is a final example of interdependence in demand. Suppose that two affiliated firms control a significant fraction of output in a given industry. Their profits may be greater than if they were unrelated (or even affiliated, but autonomous) firms competing with each other. Moreover, which of the two firms actually supplies various markets, and therefore the division of taxable income among the states, may be largely under the control of the central management of the affiliates. In such a case it seems only proper to treat the two firms as part of a unitary business.⁵⁶

Yet another form of interdependence deserves brief mention, though it does not fit neatly under either supply or demand interdependence. (Indeed, it has one foot in each.) This is reciprocal buying. Suppose that affiliated firms A and B have no transactions with each other and exhibit none of the forms of interdependence discussed thus far. But the ProMax board determines that firm A should buy from a third unaffiliated firm C only if firm C buys from firm B. (Presumably such an arrangement would make sense only if none of the three firms operated in a competitive industry, a point we take as given in what follows.) Clearly such a practice is likely to prevent the books of account of firms A and B from accurately stating their respective incomes; indeed, it may be theoretically

impossible to determine the income of the individual firms under such circumstances. A conclusion that a unitary business exists is proper if purchases (sales) resulting from reciprocal buying constitute a large share of the total purchases (sales) of firm A (firm B).

E. Risk Sharing

Sharing of risks is another form of interdependence that might warrant a finding that a unitary business exists. Moreover, it emphasizes that in some contexts the test for unity must be placed in a particular time frame. Suppose, for example, that a given oil company that owns well-established reserves operates in several states. One interpretation of the facts might be that (leaving aside home office expenses, other shared costs, problems of transfer pricing, and various other complications raised elsewhere in this paper) separate accounting might be employed to determine the production income realized in each state, since petroleum has a readily discernible market value. But this approach would generally be appropriate only if a very short-run view of the question were taken or if the discovery of petroleum involved no risks.⁵⁷ Such a "snapshot" view of an uncertain and knowledge-intensive activity may fail to give adequate weight to the interdependence between present activities in a given state and research and exploration conducted previously or elsewhere.

To see this, suppose that we were talking about jurisdictions smaller than states and that nature was such that only one well -- either a producing well or a dry hole -- could be drilled in each jurisdiction, with the chances of success being totally random and independent of what has occurred in neighboring jurisdictions. Would we want to attribute all income of the producing wells to the jurisdictions where they are located and none to the "dry-hole" jurisdictions? I think not. If, for some reason, investors

could invest in only one well, on an all-or-nothing basis, there might be relatively little exploration and, consequently, little production.⁵⁸ In reality, however, firms diversify by drilling in a larger number of places, relying on the "law of averages" to give them a mixture of successes and failures that approaches the global probabilities. Moreover, success is not totally random; firms learn about geological structure from each well, regardless of whether it is drilled in the same state. That being the case, it seems inappropriate not to treat a firm with winners and losers unevenly scattered across jurisdictions as a unitary business.⁵⁹

When combined with savings in transaction costs in the transfer of knowledge (discussed in the second part of this section) and the potential for manipulation of transfer prices, the above argument assumes special significance. Suppose that a given manufacturing firm (A) undertakes research only in a high-tax state but sells or leases for a nominal amount all the resulting patents for a nominal amount to an affiliate (B) producing in a low-tax state. In the absence of combination, firm A would deduct the cost of both successful and unsuccessful research in reaching taxable income. But firm B would realize the profits resulting from the research. This is, essentially, what the states claim happens because of the federal tax incentives for investment in Puerto Rico.⁶⁰ They understandably argue that the two firms in this example should be considered engaged in a single unitary business.

An extreme version of the argument that sharing risks is one attribute of a unitary business would lead to the conclusion that many conglomerate corporate groups should be subject to combination. In this view diversification based on a low covariance of earnings would be enough to demonstrate unity. I am not comfortable with this view. First, conglom-

ation may provide no diversification that the individual investor cannot duplicate in the market. If it does not, it does not reduce the group's cost of capital and there is no gain from affiliation.⁶¹ Second, even if pooling of risks does reduce the group's cost of capital, I am not sure that that justifies a conclusion that the income of various otherwise separable firms cannot be isolated.⁶²

IV. Centralized Decision Making and Unitary Business

A. Common Ownership and Control

Ownership, along with operation and use, is one of the tests of a unitary business known as the "three unities" enunciated in Butler Brothers v. McColgan and condoned by the U.S. Supreme Court.⁶³ Majority ownership is usually thought to be necessary for a finding that a unitary business exists, and some observers have suggested that it should also be sufficient.⁶⁴ Although there may be much to be said for such a straightforward rule from the point of view of simplicity, certainty, and uniformity, from an economic point of view common (majority) ownership is neither necessary nor sufficient for the existence of a unitary business.⁶⁵

If the division of income between two companies is to be manipulated to produce a misleading picture of the firms' respective incomes for tax purposes, it is generally necessary that the two firms be under common control. Where common control is lacking, economic interdependence ordinarily should not lead to a conclusion that a unitary business exists, since it can generally be assumed that those responsible for running the various firms will look to the profits of their respective firms. The important question is the meaning of "control" in this context.⁶⁶

The distinction Fama and Jensen make between decision management and

decision control is particularly useful.⁶⁷ Whereas management involves initiation of proposals and implementation of those that are ratified, control involves ratification and monitoring of proposals initiated and implemented by management. In this terminology, representatives of owners, as residual claimants, exercise control but not management in large open corporations. The crucial question for our purpose, then, is whether common ownership-control (in the Fama-Jensen sense), when combined with substantial vertical transactions or other forms of interdependence, is enough to justify a finding of unity, or whether common (centralized) management at the operational level is required.⁶⁸

It appears to me that common control (as Fama and Jensen use the term) is the relevant concept and that a requirement of common operational management goes too far. Further light can be shed on this question by considering the maxim that "a condition of near-decomposability will characterize strategic and operating decisions in a well-managed firm."⁶⁹ The general office is responsible for strategic decisions and operating decisions are lodged in the managers of semiautonomous entities. Williamson notes that, "a presumption that the general office favors profits over functional goals is warranted."⁷⁰ The implication is that in a unitary business central (controlling) management makes decisions with an eye to the profits of the whole, not the parts.⁷¹

Actual patterns of control should be examined in assessing whether or not a unitary business exists; these patterns may be suggested by patterns of ownership, but they may not be. The existence of a majority of common board members or of common top-level management would be especially instructive. Some of the more aggressive states and the Multistate Tax Commission (MTC) have even argued that examination of minutes of meetings

of boards of directors and executive committees is necessary if common control, as manifested in pursuit of common objectives, is to be discovered.⁷²

B. Autonomy and Central Control

The autonomy of various affiliated firms or divisions within single firms has been raised in the Exxon, Woolworth, and ASARCO cases. This is conceptually quite proper, for the top management of a firm (or group of firms) interested in maximizing aggregate profits can generally concede autonomy to its constituent divisions (or firms) only under very restrictive conditions.⁷³ These conditions are essentially those under which we would probably find that the divisions (firms) were not involved in a unitary business. If the conditions under which attempts by divisional managers to maximize the profits of their divisions will maximize the profits of the entire firm are violated, top-level management interested in maximizing profits will either abandon decentralized decision making or adjust the price signals sent to lower-level managers in such a way as to induce behavior that will maximize profits for the entire firm. In either event, we would conclude that there is a unitary business. This is, of course, as it should be, since we would expect decentralized decision making based on unadjusted transfer prices to lead to the maximization of the profits of the entire firm only if separate accounting accurately measures the profits of individual divisions. What then are some of the reasons decentralized decision making aimed at maximizing divisional profits may fail to maximize aggregate profits?

First, decentralized management cannot be expected to act properly in the face of declining costs resulting from economies of scale in the use of shared facilities.⁷⁴ Economies of scale would lead to a natural monopoly

internal to the firm. Pricing of the decreasing cost activity to maximize profits of the division responsible for it would cause it to be underutilized. Profit maximization for the firm requires that internal decisions be based on transfer prices set equal to marginal (incremental) cost. But if this is done, divisions responsible for activities subject to declining costs will incur accounting deficits, since average cost exceeds marginal cost.

Second, external costs (and benefits) flowing between divisions are likely to lead to improper decisions, in the same way that pollution (and external benefits) prevents the achievement of maximum social welfare. In the absence of Coase-type bargains, lower-level managers will make the proper decisions only if pricing signals are adjusted from above to reflect externalities.

Third, if there is interdependence in production or in demand for the output of the various divisions (or possibilities for profitable reciprocal purchases), division managers may not take due account of the effects of their actions on the profitability of other divisions.⁷⁵

Fourth, if their outlook is restricted to their own (perhaps artificially limited) sphere of activity and the profits of various divisions have a low covariance, managers may be more risk-averse than is appropriate from the group's point of view. Top-level management may need to adjust signals to lower-level management or otherwise induce more risk taking.

Finally, and in a somewhat different vein, if transfer prices deviate from market prices (or marginal costs) because they are being manipulated to minimize taxes (or for other reasons), there is no reason to expect that the profit-maximizing actions of lower-level managers will lead to global profit maximization.

All these (and other) examples of the potential failure of decentralized decision making can be overcome (at least in principle) by centralizing certain decisions or by adjusting the pricing signals to which lower-level managers respond. Either centralization of important decisions or significant adjustments in pricing signals should thus be considered prima facie evidence that a unitary business exists.⁷⁶ Conversely, one prerequisite for a finding that a unitary business does not exist would seem to be heavy reliance on transfer pricing based on marginal costs and virtually total autonomy from central direction.⁷⁷

V. Summary Statement of Criteria

The analysis of the section II and III suggests that there are two reasons that are conceptually distinct, though often found together, for determining that the members of a group of commonly owned and controlled firms are engaged in a unitary business. First, substantial transactions between affiliated firms can make it administratively difficult, and perhaps impossible, to verify that transfer prices are not being manipulated to shift income between affiliated firms, and therefore between jurisdictions. This problem is most likely to be significant where there are vertical transactions in goods and services with no uncontrolled market price, and it becomes insuperable as vertical integration becomes complete. Second, various kinds of interdependence may make it conceptually impossible to determine the income of the individual firms. Particularly important are shared costs and other economies of scale and scope and shared know-how. Though interdependence exists particularly in vertically integrated production and distribution, it can also explain horizontal diversification and demand a finding of unity.

Neither of the difficulties described above is likely to be a significant source of misstatement of income for tax purposes unless affiliated firms are under common control, for in the absence of common control, affiliated firms can be expected to pursue their own objectives, much as totally unaffiliated firms do. Thus it appears that a finding of common control should be one sine qua non of a finding of unity. Conversely, total autonomy of the individual firms would generally indicate the absence of unity. Common ownership is usually, but not always, indicative of common control.

A. Substantiality

For shared costs to justify a finding of unity the costs must be substantial enough that how they are allocated between firms could seriously affect the calculation of profits of the various corporate entities sharing them. The same is true of interdependence and intercorporate transactions; they must be substantial enough that they could cause separate accounting to fail badly to isolate the profits of the various entities.⁷⁸ In other words, it seems essential to have a de minimus provision that prevents even commonly controlled affiliated firms with only insignificant amounts of shared expenses, interdependence, or intercorporate transactions from being swept into the net of unitary combination.

The following example illustrates the need for such a rule, in the case of shared costs. Suppose that firms X and Y both operate in states A and B, only the former of which levies a corporate tax. Suppose further that the formula used by state A would result in that state's taxing the following fractions of the income of the two firms under separate accounting and under combination: firm X, 66 2/3 percent; firm Y, 25 percent; combined, 50 percent. Suppose that each firm has sales of \$2,400 and that

expenses directly allocable to firms X and Y are \$2,000 and \$1,400, respectively. Expenses that cannot be allocated are \$200. (This could also be the possible error in transfer pricing; see below.) Thus total profits of the two firms are \$1,200.

If the two firms file a combined return, state A will tax \$600 of this income. If separate accounting is used, the allocation of the unallocable expenses becomes important. Suppose, however, that these expenses are attributed entirely to firm Y, the one with the least presence in state A, the income tax state, as indicated by the apportionment formula. (This allocation maximizes the tax base of state A under separate accounting.) Firm X would report \$267 (66 2/3 percent of \$400) of income to state A and firm Y would report \$200 (25 percent of \$800). The total is only \$467, or substantially less than under unitary combination. Even if the unallocable expenses were claimed as a deduction by neither firm, under separate accounting the total taxable income in state A would be only \$517, still less than under combination. Combination of the high-income firm with less presence in state A with the low-income firm with greater presence in state A increases the base apportioned to state A by more than the amount of tax base at stake in the arbitrary allocation of the unallocable expenses.

Though this example was constructed to produce an extreme result, its lesson is of general applicability. Minor amounts of unallocable expenses -- with nothing more -- should not be allowed to force use of a combined report.⁷⁹ Much the same argument can be made for potential errors in transfer prices. If transactions between affiliated firms are so insignificant or the conceivable range of transfer prices is so small that no imaginable amount of manipulation could seriously affect the division of income via separate accounting, unitary combination should not be required.

These de minimus rules should not be interpreted as emasculating the unitary principle. They are intended to apply when there are minor unallocable costs, small potential errors in transfer prices, or insignificant amounts of interdependence, but little or no other interdependence. In many instances the contribution to group profits cannot be adequately recognized simply by adjusting transfer prices or the allocation of shared expenses. Examples might include major benefits of technological know-how, brand identification, unique managerial capabilities, and vertical integration. There generally are not well-defined market prices in these cases, and even if there are, the increased profits such arrangements make possible may be so considerable that separate accounting cannot adequately deal with them.

B. A Three-Stage Test

The above line of reasoning suggests a three-level test of unity. At the first level a finding of complete managerial autonomy to act on the basis of market-determined pricing signals for inputs and outputs (or transfer prices approximating them) would constitute presumptive evidence that a single unitary business does not exist. On the other hand, absence of autonomy, as evidenced by common control, would suggest that a second level of investigation is warranted. At this second level of investigation the manipulation of transfer pricing, the impossibility of determining accurate transfer prices, or vertical integration would lead to a finding that a unitary business might exist and would lead to the third level investigation into substantiality. So would important shared costs, other economies of scale and scope, and other forms of interdependence that make isolation of the profits of individual firms impossible. Commonly controlled firms between which there were few if any shared costs or other

economies of scale or scope, only minor amounts of transactions for which transfer pricing could be an issue, and no other important interdependences would not be found to be unitary.

This three-level test can be presented schematically as in Figure 1.

FIGURE 1 GOES HERE

If test 1 reveals that there is no common control, a finding of unity cannot be supported. Only if there is common control do we go to test 2, whether there are shared expenses, other economies of scale or scope, intragroup transactions, or other economic interdependence. Test 3 distinguishes cases in which minor interdependence or allocation of relatively small amounts of income and expense are involved from those in which problems of shared expenses, transfer pricing, and interdependence are so vital that separate accounting cannot be used; this test must also be answered affirmatively for a finding that there is a unitary business.

Any test of unity must provide a yes or no answer to the question of whether combination is appropriate. A determination that two or more firms are "a little bit" unitary or "mostly" unitary cannot be employed to suggest that a little bit of combination or a lot is proper.⁸⁰ This is unfortunate, because the need for an all-or-nothing answer raises the stakes involved in reaching the right answer. It also makes it especially desirable to be able to specify conceptually clear and relatively objective tests of what constitutes a unitary business.⁸¹

It might be relatively easy to legislate simple quantitative standards for some kinds of shared expenses and intercorporate transactions. It should also be possible to recognize whether common control exists in given situations, though specifying the test in law might be more difficult. But it seems almost impossible to legislate a quantitative standard for the

Figure 1 Three-Stage Test for a Unitary Business

Test 1: Is there common control?

If No:
Nonunitary

If Yes, then apply Test 2:
Are there shared expenses, economies of scale or scope, intragroup transactions, vertical integration, or other economic interdependence?

If No:
Nonunitary

If Yes, then apply Test 3:
Are these substantial?

If No:
Nonunitary

If Yes:
Unitary

type or amount of interdependence of various types that would be required for a ruling of unity.⁸² Here there seems to be no substitute for subjective consideration of the facts in individual cases.⁸³

C. Comparison With Other Tests

Among the questions states have asked in determining whether groups of affiliated firms are engaged in unitary businesses is whether the various firms share insurance, legal, accounting, and tax preparation services; purchasing; employee benefit plans; and training.⁸⁴ In and of themselves, these do not appear to me to be adequate predicates for a finding of a unitary business. Many of these activities probably confer little benefit (savings) on the group that would not be available to the individual members. Only if there are substantial economies of scale, other sources of saving (for example, quantity discounts from common purchasing); or other reasons separate accounting would fail to isolate the income of the members is a finding of unity in order. If, for example, the liability for employee benefits became the joint liability of the group, it might be impossible to untangle the profits of the various firms. At best, an affirmative answer to any of these questions should be only the starting point for further investigation of the economic reality of the matter; it should not be dispositive.

Whether firms are in a similar line of business is another commonly mentioned test of unity that is suggestive but should not be dispositive.⁸⁵ If vertical integration or market sharing exists, or if there are other forms of interdependence, affiliated firms in a similar line of business are clearly unitary. But if there is simply common ownership of two firms operating in totally different markets with no important economic interdependence, there is no unitary business. This is true even if there

is common control, so long as there is no coordination of policies. It may be difficult to know how to split the cost of central management between the firms. But in most cases the magnitudes are not large enough that the split could significantly alter the results of separate accounting.

Other tests are likely to be much more indicative of a unitary business under certain circumstances. For reasons described earlier, joint advertising and other common aspects of public relations, including logos and stationery, intercompany finance and loan guarantees, interchange of expertise, and coordination via shared officers and directors may make it impossible to rely on separate accounting. These are also discussed briefly in the next part of this section.

D. An Alternative Test: Operational Interdependence

It appears that the criteria suggested here are broadly consistent with those proposed by Jerome Hellerstein,⁸⁶ though they may be somewhat more judgmental and may result in a finding of unity in some instances where Hellerstein's would not.⁸⁷ He has suggested that "a business is not unitary unless interdependent basic operations are carried on to a substantial extent in different states by the branches or subsidiaries that comprise the controlled enterprise."⁸⁸ The italicized words show agreement that common control is necessary and that interdependence must be substantial.⁸⁹ We appear to differ about whether sharing of certain activities that are not part of basic operating functions in and of itself could, in principle, lead to a finding that a unitary business exists. Hellerstein argues that:

The non-basic operating functions of a business, such as providing managerial, accounting, personnel, legal, patent or similar services, centralized advertising, pension and benefit plans, and the like, or furnishing capital, important though they be to the profits of the enterprise, were not the

types of activities that gave rise to, or that necessitated apportionment. In determining the profits of a branch or subsidiary, the costs of such internal, non-basic operations can, and often are, regularly determined and charged on a cost, gross receipts or similar basis. Obviously, the fairness of these charges needs to be scrutinized closely, but they present nothing like the virtually insurmountable problems of determining arm's length transfer prices on sales of raw materials, or goods manufactured by one branch or controlled corporation and sold to another, or on resale by a mercantile company of purchased goods. Patents and know-how created and owned by one segment of the enterprise, secret processes, or the results of research done by one segment of the business and made available to the others, are more elusive and more difficult to pin down. Unless they are basic to the enterprise, these items can also be charged on a cost or similar basis, or if there is licensing to nonaffiliated interests, on a comparable basis.⁹⁰

As a practical matter, I would share Hellerstein's view on the items listed in the first sentence, with the possible exceptions of management, advertising, and finance. As noted in the previous part of this section, it is generally unlikely that any savings resulting from sharing the other expenses listed or any possibility of manipulation of intercorporate charges for them could be great enough to distort materially the calculation of income of the various component firms. On the other hand, basing combination on them could cause serious distortions of the division of income, in the way illustrated by the example presented in the first part of this section. The same may often be true of advertising; it is unlikely that advertising ordinarily looms large enough to matter much. But where advertising is an important expense or brand identification spills over from one division or affiliated firm to another, it may not be enough simply to charge for advertising costs.⁹¹ Like technical knowledge, brand identification based on joint advertising may justify a finding that a unitary business exists.

Finance also causes me to worry, since manipulation of interest rates

is a troublesome area in the administration of the federal tax on multinational firms. This concern is compounded by considerations that a subsidiary of a major corporation may be able to borrow on substantially more favorable terms -- from its parent or externally -- than if it were totally independent. Finally, it appears that one must look carefully at the type and amount of control exercised by central management, along the lines suggested in section IV. This may or may not be indicative of a unitary business.

In its brief to the Supreme Court, counsel for the Container Corporation, relying on Hellerstein's writing and its reading of the decisions in ASARCO and Woolworth, requested that a substantial flow of products between affiliates be made the bright-line test for the existence of a unitary business. Such a test would, of course, be much more restrictive than that proposed in this paper, since under it the various other types of interdependence described earlier could not be used to justify a finding of unity.⁹² Whether it would actually be less restrictive than Hellerstein's is difficult to know, given the difficulty of defining precisely the term basic operational interdependence, but it appears that it would be.

VI. Mobil, ASARCO, and Woolworth

It may be worthwhile to examine briefly the Mobil, ASARCO, and Woolworth cases to see how the U.S. Supreme Court's apparent views on what constitutes a unitary business compare with those presented here.⁹³ I concentrate on the tests of unity the Court seems to have applied, rather than on whether it applied them correctly.⁹⁴ Thus I base the discussion on the descriptions and appraisals of the factual situations found in the majority

and minority opinions.⁹⁵

A. Mobil

In Mobil the U.S. Supreme Court provided a description of a unitary business (and the need for the concept) that appears to be totally consistent with what has been written above.

Separate accounting, while it purports to isolate portions of income received in various States, may fail to account for contributions to income resulting from functional integration, centralization of management, and economies of scale. Because these factors of profitability arise from the operation of the business as a whole, it becomes misleading to characterize the income of the business as having a single identifiable 'source.'⁹⁶

The Court seems to have found a unitary business in Mobil largely by default, since Mobil did not offer any serious argument that no unitary business was involved.⁹⁷ To the extent this is true, one can hardly fault the Court on that part of its decision.⁹⁸ It seems, however, rather far-fetched to believe that Mobil is engaged in a unitary business with most of the firms listed in footnote 9 of the dissenting opinion by Justice Stevens, absent evidence that it controls these firms (mostly public utilities), in which Mobil had only minority interests.⁹⁹ At most, it would appear to be engaged in a unitary business only with the three firms listed in footnote 5 of the majority opinion, three wholly owned subsidiaries and a joint venture (ARAMCO), in which it had a 10 percent share. In these cases one has little difficulty believing there was a unitary business, even though ARAMCO raises the special issue of how to treat joint ventures.

B. Woolworth

The majority also appears to have applied principles consistent with those outlined above in the Woolworth case. It went into considerable detail in documenting the absence of central control ("Each subsidiary per-

forms these functions autonomously and independently of the parent company"¹⁰⁰) and the lack of important shared expenses, intercorporate transactions, or other interdependence ("Woolworth's operations were not functionally integrated with its subsidiaries"¹⁰¹ and "There is no flow of international business. Nor is there any integration or unitary operation . . ."¹⁰²).

The minority opinion by Justice O'Connor gives three reasons for disagreeing with the majority decision: frequent communication between the managements of the parent and the subsidiaries, approval of major financial decisions by the parent, and the publication of consolidated financial statements.¹⁰³ There is no suggestion that the frequent communications either invalidated the judgment that the subsidiaries were independent of the parent or otherwise rendered the firms unitary. The third objection (consolidated statements) seems to lack substance. Only the second seems to hold any possibility of being important; but even here there is no suggestion how parent oversight of debt and dividend policy caused distortion of the division of income between Woolworth and its foreign subsidiaries.

C. ASARCO

The Court considered that the relationship between ASARCO and Southern Peru posed the closest question of the five affiliates considered in this case. ASARCO owned 51.5 percent of Southern Peru and bought 35 percent of its output. Even so, the court found that (1) ASARCO did not control Southern Peru and (2) intercorporate transactions occurred at prices over which the two firms had no control.¹⁰⁴ It thus found no evidence of a unitary business.

In the other parent-subsidiary relations under examination, the Court found that ASARCO owned 52.7 percent of a subsidiary but had never elected

an officer, was prohibited by a consent decree from voting its stock in two companies in which it held roughly 34 percent interests, and had been required by the Mexican government to divest itself of 51 percent of the subsidiary's stock.¹⁰⁵ In none of the four instances did the Court find that ASARCO exercised control over the subsidiaries, all of whom were found to operate independently. Moreover, the Court found no other evidence of a unitary business and explicitly rejected the view that a unitary business exists if stock is "acquired, managed, or disposed of for purposes relating or contributing to the taxpayer's business,"¹⁰⁶ noting that "this definition of unitary business would destroy the concept."¹⁰⁷

The dissenting opinion, again delivered by Justice O'Connor, argued on three grounds that ASARCO was involved in a unitary business with its subsidiaries: ASARCO used its knowledge of the nonferrous metals industry to decide whether to invest in these firms;¹⁰⁸ its investment may have involved interim investment of idle funds from its own primary business;¹⁰⁹ and it had effective operational control over at least three of the companies.¹¹⁰ The first of these arguments appears to have no substance. The second is more difficult to appraise but is not one that I find convincing.¹¹¹ The third also seems lacking, except perhaps in the case of the Mexican subsidiary. At any rate, it is interesting that even the dissent emphasized control, not mere majority ownership.

D. Appraisal

It appears that the Supreme Court agrees with the need to examine the facts in a given situation to determine whether a unitary business exists. It said in Exxon, "The court looks to the 'underlying economic realities of a unitary business,' and the income must derive from 'unrelated business activity' which constitutes a 'discrete business enterprise.'"¹¹² In

ASARCO it said, "[T]he application of the unitary-business principle requires in each case a careful examination both of the way in which the corporate enterprise is structured and operates, and of the relationship with the taxing state."¹¹³ The Court's language leaves considerable latitude for alternative interpretations, but the issues to be determined appear to be roughly those described in Figure 1 above.¹¹⁴ Unfortunately, the answers to most of the crucial questions are not easily quantifiable. As Walter Hellerstein has written, "While one can derive some guidance for the future from the Court's discussion of the facts, the Court's approach in ASARCO seems to invite an endless stream of litigation over the requisite flow of goods, services, personnel and so forth, that are necessary to constitute a unitary business."¹¹⁵

FOOTNOTES

*The author wishes to thank Jack Hirshleifer, F.M. Scherer, Roger Sherman, and Carl Shoup, as well as the participants in the conference, for comments on an earlier version of this paper. He is, however, solely responsible for the opinions expressed here.

1. This sentence is deliberately worded to preclude the need to consider two issues, the treatment of arguably foreign source income and the test of taxable nexus, in order to allow us to focus on a third, the definition of a unitary business. On the first of these, see George N. Carlson and Harvey Galper, "Water's Edge Versus Worldwide Unitary Combination," in This Volume, chapter , and the references cited there. Nor do I consider either the choice of the formula to be used in apportioning income or the definition and measurement of the "factors" in the formula. On these questions, see Peggy B. Musgrave, "The State Corporate Income Tax: Principles for the Division of Tax Base," This Volume, chapter .

2. If separate accounting could be applied satisfactorily on a geographic basis, it could substitute for formula apportionment. Functional separate accounting would presumably need to be supplemented by formula apportionment to divide the income attributed to the various functions among the states.

3. This statement of the problem is found in George T. Altman and Frank M. Keesling, Allocation of Income in State Taxation (New York: Commerce Clearing House, 1946), p. 101: "The essential test is whether or

not the operation of the portion of the business within the state is dependent upon or contributory to the operation of the business outside the state. If there is such a relationship, the business is unitary." Virtually identical wording is contained in Edison California Stores, 30 Cal. 2d. 472 (1947) at 481, the classic case that gave this test judicial sanction. For a brief history of the development of the unitary concept, see, for example, Benjamin F. Miller, "Worldwide Unitary Combination: The California Practice," This Volume, chapter , or William D. Dexter, "The Unitary Concept in State Income Taxation of Multistate-Multinational Businesses," The Urban Lawyer 10, no. 2 (Spring 1978): 181-212.

4. In a combined report income of the firms engaged in the unitary business is added together and intercorporate transactions between the firms (most notably dividends) are eliminated. The income of the unitary group is then apportioned between the taxing state and others on the basis of the factors (e.g., payroll, property, and sales) of the entire group. For the distinction between a consolidated return and a combined report, see Miller, "Worldwide Unitary Combination."

5. See Comptroller General of the United States, Report to the Chairman, House Committee on Ways and Means, Key Issues Affecting State Taxation of Multijurisdictional Corporate Income Need Resolving, (Washington: D. C.: U. S. General Accounting Office, July 1, 1982) for a recent compilation of state practices in this area. California practice is described in detail in Miller, "Worldwide Unitary Combination."

6. This and the next sentence of the text are not intended to provide a complete catalog of business grievances or state responses. For more complete discussions of these grievances and responses, see the papers by Jerome R. Hellerstein, "State Taxation Under the Commerce Clause: The

History Revisited," all in this volume. Carlson and Galper, "Water's Edge;" and Walter Hellerstein, "Dividing the State Corporate Income Tax Base: Developments in the Supreme Court and the Congress," all in this volume. While state and corporate interests are generally aligned as described in the text, there are instances in which firms wish to employ unitary combination and states attempt to deny it; see especially the peculiar case presently before the U.S. Supreme Court (Chicago Bridge and Iron Co. v. Caterpillar Tractor Co., U.S. No. 81 - 349, Oct. 1981), in which Chicago Bridge and Iron has taken up a case abandoned by the state of Illinois in attempting to prevent Caterpillar from employing worldwide combination.

7. The cases decided during the Court's 1980 and 1982 sessions are Mobil Oil Corp. v. Commissioner of Taxes, 445 U.S. 425, 100 S. Ct. 1223 (1980); Exxon Corp. v. Wisconsin Dept. of Revenue, 447 U.S. 207, 100 S. Ct. 2109 (1980); F. W. Woolworth Co. v. Taxation and Revenue Dept. of the State of New Mexico, ___ U.S. ___, 102 S. Ct. 3128 (1982); and ASARCO Inc. v. Idaho State Tax Comm. ___ U.S. ___, 102 S. Ct. 3103 (1982). Container Corp. of America v. Franchise Tax Board (U.S. No. 81-523, Oct. 1982), presently before the Court, is the first case (aside from Chicago Bridge and Iron v. Caterpillar, in which the record is quite skimpy) to reach the Court in which the legality of worldwide application of unitary combination is explicitly challenged.

8. Carlson and Galper, "Water's Edge," n. 11, state: "The major remaining controversy in the domestic area surrounds the question of what constitutes a unitary business operation." Walter Hellerstein, "Dividing the State Corporate Income Tax Base," expresses a similar sentiment: "Since the existence of a unitary business is an essential predicate to a

state's apportionment of income generated by that business, the criteria for determining whether a business is unitary are crucial."

9. 445 U.S. at 437.

10. See the citations in note 7 above. It may be well to note at this point that Exxon involved primarily the question of whether separate accounting could be used to determine the functional breakdown of operating income among the various divisions of Exxon, a single corporation. By comparison, the other three cases involved the question of whether nondomiciliary states could include intercorporate dividends in the apportionable income of a taxpayer. The Court ruled that the answer in each case hinged on the existence of a unitary business.

11. For an earlier expression of my views on such issues, see Charles E. McLure, Jr., "Toward Uniformity in Interstate Taxation: A Further Analysis," Tax Notes Vol. 13, no. 4 (July 13, 1981): 51-63. I have argued elsewhere, in Charles E. McLure, Jr., "The State Corporate Income Tax: Lambs in Wolves' Clothing," in The Economics of Taxation ed. Henry J. Aaron and Michael J. Boskin (Washington, D.C: Brookings Institution, 1980), pp. 327-46; and in "Assignment of Corporate Income Taxes in a Federal System," in Canadian Tax Journal 30, no. 6 (Nov.-Dec. 1982): 840-859 and in Tax Assignment in Federal Countries, ed. Charles E. McLure, Jr. (Canberra: Centre for Research on Federal Financial Relations, forthcoming) that states should not attempt to tax corporate income, in part because of (1) the inherent difficulties of dividing income among states, (2) the demonstrated unwillingness of states to achieve an acceptable degree of uniformity in definitions of taxable income and means of dividing it among states, let alone tax rates, and (3) the geographic distortions inherent in origin-based taxes that are not uniform across

states. Thus we are, at best, dealing with what I consider a second-best situation.

12. See, however, the papers by Carlson and Galper, "Water's Edge," by Miller, "Worldwide Unitary Combination," and by Walter Hellerstein, "Dividing the State Corporate Income Tax Base" and the comments by Franklin C. Latcham, Norman J. Laboe, and David R. Milton, all in this volume, and references given there. Of course, the tests of economic unity presented here are, in principle, as applicable to multinational groups of affiliated firms as to wholly domestic groups if combination is to be applied on a worldwide basis.

13. Note the words of the California Supreme Court in *Butler Bros. v. McColgan* 17 Cal.2d. 667-68 (1941): "It is only if its business within this state is truly separate and distinct . . . so that the segregation of income may be made clearly and accurately, that the separate accounting method may properly be used." The entire discussion of this paper is framed in terms of determining whether formula apportionment (and combination, in the case of legally distinct affiliates), rather than separate accounting, is appropriate for the division of business income between states. It appears, however, that the same test of unity would be applicable in determining whether, in the absence of combination, intercorporate dividends should be taxed to the payee corporation, as in Mobil, ASARCO, and Woolworth. Note 80 below argues that if two firms are found to be engaged in a unitary business, combination should be applied; dividends should not simply be included in apportionable income, as in Mobil.

I should note that in the text of the version of the paper presented at the conference, which has been extensively revised, but not

altered substantively, the following paragraph precedes this one:

The discussion that follows is predicated on the view that the goal of state tax policy in this area is (or should be) to tax corporate income where it originates. Various Supreme Court pronouncements about the illegality of taxing extraterritorial values leads one to believe that the Court agrees. In this view of things, formula apportionment is a necessary evil forced upon us by the inherent difficulty of using separate accounting to divide the taxable income of a unitary business among the various jurisdictions in which it is earned.

Jerome Hellerstein based his conference comments, which follow this paper, on that paragraph and also relied on it in his "The Basic Operations Interdependence Requirement of a Unitary Business: A Reply to Charles E. McLure, Jr.," Tax Notes 18 no. 9: 723-31. I have omitted the above paragraph in revising the paper for publication, since upon relection I feel that what it says is not really germane to the issue at hand, and, indeed, detracts from consideration of the central topic of the paper, defining a unitary business. My reasoning is explained further in "[title to be determined]" Tax Notes, forthcoming.

14. The repeated use of "in general" and "generally," in combination with "accurately" or "satisfactorily," in these sentences is intended to indicate that the presence of the characteristics of a unitary business described here creates a presumption that separate accounting will not isolate the income of the constituent parts of a unitary business and that formula apportionment must be employed in such cases. It is not proposed that separate accounting could be used to overturn this presumption, except in those cases in which the obstacles to isolation of the income of the components are so minor that they would be covered by the de minimus provisions discussed in section V below. For a statement of the California presumption in favor of unitary treatment over separate accounting for the taxation of affiliated firms, see Miller, "Worldwide Unitary Combination."

15. Peggy Musgrave, in "The State Corporate Income Tax," also draws this distinction.

"The need for combining firms into the so-called unitary business . . . arises under . . . two sets of circumstances. The first occurs where the firms are in a position to manipulate their accounts so as to shift accounting profits . . . The second situation arises where there is structural linkage among the firms which renders the separation of their profits an arbitrary procedure . . . It is to be noted that this second situation provides the more fundamental rationale for combination. In the absence of these structural interdependencies, the need for combination merely rests on the lack of administrative capability for enforcing arm's-length pricing.

This distinction helps to explain the reasoning that may lie behind the following statement by the staff of the California Franchise Tax Board in Senate Committee on Finance, "Staff Observations Regarding Income Tax Provisions of Legislative Proposals," State Taxation of Interstate

Commerce, Hearings before the Subcommittee on State Taxation of Interstate Commerce, 93rd Cong., 1st sess., Sept. 18 and 19 1973, p. 229, quoted in Carlson and Galper, "Water's Edge": "The use of a combined report [unitary method] for determining income is not based upon the concept that members of a unitary business have not acted at arm's-length. It is used because separate accounting, regardless of its mathematical accuracy, does not properly reflect the income of a unitary business."

16. Of course, transfer prices may be manipulated for reasons other than shifting taxable income between states. For our purpose what matters is the possibility that income of the individual firms may be mismeasured, not why -- or even whether -- transfer prices are being manipulated. Any inaccuracy of transfer prices, whether due to deliberate manipulation or not, is reason for concern, if it is substantial. We also ignore the possibility that different transfer prices may be reported in different states, something made easier (and perhaps legal) by the failure of the states to adopt uniform tax laws and to audit firms jointly.

17. Note that even here there could be difficulties, for example, if, contrary to our assumption, the firms shared common storage facilities; see also the first part of section III.

18. Implicit in this example is the assumption that both firms face the same opportunity cost for funds in the capital market. If this is not true, interpretation becomes more difficult.

19. Note that firm A could sell to an unrelated third party at an artificially reduced price at the same time that firm B made an equivalent purchase from the same party under identical terms (plus a small commission). This subterfuge would shift income from firm A to firm B, but would be more difficult to spot than simple use of artificially low

transfer prices.

20. I.R.C. regulation 1.482-2(e)(1).

21. Jack Hirshleifer, "On the Economics of Transfer Pricing," Journal of Business 30 (July, 1956): 175 notes that where two integrated firms are each other's only supplier and customer, the optimal transfer price is the marginal cost (including normal return to capital) of the supplier. But the marginal output, by assumption, yields no economic profit, and this rule for profit maximization says nothing about the division of inframarginal profits between the two firms, something that is important for tax purposes and depends on the entire cost schedules of the two firms. Note also that since all the activities in the wheat-hogs example are assumed to be competitive, none is yielding more than a normal return to capital, at least in the long run. As the discussion of distortions alleged to result from the use of one formula in all circumstances (for example, in the Container Corporation's brief) indicates, it is the existence of arguably different profitability -- relative to payroll, property, sales, or whatever else enters the apportionment formula -- in various activities or locations that makes the proper definition of a unitary business important. Moreover, vertical integration may create savings that are not captured by any of these approaches; see also the third and fourth parts and of this section.

22. See, for example, "Multinational Corporations and Income Allocation Under Section 482 of the Internal Revenue Code," Harvard Law Review 89, no. 6 (Apr. 1976): 1202-1238; Comptroller General of the United States, Report to the Chairman, House Committee on Ways and Means, IRS Could Better Protect U.S. Tax Interests in Determining the Income of Multinational Corporations (Washington, D.C.: U.S. General Accounting

Office Sept. 30, 1982); Geoffrey John Harley, International Division of the Income Tax Base of Multinational Enterprise, (Ph.D. diss., University of Michigan Law School, 1980; Boulder, Colo.: Multistate Tax Commission, 1981); and the Organisation for Economic Cooperation and Development, Transfer Pricing and Multinational Enterprises (Paris: OECD, 1979) and literature cited there. Note, however, that whereas the Comptroller General is critical of transfer pricing, as applied by the IRS, the OECD strongly endorses the arm's-length approach and would permit the use of formula apportionment only if it is consistent with arm's length principles. For more on this, see Carlson and Galper, "Water's Edge."

23. On the nature and advantages of vertical integration, see any intermediate-level textbook on industrial organization, such as F. M. Scherer, Industrial Market Structure and Economic Performance (Chicago: Rand McNally, 1980), pp. 88-91, or Roger Sherman, The Economics of Industry (Boston: Little Brown and Co., 1974), pp. 161-63, and references therein. In what follows we do not discuss such obvious technological reasons for vertical integration as the combination of the various hot-metal operations in steel making. Of course, the economies involved in such cases would render isolation of profits via separate accounting impossible.

24. See Oliver E. Williamson, "The Vertical Integration of Production: Market Failure Considerations," American Economic Review 61, no. 2 (May 1971): 112-23. At this point we discuss only vertical integration, somewhat artificially postponing until section III the discussion of similar influences that can lead to horizontal diversification; the two will often be found together. See also note 44 and literature cited there.

25. Oliver E. Williamson, "The Modern Corporation: Origins, Evolution, Attributes," Journal of Economic Literature 19, no. 4 (Dec. 1981): 1545-46,

identifies the simultaneous existence of bounded rationality and opportunism as the source of difficulties in contracting: "[H]uman agents . . . differ from economic man . . . in that they are less competent in calculation and less trustworthy and reliable in action." Williamson would therefore "assess alternative governance structures in terms of their capacities to economize on bounded rationality while simultaneously safeguarding against opportunism."

26. Williamson notes that much of the success and failure of attempts at vertical integration in the nineteenth century can be explained in terms of three characteristics: economies of scope, asset specificity, and externalities in demand (the potential debasement of quality) *ibid.*, pp. 1551-54. Economies of scope are described in first part of section III below.

27. See Sherman, The Economics of Industry, pp. 167-69.

28. This is a possible reason for difficulties in knowing the profit margins to use in constructing arm's-length prices noted in the second part of this section.

29. Besides inducing oil firms to manipulate transfer prices to realize as much income as possible at the crude oil stage, the provision of percentage depletion in the tax code (now ended for large integrated companies) encouraged vertical integration of refiners into exploration and production, reducing the availability of supplies to nonintegrated refiners. See Scherer, Industrial Market Structure, p. 91 and references cited there.

30. 100 S. Ct. 2121 (1980), quoting testimony of an Exxon senior vice president who had contended during hearings on divestiture that Exxon was unitary. For a theoretical case for vertical integration in a somewhat

different context of uncertain supply, see Kenneth J. Arrow, "Vertical Integration and Communication," Bell Journal of Economics 6, no. 1 (Spring 1975): 22-59.

31. It would be interesting to know to what extent these involve relatively minor joint costs whose allocation could not possibly distort the measurement of income significantly and to what extent they truly create interdependence that suggests unity. See also the discussions of interdependence in section III and of quantitative substantiality in the first part of the concluding section.

32. The purpose of these exchanges was apparently to save transportation costs; see 100 S. Ct. 2115 (1980). There is no suggestion of "reciprocal buying" in the sense used in the fourth part of section III. But it may be that such exchanges are a natural defensive response to the small-numbers environment in which the oil companies operate. They allow the companies to hold each other hostage, so that a competitor's denial of supplies in one market can be countered with denial in other markets.

33. See also note 15 above.

34. Thus Miller, "Worldwide Unitary Combination," notes that a measure used "in determining unity is whether or not the earnings of the group have been materially greater because of affiliation than they would have been if they had operated separately."

35. For the present purpose, comments by Jack Hirshleifer in "Economics of the Divisionalized Firm," Journal of Business 30 (Apr. 1957): 105-107 on the profitability of abandoning a division are particularly relevant. He notes: "[T]he apparent profit (or loss) of any division . . . will not equal the change in total profits for the firm as a whole when the operations of that division are considered incrementally" (p. 108).

36. Each of the two firms might market in only one state, with the shared pipeline being the only interdependence between them. If one firm owned the pipeline and carried the other's product for a fee, or if a third affiliated firm owned the pipeline, it is not obvious what transfer price to employ, especially if there are no comparable uncontrolled sales. Leaving aside the basic problem noted in the previous note, a case could be made for either average cost or marginal cost. Thus neither state could accurately determine the income of either firm.

37. This line of reasoning might seem to have been more persuasive before the development of money market instruments in which excess balances can be placed for periods as short as one day. But the fact remains that the possibility of pooling financial requirements can generate important savings.

38. Economies of scale generally give rise to decreasing costs (average costs that fall as output increases). By comparison, constant returns to scale (e.g., doubling inputs doubles output) generally imply constant average costs.

39. If the savings from joint activity are so small, one might then ask why the firms bother to share the facilities. In such cases there may be other even stronger unitary ties.

40. The best examples must be in information; since crowding does not occur, a given cost of obtaining information can be spread over an arbitrarily large quantity of output. In making this argument we must be careful not to decide that affiliates held together by the kinds of economies of transaction costs based on proprietary information discussed in the next part of this section are not unitary just because shared costs are small. This caveat is explained further there.

41. For a discussion of the usual ranges over which economies of scale exist, including those of management, see Scherer, Industrial Market Structure, pp. 84-88.

42. This literature is largely attributable to W. J. Baumol, J. C. Panzer, and R. D. Willig. See Elizabeth E. Bailey and Ann F. Friedlander, "Market Structure and Multiproduct Industries," Journal of Economic Literature 20, no. 3 (Sept. 1982) for a recent survey of that literature, including the contributions of Baumol, Panzer, and Willig.

43. It hardly seems necessary to note that in extreme cases of joint supply (e.g., refining of crude oil into gasoline, kerosene, and various other products), it would be hopeless to attempt to employ separate accounting to determine the profits attributable to the various products.

44. The seminal article is R. H. Coase, "The Nature of the Firm," Economic Journal 4 (Nov. 1937): 386-405. See also Oliver E. Williamson, "Vertical Integration;" Robin Marris and Dennis C. Mueller "The Corporation, Competition, and the Invisible Hand," Journal of Economic Literature 18, no. 1 (Mar. 1980): 32-63; Richard E. Caves, "Industrial Organization, Corporate Strategy and Structure," Journal of Economic Literature 18, no. 1 (Mar. 1980): 64-92; and especially Williamson, "The Modern Corporation." In this last article Williamson notes that in the absence of savings in transaction costs transfers will be organized by markets, rather than within firms, because scale economies may be more easily realized (if the demand of any firm is small relative to the minimal optimal output), markets can aggregate uncorrelated demands to achieve sharing of risks, and markets may achieve economies of scope if various firms do not need all services that can be provided more cheaply together than separately (p. 1547).

45. See David J. Teece, "Economies of Scope and the Scope of the Enterprise," Journal of Economic Behavior and Organization 1 (1980): pp. 223-47.

46. This fundamental paradox of information is usually attributed to Kenneth Arrow. This quotation is from Kenneth J. Arrow, "Economic Welfare and the Allocation of Resources for Invention," The Rate and Direction of Inventive Activity: Economic and Social Factors (Princeton: Princeton University Press, 1962), p. 615.

47. See Teece, "Economies of Scope," pp. 230-31 or Oliver E. Williamson, "Transactions-cost Economics: The Governance of Contractual Relations," Journal of Law and Economics 22 (Oct. 1979): 233-61.

48. See also the discussion of the fourth part of section II.

49. Households can also generate externalities, and they can benefit from them or be harmed by them. Because of the object of the present discussion, that is ignored. The usual result is that externalities cause economic resources to be misallocated, in the sense that too few resources are devoted to activities generating external benefits and too many to activities causing external costs. For more on the nature of external economies (benefits) and diseconomies (costs) and their tendency to cause market failure, see any intermediate-level textbook in government finance, such as Richard A. Musgrave and Peggy B. Musgrave, Public Finance in Theory and Practice, 3d ed. (New York: McGraw-Hill, 1980), chaps. 3 and 34. At this point we consider only technological externalities (those that involve costs or benefits to society, as well as to the firm). But for the present purpose, pecuniary externalities (those that cause the expenses of the other firm, but not the costs to society, to be greater or less) are equally relevant.

50. It may, for example, be upstream or upwind. For analytical convenience we concentrate on the case where the potential for damage is asymmetrical (unidirectional), to minimize the likelihood that the firms would simply agree to limit mutual damage to each other.

51. See R. H. Coase, "The Problem of Social Cost," Journal of Law and Economics 3 (Oct. 1960): 1-44 and the voluminous literature it has spawned, including D. M. G. Newberry, "Externalities: the Theory of Environmental Policy," in Public Policy and the Tax System, ed. G. A. Hughes and G. M. Heal, (London: George Allen and Unwin, 1980), pp. 106-149 and works cited there. The market solution stated in the text would occur only if property rights were such that firm A enjoyed the legal privilege of freely disposing of its wastes, unless paid by firm B not to do so. If, by comparison, the law gave firm B the right to clean air and water, firm A might compensate firm B to accept some pollution. In either event, under the Coasian view the level of pollution would probably be similar, but the distribution of income between the firms would be different.

52. If the ProMax board acts in either of these ways, the external costs are "internalized." When this occurs the residual amount of pollution is presumably set at what the ProMax board considers the optimal level from the group's point of view.

53. See also note 75 below.

54. It is interesting to note that on the first day of the conference at which this paper was presented I received a mass mailing from the President of Mobil Oil Credit Corporation, encouraging me to apply for a credit card from Montgomery Ward, one of Mobil's subsidiaries. One must wonder whether, in such a case, separate accounting can accurately isolate the income of the two firms. Many unaffiliated firms have also recently

engaged in joint promotional efforts (for example, Disneyworld and Eastern Airlines). But in such instances commercial arrangements and market transactions determine the division of costs and income between participants. For similar arrangements between affiliated firms, the division of costs may be set by top-level management and separate accounting may not accurately split the resulting profits.

55. See Teece, "Economies of Scope," for a discussion of how proprietary technological information might be transferred within firms (or between affiliates) engaged in the petroleum industry and in geothermal energy, nuclear power, or coal mining.

56. This argument is developed more fully in Charles E. McLure, Jr., "Operational Interdependence Is Not the Appropriate 'Bright Line Test' of a Unitary Business -- At Least Not Now," Tax Notes 18, no. 2 (Jan. 10, 1983): 107-110. Note that there is no presumption that central management determines shares in output only with an eye toward minimizing state taxes.

57. This is, essentially, the view underlying the support for geographic separate accounting for the oil industry in McLure, "Uniformity in Interstate Taxation." For a very brief earlier statement of the argument in the text, which was based on an example suggested by William Dexter, see Charles E. McLure, Jr., "State Corporate Income Taxes," in State and Local Finance in the '80s, ed. George Break (Madison: University of Wisconsin Press, forthcoming).

58. We might anticipate an objection to the entire line of reasoning based on risk and diversification: if individual investors can diversify away risk by holding a portfolio of investments whose risks are uncorrelated, there is no social benefit from diversification within a firm. It seems, however, that this has little to do with the basic question at hand,

whether separate accounting should be used to measure the income of affiliated firms (or divisions) engaged in risky ventures in different states, or they should be treated as unitary businesses for state tax purposes.

59. This line of reasoning seems to have played a part in Superior Oil Co. v. Franchise Tax Board, where the California Supreme Court said: "[E]ach producing well in a particular state is the end product of interstate activities which may involve many other unproductive wells in many other states" (60 Cal., 2d 416 [1963]). It is also part of the argument by W. J. Baumol in his testimony against Alaska's use of geographic separate accounting for the oil industry (Superior Court for the State of Alaska, Third Judicial District, Atlantic Richfield Co. v. State of Alaska, No. 3AN-79-1903 Civil and State of Alaska v. Exxon Corp., No. 3AN-80-1542 Civil.) Of course, it has little force if there is enough exploration in each state to produce adequate diversification. Baumol also emphasizes that economies of scope in activities conducted in the lower 48 states, but benefiting discovery and production in Alaska, including research on technologies for exploration and production, make it impossible to isolate profits from Alaskan operations.

60. See also, James Nunns's discussion of Steven M. Sheffrin and Jack Fulcher, "Alternative Divisions of the Tax Base: How Much Is at Stake?" in this volume. The situation differs, of course, in that under federal law separate accounting is used to split income between Puerto Rico and the rest of the country, whereas in our example formula apportionment would be applied to the respective incomes of firm A and firm B.

61. For a survey of theory and evidence in this field, see Michael C. Jensen, "Capital Markets: Theory and Evidence," Bell Journal of Economics and Management Science 31 (Autumn 1972): 357-398. For a brief summary, see

Scherer, Industrial Market Structure, pp. 104-107.

62. Note that in contrast to the case of shared fixed costs considered earlier, where each firm faces costs that are lower because average costs decline with quantity, in this case costs to each affiliate are lower, but presumably constant or rising with quantity.

63. 17 Cal. 2d 664 (1941); 315 U.S. 501 (1941).

64. Eugene F. Corrigan, "Toward Uniformity in Interstate Taxation," Tax Notes 11, no. 11 (Sept. 15, 1980): 507-14, would make majority ownership prima facie evidence of the existence of a unitary business, and P. Musgrave, "The State Corporate Income Tax," seems to be leaning in that direction. Frank M. Keesling, generally recognized as the father of combined reporting, has retreated from his earlier view that he could recognize a unitary business and has written in "The Combined Report and Uniformity in Allocation Practices," Seventh Annual Report of the Multistate Tax Commission, (Boulder, Colo.: Multistate Tax Commission, June 30, 1974), p. 42, "I am inclined to the view that all income from commonly owned business activities should be combined and apportioned without inquiring as to whether such activities are unitary or separate in nature."

65. Carlson and Galper, "Water's Edge," note that the interpretation of control under section 482 of the Internal Revenue Code can be quite broad. I.R.C. regulation 1.482-1(a)(3) states that the term "includes any kind of control, direct or indirect, whether legally enforceable, and however exercisable or exercised. It is the reality of the control which is decisive, not its form or the mode of its exercise."

66. It is hardly novel to note that ownership and control are not necessarily identical. A variety of institutional arrangements provide control without ownership. For example, under terms of debentures,

creditors may effectively control a corporation, even though they do not own a majority of its stock. (There is little advantage in inquiring in the present context whether under these circumstances debt instruments take on the character of ownership claims.) Moreover, firms sharing majority boards could engage in manipulation, even if not commonly owned. In what follows we ignore these possibilities. An especially important question is how to treat joint ventures where control is vested in a small group of corporate owners, no one of which has majority ownership. In such cases a finding of unity may be well founded, despite lack of majority ownership. A conference celebrating the fiftieth anniversary of Berle and Mean's The Modern Corporation and Private Property, which emphasized the separation of ownership and control, was held at the Hoover Institution a week after the conference at which this paper was presented. The proceedings of that conference are forthcoming in a special issue of the Journal of Law and Economics.

67. See Eugene F. Fama and Michael C. Jensen, "Separation of Ownership and Control," Journal of Law and Economics, forthcoming.

68. The variety of (often unclear) meanings given to terms that are virtually synonymous in common usage confuses discussion in this area. It appears that when the Supreme Court refers to "centralized management," it has in mind centralized control, in the Fama-Jensen sense. The context should indicate the meaning of terms used in this paper.

69. This quotation is from Oliver E. Williamson, "Organizational Form, Residual Claimants, and Corporate Control," Journal of Law and Economics, forthcoming.

70. Ibid.

71. Miller, "Worldwide Unitary Combination," quoting the California

court, notes, "[I]t is the parent's control and supervision over 'major policy matters' that counts."

72. For example, in an Oregon case, Multistate Tax Comm. v. Dow Chemical Co., No. 1835 (Or. T.C. 1982), the MTC has been granted access to minutes of meetings of board committees of Dow Chemical Co.

73. A standard part of most courses in applied microeconomics is a demonstration that under certain conditions households attempting to maximize their welfare and firms attempting to maximize profits will produce outcomes that maximize social welfare. If those conditions are not met, the hedonistic instincts of households and entrepreneurs will generally not gratuitously result in achievement of this outcome. A standard nonmathematical presentation is found in Francis M. Bator, "The Simple Analytics of Welfare Maximization," American Economic Review 47, no. 1 (Mar. 1957): 22-59. Most intermediate-level textbooks on microeconomics also present this argument. An analogous argument can be made about the advantages of decentralized decision making within a firm. See, for example, William J. Baumol and Tibor Fabian, "Decomposition, Pricing for Decentralization and External Economies," Management Science 11, no. 1 (Sept. 1964): 1-32. For an earlier treatment, see Hirshleifer, "Economics of the Divisionalized Firm." In what follows I take as given the parallel objectives of the firm and the division managers to maximize the profits of the firm and of the divisions, respectively. I do not otherwise address the agency problem of how the central management of the firm can induce its divisional managers to share its objectives. On this, see, for example, Stephen A. Ross, "The Economic Theory of Agency: The Principal's Problem," American Economic Review 63, no. 2 (May 1973) or Marvin Berhold, "A Theory of Linear Profit-Sharing Incentives," Quarterly Journal of Economics 85,

no. 3 (Aug. 1971). The remainder of this section is written in terms of a firm and its divisions. Analogous reasoning applies to a group of affiliated firms and the affiliates.

74. In what follows, behaving properly is used as a shorthand way of saying that profit maximization by division managers leads to profit maximization by the firm. It is interesting to note the simplifying assumptions on which Hirshleifer bases his initial analysis of the proper prices to use for transfers within a vertically integrated firm:

Unless stated otherwise, we shall assume that both technological independence and demand independence apply between the operations of the two divisions. Technological independence means that the operating costs of each division are independent of the level of operations being carried on by the other. Demand independence means that an additional external sale by either division does not reduce the external demand for the products of the other. ("Economics of Transfer Pricing," p. 173; emphasis in original)

Thus Hirshleifer initially explicitly assumes away the first three problems listed in the text and then reintroduces them.

75. Hirshleifer notes that "cost interdependence between products is almost a necessary condition of 'divisionalization,' that is, the devolution of decision-making authority among autonomous 'profit centers' . . ." ("Economics of the Divisionalized Firm," p. 96.) Similarly, on interdependence in demand, he writes, "A firm producing both cameras and photographic film should consider, in setting its prices for cameras, . . . the demand for film" (p. 99).

76. In Exxon the Supreme Court speaks of "an umbrella of centralized management and controlled interaction" 100 S. Ct. at 2120 [emphasis added].

77. We have argued above that the existence of minor shared costs, externalities, sharing of risks, and so on, should not lead to a conclusion

of unity. The reasoning of this section would be that if interdependence of this type is felt by central management to be so unimportant that divisions are given substantial autonomy despite its presence, there is a strong case against a finding of unity.

78. Thus Miller, "Worldwide Unitary Combination," quoting the California Board of Equalization, notes, "Implicit in either test, of course, is the requirement of quantitative substantiality."

79. Where this would otherwise occur, perhaps firms should be given the option of simply filing separate returns and taking no deduction for such shared expenses in calculating taxable income they report to states that require unitary combination. Similarly, states requiring unitary combination could allow each firm with taxable nexus the option of setting a value on transactions with affiliates (within a reasonable range) that maximizes its tax base in the state, rather than requiring it to file a combined report. This is not meant to be an exhaustive consideration of the form safe-haven rules such as this might take. It is intended to support the view that minor difficulties with separate accounting should not force unitary combination that might lead to quite artificial results.

80. As has been suggested elsewhere, for example, in Jerome R. Hellerstein, "Allocation and Apportionment of Dividends and the Delineation of the Unitary Business," Tax Notes, 14, no. 4 (Jan. 25, 1982): 160 n. 42, only the proportionate parts of joint ventures might be combined with their corporate owners. But that is really a different matter. For an argument that combination of less than wholly owned subsidiaries, as currently practiced, taxes extraterritorial income, see Norman Laboe's discussion of Benjamin Miller's "Worldwide Unitary Combination" in this volume.

81. Based on arguments presented in this paper, I have suggested in

"Operational Interdependence" that the Supreme Court should not adopt a flow of products as the bright-line test of a unitary business, as requested in the Container Corporation's brief. Yet one can hardly deny the benefits of a conceptually clear test of whether a unitary business exists. I have little sympathy with the view quoted by Carlson and Galper: "[T]he proposal that each state publish the criteria to be applied in determining whether a particular business is unitary, without major clarification, would cripple if not destroy the concept . . . We do not believe that the states should be required to lock into a definition that over a period of time may be unrealistic" ("Water's Edge," n. 135).

82. This difficulty is compounded when we ask how patterns of shared costs, interdependence, and intercorporate transactions would be aggregated in a single quantitative test.

83. Thus Miller, "Worldwide Unitary Combination," writes of California practice in determining whether a unitary business exists, "[I]t involves a subjective examination of a variety of criteria."

84. Among the many places such lists of characteristics commonly attributed to unitary businesses may be found are Miller, "Worldwide Unitary Combination," and the questionnaires in the appendices to Revised Procedures for Determining a Unitary Business: The States' Response to ASARCO and Woolworth (Washington, D.C.: Federation of Tax Administrators, Dec. 1982), Research Memorandum 547, mimeographed.

85. This test is included in the regulations promulgated by the MTC.

86. See, for example, Hellerstein, "Allocation and Apportionment." For earlier statements in the same vein, see Jerome R. Hellerstein, "Recent Developments in State Tax Apportionment and the Circumscription of Unitary Business," National Tax Journal 21, no. 4 (Dec. 1968): 487-503, and "The

Unitary Business Principle and Multicorporate Enterprises: An Examination of the Major Controversies," The Tax Executive (1975): 313-329, and Jerome R. Hellerstein and Walter Hellerstein, State and Local Taxation: Cases and Materials, 4th ed. (St. Paul, Minn.: West Publishing Co., 1978), pp. 512-20.

87. Note, however, that interaffiliate transactions conducted at market prices would not lead to a finding of unity under my criteria, whereas they could under Hellerstein's.

88. Hellerstein, "Allocation and Apportionment," p. 165 (emphasis added).

89. We do, however, use "interdependence" slightly differently. Hellerstein includes intragroup transactions in this term.

90. Hellerstein, "Allocation and Apportionment," pp. 165-66.

91. One must wonder, for example, what would be a fair price to impute to the appearance of the Exxon tiger in advertisements for Exxon office equipment or to Mobil Credit's endorsement of Montgomery Ward mentioned in note 54 above.

92. It is interesting to note that this bright-line test might actually exclude the express companies (and their modern equivalents) to which the unitary concept was first applied! For a critique of the Container position, see my "Operational Interdependence." Jerome Hellerstein has replied in "The Basic Operations Interdependence Requirement of a Unitary Business."

93. I do not comment on Exxon, which involved a vertically integrated firm that posed a far clearer case of unitary business.

94. I should, however, make one general comment. I believe that the finding that a unitary business exists should imply that combination is

required. It is logically inconsistent to argue that dividends flowing within a unitary business should be taxed to the recipient as part of its apportionable income, without combination, as was done in Mobil and attempted by the states in ASARCO and Woolworth. For further elaboration on this view, see McLure, "Uniformity in Interstate Taxation." Thus I believe that the Court's now oft-repeated identification of apportionability with a unitary business, while adequate in the context of a single firm, should ideally have been stated as follows in a multifirm context: "The linchpin of combination, and therefore apportionability . . . is the unitary business concept" (underlined words added).

95. Note, however, the following perceptive comment by Walter Hellerstein, "Dividing the State Corporate Income Tax Base": "While it may be a matter of small moment, except to the parties, whether the majority or the dissent more accurately portrayed the record, the considerable sparring in the opinions over the proper perception of the facts and their constitutional implications enhances the probability that the battle lines of future unitary business controversies will be drawn over such factual issues."

96. 100 S. Ct. at 1232 (citations omitted).

97. The Court seems to have taken special pains to note that "appellant has made no effort to demonstrate that the foreign operations of its subsidiaries and affiliates are distinct . . ." Also: "In the absence of any proof of discrete business enterprise . . ." (100 S. Ct. at 1232, 1233). See also Walter Hellerstein "Dividing the State Corporate Income Tax Base," at n. 64.

98. This is not to say that I think the outcome in Mobil was proper. Based on the reasoning of note 94 above, I have elsewhere characterized the

decision in Mobil as a "travesty." See also McLure, "Uniformity in Interstate Taxation."

99. 100 S. Ct. at 1241, n. 10.

100. 102 S. Ct. at 3135.

101. Ibid., p. 3136.

102. Ibid., p. 3139.

103. Ibid., p. 3140.

104. 102 S. Ct. at 3111-3112. Although ASARCO owned a majority of Southern Peru, it elected only six of thirteen directors. The other owners elected six directors, and the thirteenth was elected by the first twelve. Eight votes were required to pass any resolution. Miller notes in "Worldwide Unitary Combination" that in a California case ASARCO was held not to control Southern Peru. As a result, there was no unitary business and the two firms could not be made to file a combined report.

105. Ibid., p. 3113.

106. Ibid., p. 3114, quoting the state's brief.

107. Ibid.

108. Ibid., pp. 3117-3119.

109. Ibid., pp. 3120-3121.

110. Ibid., p. 3121. O'Connor emphasized the veto power ASARCO held in the case of Southern Peru, the potential to elect a director where it had never done so, and the fact that ASARCO remained the largest shareholder in the Mexican subsidiary.

111. For more on this issue, see Jerome Hellerstein, "State Taxation Under the Commerce Clause," and Walter Hellerstein, "Dividing the State Corporate Income Tax Base." I should note that I do not think that states should tax intercorporate dividends. See also McLure, "Uniformity in

Interstate Taxation."

112. 447 U.S. at 223; 100 S. Ct. at 2120 (quoting Mobil Oil Corp. v. Commissioner of Taxes, 100 S. Ct. at 1232).

113. 102 S. Ct. at 3115 n. 22.

114. Walter Hellerstein, "Dividing the State Corporate Income Tax Base."

115. Ibid.